ACCURIUM

Accurium SMSF Retirement Insights

SMSF Trustees – healthier, wealthier and living longer

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Our research indicates that SMSF trustees are healthier, wealthier and will live longer than the average Australian, but greater life-expectancy comes at a price. A healthy 65-year-old SMSF couple wanting a high probability of not running out of money should use a planning horizon of age 100.

For SMSF practitioner use only

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About Accurium

Established in 1980 and now part of the Challenger Limited group, Accurium provides a range of services to self-managed superannuation funds (SMSFs) in, or transitioning to, retirement with the help of accountants and other SMSF practitioners.

Accurium leads the SMSF market for actuarial certificates, placing it in a unique position to provide analysis on SMSFs in the retirement phase. Accurium supports more than 65,000 SMSFs which are paying pensions and thus require an actuarial certificate, giving Accurium access to an unrivalled amount of information on which to undertake research to assist accountants and SMSF practitioners provide quality service to their clients.

As experts in SMSF retirement, we're committed to passing on the essential tools and information you need for success including our pioneering retirement health**check** service which assists in making sure that your clients are on track to meet their retirement goals.

This SMSF Retirement Insights paper is a thought-provoking study on the life expectancy of SMSF trustees.

Executive summary

'Healthy SMSF couples who want security in retirement should use a planning horizon of age 100'.

Australians have one of the highest life expectancies in the world. The increase in lifespans, highlighted most recently in the Government's Intergenerational Report, is a recurrent focus in the media and a constant muse to practitioners operating in the financial services industry.

This SMSF Retirement Insights paper, 'SMSF Trustees – healthier, wealthier and living longer', presents new research that shows that SMSF trustees may live even longer than the average Australian. We have calculated the average life expectancy of a 65-year-old male SMSF trustee to be 90 and for a female 92, which is about three years longer than the average (3.0 years longer for men, 2.4 years longer for women).

Accurium's analysis of over 65,000 SMSFs considers how health, wealth and lifestyle factors contribute to people having a life expectancy that's higher than the average.

It also demonstrates that some individuals may live well beyond the average. Indeed one in ten male SMSF trustees is expected to live to 98 and one in ten females to age 99. For an SMSF couple planning their retirement from age 65, and wanting to allow for the lifespan of the longest surviving spouse, the figures are even higher.

But while a longer life expectancy is good news, it comes at a price. SMSF trustees need to be wiser about their retirement plans. A healthy 65-year-old SMSF couple wanting a high probability of not running out of money in retirement should plan for their money to last around 35 years, to age 100.

Background

Average life expectancies

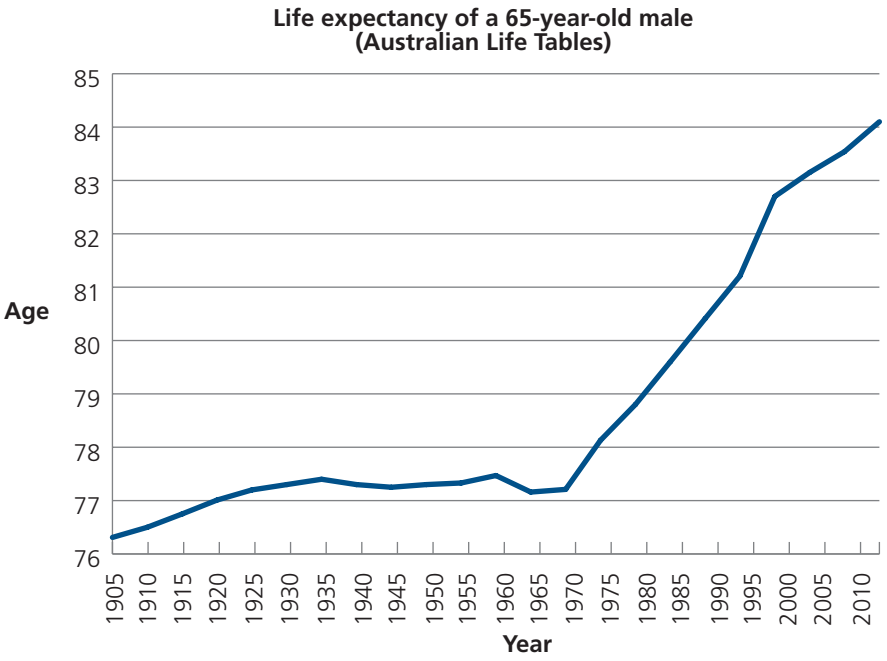
Life expectancy is a statistical indication of how long a person **may** live as opposed to an estimate of how long they **will** live. It is typically based on their year of birth, current age and gender. The most commonly used measure of life expectancy is life expectancy at birth, but it is possible to estimate a person's life expectancy from any age. For example, life expectancy from age 65 is a measure of how long someone who is already age 65 may continue to live.

