All Actuaries Summit
New age, new actuary

11-13 June 2025, Sydney

Retirement Incomes: Approaches to Member Cohorting and Outcomes Analysis

Prepared by Michael Dermody, Lisa Butler Beatty,
Svenja Poriazis, Charles Hu, Lewis Bourke, Alex Samios

Presented to the Actuaries Institute

2025 All-Actuaries Summit

11 - 13 June 2025

Actuaries Institute
ABN 69 000 423 656
Level 2, 50 Carrington Street, Sydney NSW 2000
P +61 (0) 2 9239 6100 | actuaries.asn.au

Synopsis

A key challenge for funds to assist members identify the most suitable strategy for them in retirement is accessing and appropriately analysing data on their circumstances and understanding their preferences.

This presentation considers current and emerging approaches to obtaining information on members for cohorting and member segmentation – particularly for those who do not access face-to-face personal advice e.g. self-directed members that don't engage with an advisor, but they may, or may not, access digital tools and/or other assistance from the fund.

It also considers the actuarial analysis funds are doing on strategy/product outcomes to demonstrate which strategies/products best match particular members. This analysis includes considering member outcomes based on the Retirement Income Covenant for:

- Maximising expected retirement income;
- Managing expected risks to the sustainability and stability of retirement income; and
- Having flexible access to expected funds during retirement

While considering approaches already adopted, this is a fast developing area with funds responding to the Australian Regulation Prudential Authority (APRA) and member demand for improvement.

Therefore, emerging approaches and what a future target state should be are also addressed.

Michael Dermody, Lisa Butler Beatty, Svenja Poriazis, Charles Hu, Lewis Bourke, Alex Samios

Contents

Appendices

1. Introduction

Superannuation funds have an overarching role to improve outcomes for members in retirement. The core services and offerings of superannuation funds include strategies and investing member funds during periods of accumulation and then in retirement.

Understanding the circumstances and preferences of individual members is essential information to evaluate the suitability of alternative strategies that deliver different potential ranges of outcomes.

Superannuation funds have well progressed their understanding of members required to assist them with a strategy in the investment (accumulation) phase. Examples include member cohort studies done to understand likely member projected balances at retirement, erosion of benefits due to fees and lifetime member value/contribution to the fund.

However, fulfilling obligations under the Retirement Income Covenant (RIC) requires a deeper understanding of a broader range of attributes, including financial and other circumstances, and preferences.

Funds are developing their approach to this analysis, they are also developing their approach to understanding retirement strategies and how they deliver for members with different attributes.

In this context, we note the implications for superannuation funds from the analysis in this paper derive from two key facts:

1. **Members are diverse** – a key observation of this paper is that every fund has members with a wide variety of circumstances and preferences. Key to making sense of this is a framework for analysing the overall total membership into manageable groupings that share similar attributes.

   This is true notwithstanding that different members have different preferences to engage with a fund and the assistance offered. They also have different abilities to interpret information provided. i.e. understanding the membership and the diversity of preferences and circumstances is essential preparation for assisting individual members – regardless of how they will engage with the fund.

2. **Understand members, understand strategies** – logically, meeting the RIC objective and identifying the retirement strategy that delivers the best outcomes for members must be based on:

   a. the best possible understanding of member attributes; and

   b. a deep knowledge of the universe of strategies and the outcomes that they deliver

   That is, only when a fund well understands the attributes of its members, their circumstances and preferences, can they best assist them with a retirement strategy that delivers into these and best suits them. This is summarised in the following formula:

The breadth of the role of superannuation funds in assisting members has been the subject of significant debate. For example, in relation to assisting members apply for the age pension and/or other governmental assistance/concessions or wider aspects such as health and aged care.

The purpose of this paper is not to review the broader roles where the appropriate level of superannuation fund involvement is somewhat unclear. Rather we focus on the core role to provide retirement strategies, and information, to assist members to get the best retirement outcome based on how they apply their superannuation fund account(s).

This is done against the objectives in the RIC including:

- Maximising expected retirement income;
- Managing expected risks to the sustainability and stability of retirement income; and
- Having flexible access to expected funds during retirement

2. Relevant Member Attributes

2.1 Introduction and Regulatory Context

There has been significant debate within industry about what needs to be known about members (i.e. which attributes need to be understood) to meet the RIC objectives and assist a member into the most suitable retirement strategy.

In this chapter we set out a range of factors at a high-level and acknowledge that many funds and advisors may consider this high-level and requiring significant further detail.

We also note that there are differences between a fund's practical and legal ability to obtain information and satisfy its obligations under the RIC versus what an advisor providing personal advice may require.

The implementation of the RIC requires superannuation trustees' due consideration of each covenant objective and the trade-offs between the objectives.

There are also requirements under the new SPS 515 Strategic Planning and Member Outcomes (effective 1 July 2025) for superannuation funds to include retirement income strategies (RIS) as part of their business planning process. This would include incorporating the key initiatives identified in the RIS into business planning and developing retirement focused metrics/measures to assess outcomes to members approaching or in retirement in the annual outcomes assessment and business performance review processes. We have observed that funds are going through various stages of their journey to integrate the RIS into overall fund strategy and business planning.

At a fundamental level, as well as meeting the RIC requirements, trustees must determine (and regularly review) whether or not their RIS is in the best financial interests of its members.

One of the key challenges is defining appropriate member cohorts (including retirement cohorts) based on a trustee's understanding of member demographics, and the cohorts or classes of members used to test the trustee's decision-making.

Cohorts are defined by attributes that define a particular/meaningful group of members and should also be measurable and based on accessible data.

Importantly, trustees are testing their RIS at the collective member level. The purpose of cohorting is to test the impacts of the strategy (and the different layers of the strategy) against differing classes of members to ensure there is an understanding of any varying impacts.

The trustee must then consider those impacts (both positive and negative) and determine if the strategy is overall in the best financial interests of members.