Australians are fortunate enough to have one of the highest life expectancies in the world. Commonly, life expectancies are quoted from the Australian Life Tables ("ALTs") produced by the Australian Government Actuary. These figures are calculated using data from the National Censuses carried out every five years, representing an average across the whole population. The tables estimate life expectancies using data on actual deaths during a three year period, centred on the Census date and assume these rates of death will continue into the future.

Over time the ALTs have shown a distinct increasing trend in how long Australians are living. Each time there is a National Census we see that the ages at which people die continues to rise dramatically. Trends in increasing lifespan are a well researched phenomenon internationally and are referred to as '**mortality improvements**'.

It is regularly underestimated how long people who are still alive today will live. Chart 1 demonstrates what happens when we base our life expectancy calculations on the mortality rates currently being experienced. The chart shows the estimated life expectancy for Australian males age 65, calculated over the last 100 years based on prevailing mortality rates at the time. It highlights the rapid improvements in life expectancies, particularly since 1970.

Chart 1: Life expectancy of a 65-year-old Australian male in 1905 to 2010[1]



It becomes clear that estimating a person's life expectancy based on past or current data alone is not a sufficient approach. Most actuaries now calculate life expectancies by making an allowance for this trend in mortality improvement continuing over time.

1 Australian Life Tables produced by the Australian Government Actuary.

Life expectancies from the latest 2010-12 ALTs can be calculated to allow for a continuation of the mortality improvements experienced over the last 25 years. This is more likely to reflect what a person alive today will experience. Table 1 identifies the life expectancy of 65-year-olds in 2017.

Table 1: Life expectancy from age 65 allowing for improvements

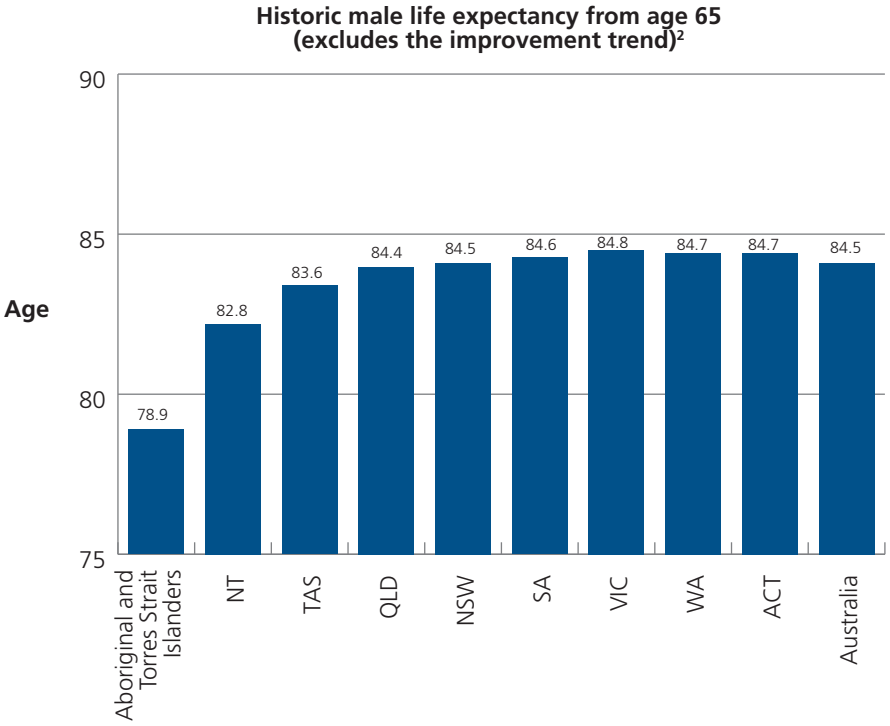
Life expectancy from age 65	Males	Females
65-year-olds in 2017	86.9	89.2

Do some groups live longer?