The impacts of cohorting should identify outliers, which allows a consideration of whether the strategy should be adapted or alternatively, if best financial interests considerations lead to the conclusion that the spend to accommodate outliers is not within best financial interest parameters, that perhaps those members are better served in a different fund. Importantly, member data and insights are obviously valuable in determining and reviewing a RIS.

Detailed information about member needs provides valuable insights for a trustee in developing the differing layers of its strategy for each cohort (the sub-cohort attributes).

It can also be important to distinguish between cohorting (for trustee decision-making) and customer segmentation. Segmentation strategies can be better thought about as part of the strategy within a cohort (i.e. the marketing strategy adopted to engage, educate and appropriately nudge members) rather than being the basis upon which a trustee assesses its strategy.

Appropriateness of data usage and application is critical in considering the underlying data strategy (e.g. data governance, privacy, consent, collection, storage and use, reliability, accuracy and integrity).

Added to this, understanding the purpose for the collection of data (and treating that data appropriately), particularly where that involves the giving of advice, is crucial, so as to not unintentionally sway into the giving of personal advice.

Largely, trustees have been reliant on limited data sources to inform the development and alignment of their cohorts and segments, including:

- Standard member account data;
- Surveys issued to samples of their membership;
- Collection of data from calculators; and
- Digital advice instances.

Understanding this, trustees are turning their attention to the usage of enhanced data and analytics sources to better inform their cohorting and segmentation efforts. Trustees are undergoing work to identify and map the required data to enact their various retirement initiatives, and identify sources to enable uplift, while remaining cognisant of appropriateness considerations and inherent risk; such as privacy, consent, data governance and reliability of data.

Over time, deeper insights from expanding data sources could help funds better understand member attributes which is critical for further defining member cohorts (e.g. sub classes within an age-based retirement cohort).

At the same time, funds have been careful in developing their cohorting approach, focusing primarily on developing member cohorts that:

- are actionable informed by available data (internal and external) so that members can be accurately grouped into meaningful cohorts (also taking into account sufficient size of each cohort);
- are measurable so that meaningful metrics can be developed to support monitoring and assessment of outcomes for each cohort; and
- can be consistently incorporated into the business plan, member outcomes assessment and business performance review processes as required under SPS 515.

Finally, the development and approval of the RIS is not where the analysis ends. The application of outcome modelling and monitoring against the defined cohorts will assist with continuous improvement and understanding of the success of the strategy against the desired member outcomes.

The following chapters provide certain high-level analysis of sub-cohort attributes for the purpose of informing suitable strategies to deliver retirement outcomes.

We categorise member attributes into the following sub-categories:

- Demographic and household – member's age, gender and that of any spouse;
- Financial circumstances – super/non-super, debts & obligations and homeownership;
- Health status – member's health and that of their spouse; and
- Preferences – member's and that of their spouse.

This chapter discusses the first two of these. Health is discussed at Chapter 3 and preferences at Chapter 4.

The following is explored in relation to these attributes:

- High-level comments on the relevance to identifying an optimal retirement strategy; and
- Extent to which superannuation funds have/do not have the information and what might be done about it.

Taking into account the above, we present in Chapter 5 a simplified analysis designed to illustrate the diversity of members that any large public offer fund is likely to face.

The broad approach was to consider publicly available analysis of superannuation fund members and the Australian population.

To be most relevant to superannuation funds addressing the wave of retirees over the short to medium term – say the next 10 years, we focussed on available analysis on those approaching or recently retired.

The analysis is highly simplified and only considers a limited range of attributes – including attributes relevant to age pension entitlement. As it is based on high-level public data rather than that of an individual superannuation fund it should not be considered representative of the overall superannuation membership in Australia or of any superannuation fund in particular – it has been adopted for illustrative purposes only.

Indeed, the challenges in performing this analysis and the other work that we have performed with superannuation funds, assists in putting a spotlight on the membership attributes where information is most limited. Examples include:

- In practice there is likely to be a significant level of correlation between certain characteristics such as correlations/interaction between large super balance and large assets outside of super – health and super balance, super balance and homeownership etc). There was limited data readily available to do this – this is a significant limitation of the analysis.

- We identified certain published information/analysis on the characteristics of all Australian superannuation fund members (or total Australian population). However, this is a useful starting point only as any particular superannuation fund's membership will have differences compared with analysis based on the overall total Australian superannuation fund membership (and Australian population where population data has been adopted).

  Therefore, funds need to do their own analysis for their fund membership which, in any case, need to be analysed and taken into account.

  As noted above, how a fund approaches gathering, storing and analysing information about/from its members, and, where helpful, combines it with other sources is a key ongoing challenge – which is also complicated by privacy and advice regulations which are essential. These are considerable subjects in their own right and are not discussed further in this paper.

2.2 Demographic Information

Superannuation funds have basic information about a member including their age and gender.

Superannuation funds generally do not always have information about whether a member has a spouse, and if so, their demographic, financial and preference characteristics.

Analysis by the Australian Bureau of Statistics ("ABS") in 2021 shows that 60% of persons within pre-retirement age cohort (55 - 64) were in an official marriage or de facto relationship[1].

For the purposes of the illustrative analysis we have focussed on one age/gender cohort being a 67 year-old female – either single or with spouse – and analysed the diversity of circumstance and preferences of females that retire at age 67 (we understand that funds will need to perform analysis for those retiring at a different age as well as males).

In particular we have adopted the above for the illustrative analysis (i.e. 40% of women single, 60% with spouse).

For the couple we have assumed the spouse is a male of the same age, although it was noted in the ABS 2016 study quoted below, that women tended to retire one to three years earlier than men largely due to coupled women retiring with their older partner.

OBSERVATION:
"age at retirement" attribute and differences across superannuation funds

We are aware that the average age at retirement can vary significantly by individual superannuation fund. In particular, the retirement age for some funds with members weighted to particular industries/occupations can be around age 60 – much lower than the 67 we have adopted.

[1] Australian Bureau of Statistics. "Household and families: Census." ABS, 2021, https://www.abs.gov.au/statistics/people/people-and-communities/household-and-families-census/latest-release#cite-window1 (accessed 3rd June 2025)

In addition, each fund will have members retiring at very different ages compared with their average. This needs to be considered and we note that our analysis has not taken this into account as we have only performed modelling and analysis for those aged 67.

Some members may continue working in some capacity after they stop working full-time[2].

Our analysis does not consider these complexities, which funds should be aware of.

2.3 Financial Circumstances

2.3.1 Introduction

Information relating to financial circumstance is important because it impacts:

- Available assets to fund retirement strategy
- Age pension eligibility

The following is considered further below:

- Assets in superannuation fund / another superannuation fund
- Assets and debts/obligations outside of superannuation
- Homeownership

2.3.2 Assets in Superannuation Fund / Another Superannuation Fund

Funds have information on their member's superannuation fund account. Unless they request it or perform further analysis, superannuation funds generally do not have:

- Information on assets in another superannuation fund;
- Spouse superannuation balance; and
- The Association of Superannuation Funds of Australia ("ASFA") published information based on data from the Australian Tax Office on the dispersion in superannuation account balances amongst those aged 60 to 64 and for those aged 70 plus[3]. This data is somewhat aged being effective 30 June 2021. Nonetheless, based on this data a very broad analysis of balances for 67 year-olds is as follows:

[2] Australian Bureau of Statistics. "Retirement and Retirement Intentions, Australia." ABS, 2016, https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/6238.0Main+Features1July%202016%20to%20June%202017 (accessed 2nd June 2025)

[3] Association of Superannuation Funds of Australia, "An update on superannuation account balances", ASFA, 2023, https://www.superannuation.asn.au/wp-content/uploads/2024/01/2311_An_update_on_superannuation_account_balances_Paper_V2.pdf (accessed 3rd June 2025)

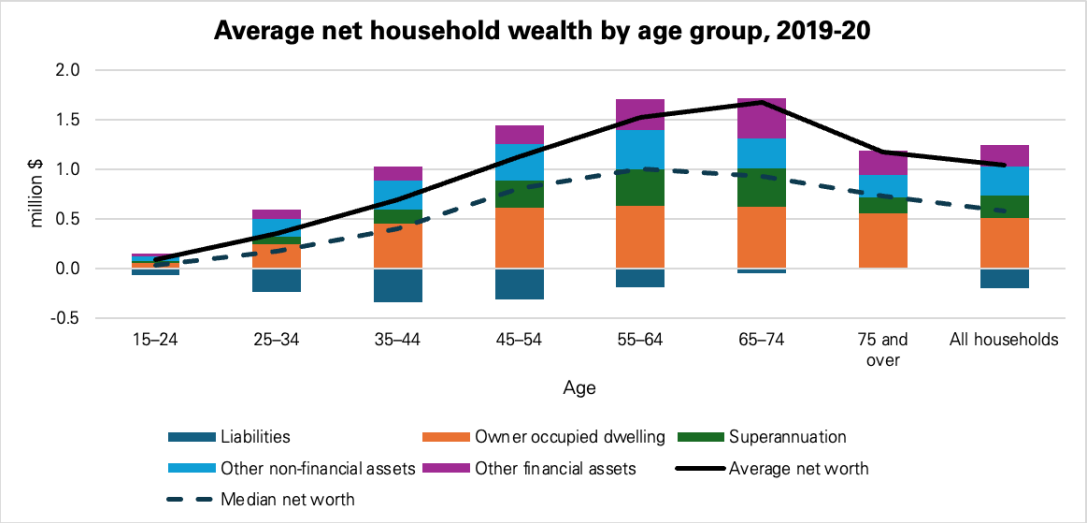
Indicative Analysis of Superannuation Balances for 67 Year-Old

Account Balance	Proportion	Comment on Super Balance Relative to Single Home-Owner Asset Test Threshold
<$100,000	30%	Lower than Full Age Pension Threshold
$100,000 to $300,000	30%	
$300,000 to $600,000	20%	Between Threshold
>$600,000	20%	More than Part Pension Threshold

Below are set out high-level comments based on this data and assuming a single status. However, they should be considered with caution. An understanding of the dispersion of individual member's account balances needs to be combined with an understanding of other aspects. In particular, many members will have a spouse with their own superannuation and other assets – and/or who may be working. Many members will have assets outside of super (or in other superannuation funds although this is becoming less common over time).

- <$100,000 (indicative circa 30% of members) – this might be considered a not highly useable amount for generating a retirement income (although this is not automatically the case).
- $100,000 to $300,000 (indicative circa 30% of members) – depending on other assets and spouse status will always be entitled to full age pension.
- $300,000 to $600,000 (indicative circa 20% of members) – will not be entitled to a full age pension during the whole of their retirement (although this may depend upon investment in a product that satisfies the Capital Access Schedule ("CAS") requirements).
- >$600,000 (indicative circa 20% of members) – may not be entitled to any age pension initially during retirement (although this may depend upon spouse status and investment in CAS compliant retirement product). For some in this group, depending on assets and income over retirement, some may never be eligible for any age pension.

2.3.3 Financial Assets and Debts/Obligations Outside of Superannuation



The biggest asset by proportion and amount for a single or a couple remains their owner occupied dwelling[4].

The graph above is summarised below.