Obviously, life expectancy is a population statistic and not comparable to any person's actual life expectancy; their idiosyncratic longevity. As a tool to assist with financial planning for an unknown investment horizon, its utility increases if the relevant population can be examined to a measured subset. Given the observed difference in national mortality rates, this is a natural starting point for further analysis.

Australian data is limited in its ability to break down life expectancy data by cohorts to see whether people in certain occupations, income brackets or education levels live longer on average than the general population. However, there is information available on the differing life expectancies for people living in each State, and also for Aboriginal and Torres Strait Islander persons.

Chart 2: Average life expectancies for males from age 65 for each State, calculated without any expectation of mortality improvement



2 Australian Bureau of Statistics, Life Tables, States, Territories and Australia 2013-15 and Australian Bureau of Statistics, Life Tables for Aboriginal and Torres Strait Islander Australians, 2010-2012.

In the United Kingdom, the Office of National Statistics examines life expectancy data by location in greater detail. Data from England and Wales in 2011-13 showed a gap of roughly nine years for men and six years for women between the locality with the highest longevity, and the locality with the lowest.[3] The localities with the highest longevity tend to be in regions where wealth levels are highest (London and the South East of England) and the localities with the lowest longevity tend to be in regions where wealth levels are lowest (North East England, North West England and Wales).

United States data shows that for 25-year-olds, life expectancy is positively associated with education for both males and females.[4] In 2006, the gap in life expectancy between those 25-year-olds who had a bachelor's degree and those who did not finish high school was approximately nine years (males 9.3 years and females 8.6 years).

It is often assumed that SMSF trustees are (on average) wealthier and more educated than the Australian population as a whole. Indeed, ATO statistics[5] show that the average taxable income earned by SMSF trustees is 84% higher than the average income of other superannuation members. Surveys of SMSF trustees suggest that 81% of SMSF trustees hold a tertiary qualification[6] and nearly a quarter hold post graduate qualifications[7]. This SMSF Retirement Insights paper looks at whether these factors do indeed lead to SMSF trustees living longer than average.

Accurium research

Accurium's research is based on an analysis of more than 65,000 SMSFs. The information used was based on a detailed investigation of the mortality rates experienced by SMSF trustees over the three years to June 2014. Information on the ages and deaths of SMSF trustees is de-sensitised and anonymous. These rates were compared to those of the population as a whole. It provides a unique insight into the characteristics of this cohort of superannuation members.

Accurium is the leading actuarial certificate provider to SMSFs in Australia. An actuarial certificate is required when a superannuation fund has unsegregated assets supporting both accumulation and pension accounts in respect of its members. SMSFs in this position are usually in the transition to retirement phase where their members are aged around 55 to 75.

3 UK Office for National Statistics: Life Expectancy at Birth and at age 65 by Local Areas in the United Kingdom, 2011-2013. See also http://www.ft.com/intl/cms/s/0/71482512-c546-11e3-a7d4-00144feabdc0.html?siteedition=intl#axzz34lSrt78h and http://www.ons.gov.uk/ons/rel/was/wealth-in-great-britain-wave-3/2010-2012/report--chapter-2--total-wealth.html#tab-Household-total-wealth-by-key-household-characteristics

4 National Center for Health Statistics. Health, United States, 2011: With Special Feature on Socioeconomic Status and Health. Hyattsville, MD. 2012 http://www.cdc.gov/nchs/hus/contents2011.htm#fig32

5 ATO: Self-managed super funds: A statistical overview 2014–15, https://www.ato.gov.au/Super/Self-managed-super-funds/In-detail/Statistics/Annual-reports/Self-managed-superannuation-funds--A-statistical-overview-2014-2015/?page=6#SMSF_members_by_income.

6 Survey of financial needs and concerns of SMSF members 2012 by Rice Warner for SPAA-Vanguard, https://www.smsfassociation.com/wp-content/uploads/2016/08/121127_spaa-vanguard_research_report.pdf.

7 'Intimate with Self-Manage Superannuation', Research study issued by SPAA and Russell Investments, Feb 2013, https://www.smsfassociation.com/wp-content/uploads/2016/08/spaa_russell_research_2013_-_intimate_with_smsf.pdf.