	15–24	25–34	35–44	45–54	55–64	65–74	75 and over	All households
Liabilities	-0.1	-0.2	-0.3	-0.3	-0.2	0.0	0.0	-0.2
Owner occupied dwelling	0.1	0.2	0.4	0.6	0.6	0.6	0.6	0.5
Superannuation	0.0	0.1	0.1	0.3	0.4	0.4	0.2	0.2
Other non-financial assets	0.1	0.2	0.3	0.4	0.4	0.3	0.2	0.3
Other financial assets	0.0	0.1	0.1	0.2	0.3	0.4	0.2	0.2
Average net worth	0.1	0.4	0.7	1.1	1.5	1.7	1.2	1.0
Median net worth	0.0	0.2	0.4	0.8	1.0	0.9	0.7	0.6

Observations on the wealth of the pre-retiree cohort include:

- Based on a median house price in Australia of $800k, this would imply a median individual would have $200k of debt together with the net equity value of owner-occupied property above of $600k). The median household would also have approximately $200k of other financial assets.
- There is skewness within incomes, with the net worth of higher quantiles dragging up the average. At the higher quantiles, there is a wider distribution of the amounts and the proportion in other financial assets and non-financial assets.

[4] Australian Bureau of Statistics. "Household Income and Wealth, Australia: Summary of Results", ABS, 2019–20, https://www.abs.gov.au/statistics/economy/finance/household-income-and-wealth-australia/latest-release#:~:text=Average%20equivalised%20disposable%20household%20income,to%20%24203%2C800%20in%202019–20 (accessed 3rd June 2025)

Based on this analysis and supplementary data points from Grattan Institute[5], we adopted the following for our illustrative analysis in Chapter 6. Cohorts of low, medium and high level of assets outside of their primary home and superannuation for a single female aged 67:

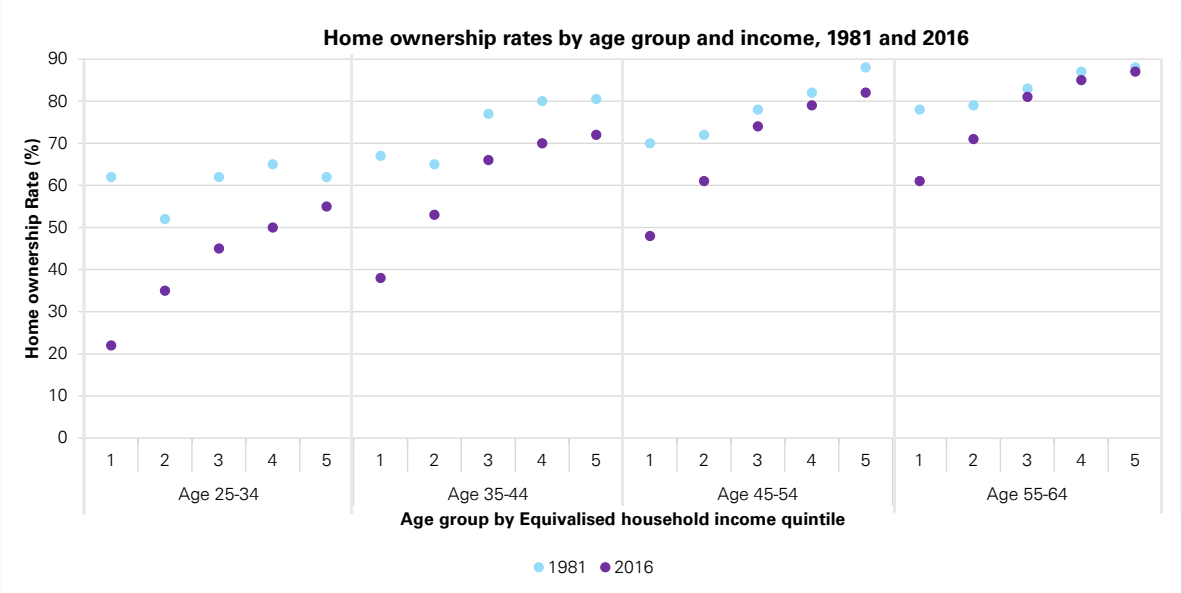
- Low asset individual having less than $50k of non-financial assets;
- Medium asset individual having between $50k (non-financial) and $150k (financial); and,
- High asset individual having more than $500k.

2.3.4 Homeownership

Superannuation funds generally do not always have information about homeownership.

Analysis by the Grattan Institute indicated that many older Australians are homeowners[6]. For example, the following is noted:

- About 76% of people aged 65 and over are homeowners
- The level of homeownership appears to be falling somewhat, nonetheless, the proportion of those retiring over the next 10 years is likely to remain high.



[5] Grattan Institute, "Budget Cheat Sheet: How much do Australians own?", 2023, https://grattan.edu.au/wp-content/uploads/2023/04/Grattans-2023-Budget-cheat-sheet-How-much-do-Australians-own.pdf (accessed 3 June 2025)

[6] Grattan Institute, "Housing Affordability Re-imagining the Australian Dream", 2018, https://grattan.edu.au/wp-content/uploads/2018/03/901-Housing-affordability.pdf (accessed 3rd June 2025)

During the Parliamentary Senate Standing Committee on Economics Report into Improving Consumer Experiences, Choice, and Outcomes in Australian Retirement System[7], it was noted that:

- Homeownership was a significant factor in determining the financial stress levels of a retiree; with those without a primary home suffering from significantly more stress due to the volatility and level of rent in the current market to maintain shelter.
- Approximately 50% of pre-retirees with homes have on average a mortgage of approximately $200k. This balance is usually fully discharged or partially paid for by lump sum payments from superannuation post-retirement.
- Some retirees ~15% still maintain an approximate mortgage balance of $100k. There are two lines of explanation/hypotheses that warrant further investigation:
  - One, mortgages have increased to a level such that individuals are taking on debt obligations that well extend into retirement.
  - Two, individuals are using these primary mortgage products as a quick and easier way to access a line of credit that is better than reverse mortgages (e.g. effectively a "self-manufactured" reverse mortgage).

For the purposes of the cohort analysis in Chapter 5, we have broadly allocated homeownership in accordance with ABS 2016b[6] statistics, allowing for a significant drop-in ownership rate for the lowest quintile in income and a higher rate of ownership for those in the higher income quintiles.

[7] The Senate, Economics Reference Committee, "*Improving consumer experiences, choice, and outcomes in Australia's retirement system*" , 2025, https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/RetirementSystem2024/Third_Interim_Report (accessed 3rd June 2025)

3. Member Health

3.1 Introduction

In making the comments in this chapter we note that health information is an example of certain data that is sensitive and private and that the trustee will not have in relation to individual members. Funds will also not readily have, for all members individually, all of the attributes noted in Chapter 2 and preference attributes noted in Chapter 4. It is beyond the scope of this paper to consider whether or how a fund should address aspects such as member engagement and seeking information on individual members which it does not have. Additionally, from a RIS perspective, trustees make decisions at a collective level, based on the differing attributes of the cohorts. Private and sensitive information attributable to a member is more likely to be dealt with by the member, or through advice. These are important and complex questions and may involve broader elements for the trustee as it considers its approach and involvement in providing information, tools and advice. Rather in this paper we have sought to raise awareness that health generally is an attribute for trustees to be aware of when meeting its collective member obligations and in meeting the RIC.

Understanding the health attributes of the member, and their spouse if they have one, can be relevant for the following reasons:

- Health impacts the expected time in retirement;
- Strategies/products which with a level of longevity protection provide a higher return for those who are in good health and lower returns for those in poor health; and
- Health can impact the level and timing of spending requirements.

It is noted that the published life expectancies and mortality rates in the Australian Life Tables are based on people in good health and those in poor health.

For example, for persons aged 67, the most recent Australian Life Tables (ALT 2020 - 2022) estimate a life expectancy of around 86 for males and 88 for females. This life expectancy is based on a mix of people who are unhealthy at age 67 and those who are healthy.

A simple approach of two categories of health – healthy and unhealthy (at the time of implementing a retirement income strategy/providing information to assist with retirement income strategy) – may be adequate in many cases (rather than having three or more categories of health).

For example, in the chapters below, we set out an approach based on identifying a person as unhealthy if they have a condition at age 67 which impacts their life expectancy (compared with people in the healthy group) by more than, say, three years.

In Chapter 6.4 below we note that we have adopted a public Institute of Actuaries of Australia published mortality table for the mortality of a healthy member.

The resulting "healthy" 67 year-old member life expectancy is 91 years for a female (89 years for a male).

We note the disclaimers associated with this publication and also that this table was published some time ago. Nonetheless, there are limited other public sources although we do note that it compares reasonably well with the limited other public information that is available on life expectancies of healthy lives, for example:

- Mortality data from the United Kingdom such as the Continuous Mortality Projections Model, CMI_2023 used by pension schemes and insurance companies show that cohort life expectancy at 1 January 2024 for females age 65 is approximately 89, with life expectancy for males at around 86[8]. It should be highlighted that these may differ from Australian mortality patterns due to demographic and health system differences and should be interpreted cautiously.
- Mortality assumptions disclosed in public sector Defined Benefit fund reports can also provide useful benchmarks, often derived from or adjusted versions of the Australian Life Tables.

We are aware that some may adopt a slightly higher or lower value than 91 years for a female (89 years for a male). This is because significant judgement is involved and there are many uncertainties impacting mortality rates especially when being estimated 20 years or more into the future.

We have set out below analysis that we consider assists understanding, at least at a high-level, the proportion of members who are unhealthy (those who, at age 67 for example, have a life expectancy more than three years lower than 91 years for a female (89 years for a male)).

OBSERVATION:
Age at retirement not always same as age when deciding on retirement strategy

It is important for funds to appreciate that there can be a difference between the age at retirement and the time at which a member makes key decisions/takes significant action in relation to their retirement strategy.

Some may begin taking action before they retire – some may prefer to make the biggest decisions about their product strategy for retirement after they have been retired for some period and have thought more and better understand their lifestyle, spending/budgeting needs/concerns, etc.

It may also become more common that members make significant retirement income strategy decisions (besides asset allocation/market risk which is often managed on an ongoing basis) at multiple points during retirement (e.g. incrementally and over time increasing investment/exercising options in longevity products).

This is particularly relevant when considering products with longevity protection – as it is the health of the member at the time they are deciding on investing into a product with longevity protection which is most relevant.

[8] Institute and Faculty of Actuaries, 2024, CMI Model shows small drop in cohort life expectancy, https://actuaries.org.uk/news-and-media-releases/media-releases-and-statements/2024/apr/18-apr-24-cmi-model-shows-small-drop-in-cohort-life-expectancy (accessed 7th May 2025)

For example, a member's health at age 70 is relevant to consider for them if they are contemplating a longevity product at that time (even if they retired earlier).

In summary, we have assumed a simple case in this paper of the member making one significant decision at the time they fully retire at age 67.

However, in interpreting the results and for funds considering appropriate retirement strategies they will need to take into account implications that this have for the significant number of members for whom this is not case and the implications this has for both the best way to provide information to members to assist them – as well as the optimal product strategy.

3.1.1 Proportion of UK Annuities Sold which are "Impaired Life"

In the UK those in sufficiently poor health are able to purchase annuities at higher annuity payment rates.

The proportion of impaired life annuities sold to those aged around 65 - 70 in the UK appears to have grown over time and is currently estimated to be more than 10%[9, 10].

Also, and as noted above, there are likely to be differences between the health of UK pension members and Australian superannuation fund members and therefore the UK data should be considered with caution.

3.1.2 Data on Disease Prevalence and Impact on Life Expectancy

The below sets out examples of data on the prevalence on common diseases which impact life expectancy. Where available we have also noted information from certain public sources about their impact on life expectancy.