Table 2: The number of SMSF trustees that passed away during the period studied compared to the number we would have expected based on average Australian mortality rates

Age	SMSF trustee database – years of exposure[8]	Expected deaths (based on ALT rates)	Actual SMSF deaths	Actual as a proportion of expected
55	8,094	27	11	40%
56	10,056	36	8	22%
57	11,797	46	13	28%
58	13,599	58	20	35%
59	16,308	76	28	37%
60	19,207	97	25	26%
61	20,419	113	34	30%
62	20,803	126	39	31%
63	20,989	139	40	29%
64	21,103	153	45	29%
65	19,431	160	49	31%
66	16,389	148	44	30%
67	13,801	137	39	29%
68	11,721	128	35	27%
69	10,115	121	41	34%
70	8,311	110	34	31%
71	6,781	100	40	40%
72	5,552	91	26	28%
73	4,638	85	29	34%
74	3,863	80	30	38%
75	2,774	64	32	50%
Total	**265,750**	**2,095**	**662**	**32%**

The table indicates that the difference between the mortality experienced by SMSF trustees and by the overall Australian population is significant between ages 55 and 75. We have limited our analysis to these ages where we have reasonable coverage from the certificate database. The number of trustees that passed away during the period was less than a third of the number expected using ALTs.

Whilst this information is useful, it doesn't tell us the full story about SMSF mortality. To estimate a person's life expectancy requires having the full set of mortality rates, including beyond age 75.

To address this we have utilised detailed research from the UK[9] containing mortality rates by age for people who are from different income bands in retirement. Again this data shows a strong trend between the mortality rates experienced by wealthier retirees and the average population. The detailed data indicates a clear correlation between higher levels of income and lower mortality rates, particularly in the earlier years of retirement. However, the mortality rates of the wealthy start to revert back towards average mortality rates at older ages. In essence, their wealth provides access to better care and health, but the wealthy are not able to cheat death indefinitely.

Assuming the same pattern applies to our SMSF population as the UK wealthy mortality rates, we can develop mortality rates for SMSF trustees across the older ages. The Appendix provides details on the methodology used to estimate mortality rates for SMSF trustees.

8 By 'exposure' we mean the amount of time, in years, that trustees were included in the dataset. As we are looking at a three year timeframe, an individual trustee could be exposed for more than one year. This would mean they are included in more than one row in the above table as they get older.

9 See Appendix for further detail on the UK research used in developing SMSF mortality rates.

SMSF life expectancy

How much longer will SMSF trustees live?

Based on this research we have calculated the average life expectancies of SMSF trustees in retirement[10]. This shows that on average we expect a 65-year-old trustee to live about three years longer than the average Australian (3.0 years for men, 2.4 years for women).

Table 3: The life expectancies for SMSF trustees at various ages

Age	Average Australian life expectancy	SMSF trustee life expectancy	Difference
Males			
56	87.0	90.3	3.3
60	86.9	90.1	3.2
65	86.9	89.9	3.0
70	87.3	89.8	2.5
Females			
56	89.3	91.9	2.6
60	89.2	91.8	2.6
65	89.2	91.6	2.4
70	89.4	91.5	2.1

Life expectancy for couples

Many SMSF trustees planning their retirement will be doing so as a couple. When choosing a suitable planning horizon it is important to consider life expectancy for both members of the couple. Retirees typically want to have enough assets to ensure a surviving spouse has sufficient funds to support them in their remaining years.

A couple's life expectancy isn't as simple as looking at the partner who is expected to live the longest. It's actually longer than that. This is down to the mathematics. There is a higher chance that one person in a couple survives to a high age, than there is of a single person surviving to that age.

In fact, the age at which the last survivor in a couple is expected to live is considerably longer than the average life expectancies for the individuals on their own. A 65-year-old SMSF couple should plan for their savings to last three to four years longer than their longest life expectancy. This will be a planning horizon of almost 30 years (on average) and longer for some.

Table 4: The average life expectancies for the last survivor in a couple are shown for both SMSF trustees and the population as a whole

Couple age	Average Australian life expectancy – last survivor of a couple	SMSF trustee life expectancy – last survivor of a couple	Difference
56	93.4	95.1	1.7
60	93.1	94.9	1.8
65	92.9	94.7	1.8
70	92.8	94.4	1.6

A useful rule of thumb

The life expectancy figures in Table 4 are all based on averages. However there is a wide distribution of how long all the individuals within each group will live. In fact, fewer than one in six people will die within one year of their life expectancy. Most people will have a very different length of retirement.

10 Life expectancies calculated in the tables and charts below are based on ALT 2010-12 and Accurium's SMSF trustee mortality rates, and with 25 year improvement factors from ALT 2010-12.

Given that many retirees want better than a fifty-fifty chance of achieving their retirement plans, we have considered the timeframe that SMSF trustees should consider, to ensure higher levels of certainty. For example, a 65-year-old SMSF couple wanting 80% certainty that their savings can last the distance could only do so if their retirement plan can sustain them to age 98. A 90% confidence level requires that their retirement plan can be sustainable to age 100.

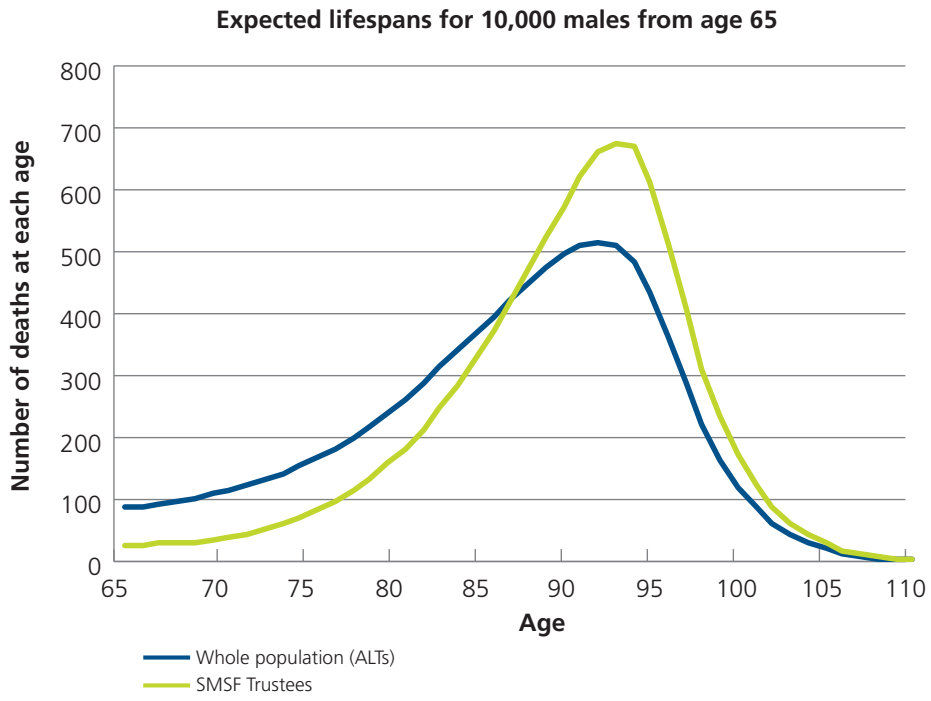
Table 5: The probabilities of 65-year-old SMSF trustees living to different ages

	Planning horizon from age 65 in order for SMSFs to have:		
	50% certainty	80% certainty	90% certainty
Males	91	96	98
Females	93	97	99
Couples	95	98	100

Table 5 shows that a 65-year-old SMSF couple should set a planning horizon to age 100 in order to be 90% confident that they won't outlive their plan.

An interesting outcome from our SMSF mortality research is that, because SMSF trustees experience lower mortality in the early years of retirement, a greater proportion are then expected to pass away in their nineties.

Chart 3: This chart shows the number of people expected to live to each age from a pool of 10,000 SMSF male trustees currently age 65 compared to the broader population



The narrower distribution hump presented in Chart 3 indicates reduced variation in expected lifespans for SMSF trustees, compared to the average population. SMSF trustees are expected to live longer, but they have lower uncertainty over the length of their retirement, compared to the broader population.

The price of long lifespans is a high cost of retirement and requires trade-offs between how much an SMSF couple spend each year in retirement and how much risk they are willing to accept around outliving their capital. Based on research published in Accurium's earlier Retirement Adequacy paper[11], a 65 year SMSF old couple wanting a lifestyle of $70,000 each year and willing to accept an 80% probability of a successful outcome would need $1.1 million as an SMSF starting balance; those wanting a lifestyle of $100,000 a year would need a starting balance at 65 of $1.9 million. This assumes all capital is available to be consumed and that there is no required bequest to family, friends or charities. To achieve 95% certainty that they won't outlive their capital, that same couple would need $2.4 million if they if they wanted a lifestyle of $100,000 per year. SMSFs trustees whose advisers have access to good probabilistic models, such as Accurium's retirement health**check**, are best placed to assist SMSFs in making informed decisions.