[9] Financial Conduct Authority, "Retirement income market data 2023/24", https://www.fca.org.uk/data/retirement-income-market-data-2023-24 (accessed 3rd June 2025)

[10] LIMRA International, Inc. and the Society of Actuaries, 2006, "Substandard Annuities"

Disease/Condition	Prevalence in Population at age 65	Published Information on Life Expectancy
Type 2 Diabetes	10.9%-19.6%	3-10 years
Hypertension	33.7%-35%	2-5 years
Obesity (BMI 30+)	31%-36%	3-10 years
COPD	7.0%	6-15 years
Dementia	2.5%	5-10 years
Heart, Stroke or Vascular Disease	10%-14%	5-10 years
Cancer	3.7%-6.8%	1-7+ years
Smoker (Regular)	9.6%-12.8%	3-10 years

Many unhealthy people will have more than one of the above conditions (referred to as co-morbidities) and therefore the proportion of unhealthy members is less than the sum of the "prevalence" proportions for each disease/condition noted above.

While AIHW had certain data on co-morbidities – for those at the more severe level which have a material impact on life expectancy, there appears to be limited directly available information to determine specifically the proportion of people that that have at least one or more of the above conditions and the associated impact to life expectancy.

We also note that some people that are very unwell will not be members of a superannuation fund with a significant balance or will have claimed (for example TPD) and therefore not be included in the population of pre/at retirement superannuation members we are considering.

On this basis it is difficult to determine with precision the proportion of Australian superannuation fund members at age 67 who are unhealthy. Taking also into account the UK data on impaired life annuities, and as a very broad range, the proportion of superannuation fund members that are unhealthy by our criteria is likely to be more than 10%. For the purposes of the analysis in Chapter 6 we have adopted a proportion of 25% (have a reduction in life expectancy relative to a healthy life of at least three years – some will be more than this).

In summary, at the point of retirement and when deciding on a retirement income strategy, the number of members in poor health will be in the minority, but it is nonetheless likely to be a significant proportion.

OBSERVATION:
Differences in health attribute across superannuation funds

The health member attribute is likely to vary significantly by individual superannuation fund.

Some funds have membership weighted to particular industries/occupations that may have a much higher proportion of unhealthy members compared with others.

Our analysis does not consider these complexities, which funds should be aware of.

Besides the observation on fund specific health attributes, a number of other observations are made:

- Spouse is important as some members may be in poor health while the spouse may not be. This is relevant in determining an appropriate retirement income strategy.

  Also, literature in the health domain show that there may also be additional beneficial mutual care factors that diminish the impact of some condition versus being single. These are not modelled in this paper but should be taken into consideration in a well-considered model.

- Improvements in medical care and ability to recovery from certain diseases have improved. For example, there has been marked improvement in heart disease care within the last decade. Treatments have improved such that some chronic heart diseases are seen as manageable and substantial reductions in life expectancy are not expected. Therefore, modelling for retirement income outcomes should be regularly updated with the latest longevity expectations.

- Health is likely to correlate with other characteristics such as financial circumstances and locale as a proxy for access/availability of health care. These are important correlation impacts but for the purposes of this paper we have not considered and modelled this explicitly.

- The prevalence of conditions and the severity of their impact is dynamic and will change over time. Again, we have not considered prevalence changes across time and the proportion of health versus unhealthy retirees, but we recommend this be monitored.

- For our illustrative analysis in Chapter 8, for an example unhealthy member we have adopted a single adjustment of a life expectancy six years lower than a "healthy" member – in practice the actual impact on life expectancy can vary significantly depending on the condition/disease and its severity.

Overall, there are several aspects to health which are topics for further study and are particular areas to be aware of when developing the retirement income strategy.

Chapter 8.3 sets out some limited and simplified quantitative analysis of the impact of good health versus a poor heath retiree when considering a retirement strategy.

4. Preferences

4.1 Introduction

Our commentary on preferences is high-level and sets out some of the key member preferences that we consider relevant.

We have referred to some comments we have observed elsewhere and approaches we are aware that some superannuation funds have done or are considering.

The preferences discussed in this chapter include:

- Preference for higher expected income versus risks of lower income;
- Preferences for higher death benefit versus lower retirement income;
- Preference for access to lump sums; and
- Preferences relating to income level and income profile over retirement, lifestyle goals.

Preferences interact and this makes solving for a member's optimal retirement income strategy complex e.g. selecting a lower death benefit can enable a higher income potential which impacts the starting point for identifying a member's appropriate level of risk to income from market exposure.

The interaction of the preference about access to lump sums and higher death benefits is also key. For example, a strategy with a higher death benefit is likely to result in ample access to lump sums – for such members, this potentially reduces the complexity with addressing this requirement. Conversely, a very high proportion in a product with low death benefit may require more care in how the access to lump sum attribute is addressed.

Trustees need to understand the range of member preferences to ensure that solutions presented factor in this reflection of member need (which can flow through to their cohorts or sub cohort attributes or characteristics).

Understanding preferences can require more work and analysis to understand the deeper thinking of members.

This compares with other attributes which generally can be directly observed in data or from information members can readily provide. It is an area where continued significant further work is justified.

4.2 Preference for Higher Expected Income Versus Risks of Lower Income

Preferences relating to higher increased expected income versus the risks of lower income is one of the most important to understand. However, as much work has been done elsewhere and is continuing to develop, the observations we make below are relatively brief:

- Diverse, including across wealth/income levels – studies indicate superannuation funds are likely to have members with a wide range of preferences. e.g. some members will have a willingness to accept the risk of a lower income in exchange for a higher expected income. Others will not. Also – this diversity of preference is likely to exist across a range of wealth/income levels[11].
- People generally find problems involving uncertainty challenging to analyse. Elucidating accurately risk/reward preferences from members is difficult and if not done well can provide inaccurate signals about member preferences. The problem is made more difficult (compared with, say, accumulation phase decisions around market risk) as noted above because choices around risk/reward with market/inflation risk exposure interact with other preferences and uncertainties such as longevity.

4.3 Preferences for Higher Death Benefit versus Lower Retirement Income

One possible interpretation of the RIC is that it attributes zero value to death benefits (perhaps with the exception of death benefits to spouse) because the RIC objectives only mention retirement income and access to lump sums.

However, our view is that the strategy is more likely to be successful if it best suits member's needs and their preferences (and circumstances as noted in Chapter 1). This may in part take into account the value the member ascribes them. This will be an interesting ongoing debate and discussion.

Taking this approach, and besides the importance of the death benefit for a spouse, the following is noted:

- Longevity products compared with account-based pensions provide a different trade-off between living benefits and death benefits. Therefore, understanding member preferences for death benefits is important to determining the most suitable retirement strategy.
- The value a member ascribes to death benefits may vary depending on the different points in retirement (e.g. may value a death benefit late in retirement differently to a death benefit early in retirement).
- Behavioural/psychological element – people can have a high aversion to product options/versions with no death benefit where there is potential to "lose" the entire amount invested early in the product term. This can exist for various reasons and can apply where the desire to leave benefits to an estate/children is low.

[11] Capital Preferences, "Revealing Member Income Preferences: A Scientific Path to Retirement Personalisation", 2024, https://capitalpreferences.com/member (accessed 2nd June 2025)

It can apply also even where considering individual products which might make up only a proportion of the investment of a member's superannuation.

Evidence of this behavioural/psychological element is the proportion of options/versions of longevity products selected which maintain a significant death benefit for a period into retirement (e.g. version with return of premium or account balance (perhaps with limits/maximums), 10 years minimum payment, etc. It is noted that many of these paying some death benefit may still be compliant with CAS requirements to meet concessional treatment under the pension assets test).

- We are aware of superannuation funds that have undertaken surveys or focus groups of members to understand the bequest motive. As for other characteristics the results vary significantly between members. For example, some members place a very low value on death benefits while for others it is higher.
- Retirement strategies that combine different products – some retirement strategies will combine different products. Each of these products may come with varying levels of death benefit. It is important to consider the overall total death benefit across the whole strategy and throughout the entire period of retirement. Although it is also noted that – even when combing products, due to psychological factors, such as those noted above, some members may have an aversion to particular individual products with lower death benefits.

4.4 Preferences Relating to Access to Lump Sums

The third RIC objective considers flexibility of access to expected funds over the period of retirement.

We make the following observations in relation to this:

- As noted above in the discussion on preferences for death benefits, some retirement strategies will combine different products and each of these products may come with varying levels of access to lump sums. It is important to consider the overall total access to lump sum benefit across the whole strategy and throughout the entire period of retirement.
- When considering a combination of products – such as an Account Based Pension ("ABP") (where there is full access to lump sums) and a longevity product which may have some lower access, the following is noted:
  - The overall total lump sum access when considering the products combined may be significant.

    Therefore, one observation we would make – is that it may assist simplify some optimisation analysis to consider the access to lump sum as more of a binary metric – i.e. that it is adequate or inadequate – rather than adopting a complex formula involving a continuum.

That is, in a complex optimisation which already involves significant judgement, in some cases (not all) it may be considered spurious to value a small increase in access to lump sums when it is already well in excess of what the person expects to adopt.

This may be the case where the lump sum access across the total product strategy (and any other investments outside of superannuation) is overall considered quite high under the alternatives being considered.

- The pattern over time can change – a 100% ABP may, in some cases and under certain assumptions, show lower access to lump sums later in retirement compared with a strategy that includes some longevity product. This is discussed further in Chapter 7.5.

- We recognise that the requirement to access lump sums is likely to vary significantly for members, dependant on items such as lifestyle spending, emergency funds and aged care. In some cases members may find it difficult to predict themselves what their access to lump sums might be.
- Similar to death benefits, we are aware of superannuation funds that have undertaken surveys or focus groups of members to understand potential spending needs over retirement. As for other characteristics the results vary significantly between members.
- Members (and their advisers if they have one) can adopt various approaches to budgeting and ways to thinking about the need to access lump sums. One approach for example involves setting aside assets for immediate lumpy spending at or just after retirement – and then considering the remainder of their pool of assets including any remaining superannuation balance for establishing a retirement strategy for their other spending over their retirement.

4.5 Preferences Relating to Income Level and Income Profile, Lifestyle Goals

Superannuation funds are deepening their understanding of member lifestyle goals and spending needs and we do not address this in detail in this paper.

We do note that in the modelling in Chapter 6 we discuss an overall approach to targeting a level of retirement income that the member can afford based on their assets.

The primary approach adopted is to assume a flat (in real terms) target level of income over retirement – although in the analysis in Chapter 8 we also consider some variation to this approach noting the view of some of having a relatively higher desired income earlier in retirement with a somewhat lesser need at older ages when the member is more frail/less active.

We have a strong view that, ultimately, retirement income for a member who has retired and is not willing or is unable to re-commence work is constrained by their existing resources, even though they may have spending and lifestyle goals that exceed their means.

Therefore, significantly different approaches to those above should be considered with caution.

For example, other income/draw down benchmarks such as adopting a member's own desired lifestyle as the target, particularly if it is larger than the resources they can afford, are less useful as benchmarks and for assessing retirement strategies per the RIC.

Notwithstanding that some members may have a reasonably high appetite for market risk, it is unhelpful to unduly focus on strategies that involve undertaking considerable additional risk which expose the member to a modest chance of meeting their target and a significant chance of a low retirement income.

Similarly, we note that fixed measures such as ASFA modest or comfortable are helpful for informing the retirement income level required to fund a particular lifestyle, however, they may be a less useful benchmark when considering analysis to maximise expected retirement income and determining the appropriate strategy for a person that has retired and has fixed resources.

4.6 Other Potential Relevant Preferences

The above considers a limited number of preferences likely to be relevant to developing an appropriate retirement income strategy.

We acknowledge that there may be others – in other areas of this report we have noted aspects such as retirement age and willingness to recommence work that superannuation funds may need to consider and that this broad topic of understanding member preferences will be of ongoing interest and discussion.