What affects individual life expectancy?

Experience indicates that as a group, SMSF trustees live longer than average. This is consistent with their higher levels of wealth and education which are known factors in predicting longevity.

We have also established that the actual lifespan of an individual is likely to be quite different to the average life expectancy. Each individual is different. Yet there are a number of factors that can influence someone's **personal** longevity. A considerable amount of research has been done by insurance companies (particularly in the UK) to identify which factors are most relevant for predicting personal longevity, particularly for the purposes of setting life insurance premiums.

A simple example of these life expectancy indicators is smoker status. A non-smoker can be expected to live longer than a smoker. But what other factors might be worth taking into account for individual SMSF retirees when making timescale decisions?

Besides age, gender and smoker status, mortality rates have been observed to vary based on:

- current health status
- nutrition and lifestyle
- genetics (e.g. family history of certain medical conditions)
- quality of housing and geographical location
- education levels
- occupation

There is some overlap between these factors. For example, people in well paid occupations tend to have better standards of living and well educated people might be expected to have wealthier occupations and lifestyles.

Some of the factors are not always easy to measure. As such, proxies are used for the purposes of making financial decisions. In the UK, post codes are often used by life insurers as a proxy that combines many of the above factors into one.

As people get older and enter retirement, there are certain medical conditions that can arise and have a strong link to their personal longevity. Examples of this are people who have diabetes, high blood pressure or heart disease. The occurrence of one or more of these conditions can be a strong indicator about a person's future longevity.

Quantifying the impact that each factor has on the life expectancy for a particular SMSF trustee is beyond the scope of this paper. But what SMSF practitioners can take from this research is where an SMSF trustee is of good health and has a healthy lifestyle then we ought to assume they will fall within the higher percentiles of life expectancy.

For a healthy 65-year-old couple like this who want high levels of confidence that their retirement plan will last for life, it would be wise to use a planning horizon to age 100.

11 Accurium SMSF Retirement Insights – Are trustees prepared for retirement? Volume 5 July 2016. The calculations assume that the couple owns their own home and their SMSF is invested in the average SMSF asset mix (as published by the ATO). It assumes their spending increases each year in line with inflation and the figures allows for an Age Pension to meet some of their spending needs when their wealth levels fall within the Centrelink means testing bands. The calculations are stochastic meaning that a full range of investment, inflation and longevity scenarios are taken into account. For full details of the assumptions and modelling please refer to the paper.

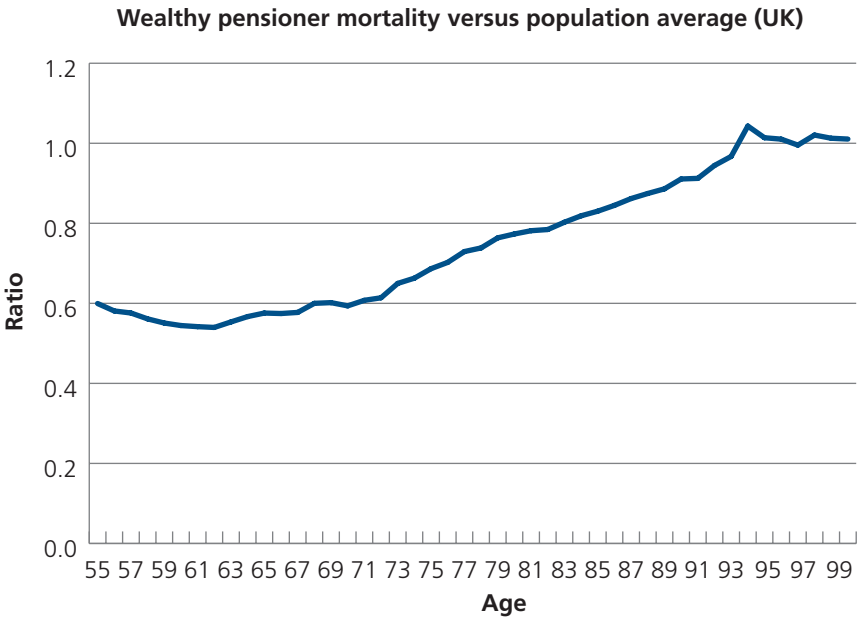
Appendix

Methodology

The key steps and assumptions used in producing mortality rates appropriate to the SMSF trustees in the Accurium database are set out below:

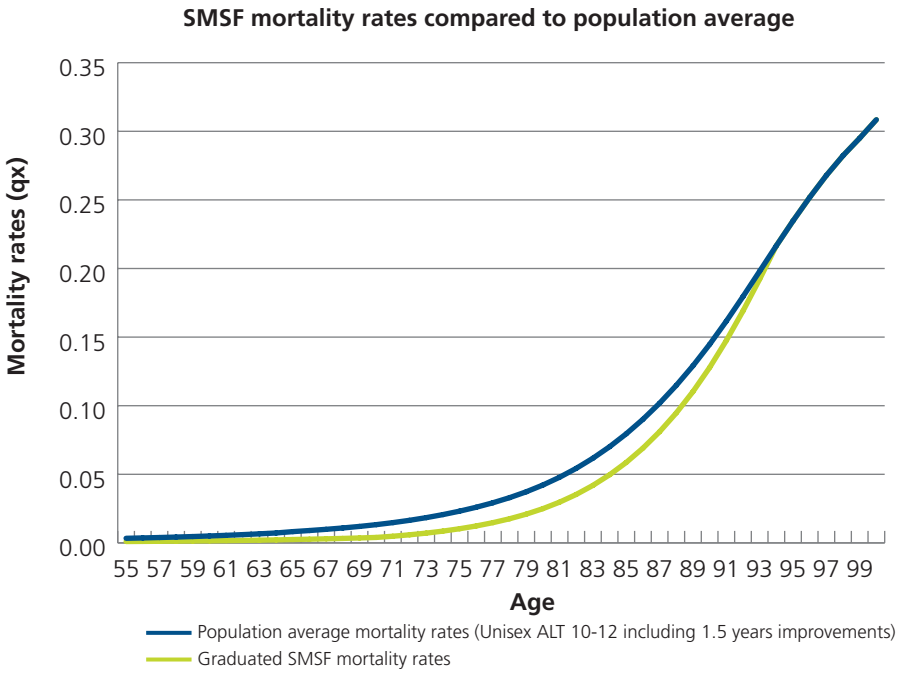
- Crude mortality rates were compiled based on the experience for the SMSF trustees in the Accurium database over the period 1 July 2011 to 30 June 2014.
- These rates were compared to the mortality rates in the Australian Life Tables 2010-12, adjusted by 1.5 years of improvements in line with the 25 year improvement trend.
- As the Accurium database does not hold information on trustees' gender, the gender balance was assumed to be in line with the average SMSF gender balance for the appropriate ages as provided by the ATO.
- For mortality rates at ages 55-75, the crude mortality rates were then graduated with reference to unisex ALT rates, based on this SMSF gender balance.
- Research by the Continuous Mortality Investigation in the UK provides life tables for wealthier retirees of self-administered pension schemes (S2_Light tables). The mortality rates in these tables were compared to the UK population average (National Life Tables) to identify the trend between mortality experienced by wealthy retirees compared to the average. This data was deemed relevant to SMSFs given their high balances compared to the average Australian retiree. The UK trend is shown in Chart 4.

Chart 4: The ratio of UK mortality rates for wealthier retires compared to the UK population average



- To estimate mortality rates for SMSF trustees beyond age 75, we assumed that a similar shape trend to that above is also evident in Australia. In particular, after age 75, we assumed that mortality rates for wealthier retirees start to revert back to the national average and by age 94, wealth is no longer a driver in determining mortality (and hence ALT mortality rates therefore apply).
- The graduated mortality rates that we have calculated for SMSF trustees is shown in Chart 5 compared to the ALTs:

Chart 5: Graduated mortality rates for SMSF trustees compared to the Australian Life Tables



Data limitations

The research detailed in this paper is subject to the following potential data limitations:

- Accurium's database is reliant on the information provided by accountants and SMSF administrators ordering actuarial certificates. This includes notification of when a trustee dies. To the extent that the data provided to Accurium is incomplete or incorrect, this could impact the results.
- The Accurium database represents a subset of the SMSF trustee population and may differ to the SMSF trustee population as a whole.
- Whilst our research covered a three year period, the numbers of deaths observed remained relatively small compared to a whole population study and hence the results are subject to statistical variation.
- The life expectancies quoted for SMSF trustees in this paper assume trustees experience the same mortality improvements as the population as a whole. Should SMSF trustees experience different rates of mortality improvement to the population as a whole then this would impact the results.

Notes

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