5. Cohort Analysis

5.1 Introduction

In this Chapter we provide a very high-level analysis which is one analysis to highlight the likely diversity of fund membership based on considering only a small sub-set of the attributes in Chapters 2 and 3.

The broad approach was to adopt some of the recent analysis of superannuation fund members and the population more broadly, of those approaching or already recently retired. This is most relevant to superannuation funds addressing the wave of retirees over the short to medium term – say the next 10 years.

In practice the profile of superannuation fund members at retirement has the potential to change significantly in the longer term – for example housing affordability and ownership levels, as well as contribution rates are factors that may dramatically impact the profile of future retiring members in the longer term (compared with those approaching retirement now or in the near future).

As noted above, the analysis is limited only to a small number of member attributes, in particular those related to age pension eligibility. We acknowledge these characteristics are only a sub-set of those to consider in determining the most appropriate retirement strategy for a member.

Nonetheless, analysis performed in Chapters 6 to 9 highlights that even this simplified membership profile analysis has significant implications for the range of suitable retirement strategies to cover the span of members in a fund.

Chapter 2 points out how this analysis of member attributes needs to be extended. For example, trustees have been reliant on limited data sources to inform the development and alignment of their cohorts and segments, however, they are turning their attention to the usage of enhanced data and analytics sources to better inform their cohorting and segmentation efforts. This includes analysis of member attributes in their fund to map the required data to enact their various retirement initiatives, and identify sources to enable uplift, while remaining cognisant of appropriateness considerations and inherent risk; such as privacy, consent, data governance and reliability of data.

5.2 Broad Approach

The membership profile attributes considered include:

- Spouse status;
- Member health;
- Homeownership (with correlation factor between lower homeownership rate for low asset retirees as discussed in Chapter 2.3.4); and
- Super balance and assets outside of superannuation.

In practice there is likely to be a significant level of correlation between certain attributes such as correlations/interaction between large super balance and large assets outside of super – health and super balance, super balance and homeownership etc). There was limited data readily available to do this and we have only allowed for lower homeownership rate amongst low asset retiree cohort – this is a significant limitation of the analysis and therefore the results should be treated with caution.

In summary this is an area for further research and analysis – particularly for funds to do their own analysis for their own fund membership which, in any case, need to be analysed and taken into account as any particular superannuation fund's membership will have differences compared with analysis based on the overall total Australian superannuation fund membership (and Australian population where population data has been adopted).

5.3 Resulting Membership Profile

The indicative analysis of profile is as follows:

Illustrative Analysis of Profile of Superannuation Fund Membership for Females Reaching 67 Year-Old

Spouse Status		Member Health		Home Ownership		Superannuation Balance / Eligibility Age Pension		Assets Outside of Superannuation: Low $50,000 prsnl - no fncl assets	Medium $50,000 prsnl - $150,000 fncl	High More than $500,000
Single	37%	Good Health	27.8%	Homeowner	21%	Low Superannuation Balance	14.1%	7.0%	5.6%	1.4%
						Medium Superannuation Balance	4.5%	2.2%	1.8%	0.4%
						High Superannuation Balance	2.7%	1.4%	1.1%	0.3%
				Non-Homeowner	7%	Low Superannuation Balance	5.5%	2.7%	2.2%	0.5%
						Medium Superannuation Balance	0.8%	0.4%	0.3%	0.1%
						High Superannuation Balance	0.2%	0.1%	0.1%	0.0%
		Poor Health	9%		9%		9.3%	4.6%	3.7%	0.9%
Couple	63%	Good Health	47%	Homeowner	36%	Low Superannuation Balance	24.0%	12.0%	9.6%	2.4%
						Medium Superannuation Balance	9.6%	4.8%	3.8%	1.0%
						High Superannuation Balance	2.7%	1.4%	1.1%	0.3%
				Non-Homeowner	11%	Low Superannuation Balance	10.2%	5.1%	4.1%	1.0%
						Medium Superannuation Balance	0.6%	0.3%	0.2%	0.1%
						High Superannuation Balance	0.3%	0.2%	0.1%	0.0%
		Poor Health	16%		16%		15.8%	7.9%	6.3%	1.6%
Total	**100%**		**100%**		**100%**		**100%**	**50%**	**40%**	**10%**

The overall observation we would make on this table is that the membership is very diverse.

Australia's largest five funds will likely each have more than 100,000 members that they are assisting into retirement over the next five years – 200,000 if considering over 10 years.

Considering the smaller number of, say, a total of 100,000 members, the following is noted:

- **Diversity of membership** – even segments with 1% of the membership represent 1,000 members. There are many segments with more than 1% of the membership which illustrates the diversity of the membership.
- **Most members are likely to benefit from assistance with retirement strategy** – referring to the above table and the table in Chapter 2.3.2, most members are likely to benefit from assistance. This can be determined by taking the total membership and excluding a proportion of members at the extremes (i.e. those with low balances who intend to spend their superannuation balance immediately, and those who have ample assets or are already satisfied with the assistance they are getting and are not seeking assistance from their fund with their retirement strategy).

  That is, based on very broad assumptions the following might provide some indication as to the number of members likely to be seeking and/or who would benefit from information and assistance:

  – 60% with full age pension entitlement. If it assumed half of these intend to spend their balance immediately – this would mean that the other half, e.g. 30% of the total, may intend to apply their balance to improve their retirement income (i.e. not intend to spend immediately or very soon after retirement).

  – 20% with a balance that results in them being entitled to a part pension immediately. It might be assumed that most of these members are likely to benefit from considering carefully what to do with their balance (noting that a proportion will already be advised and happy with their advice relationship and not looking for anything further from the fund).

  – 20% with assets which mean they are not entitled to any age pension immediately at retirement. For illustrative purposes if might be the case that, say, half of this segment or 10% of the total population have assets ample to meet their needs and are not seeking particular assistance from their super fund in terms of retirement strategy (already working with an advisor or are otherwise independent and comfortable with their finances).

  On this very broad-brush view there would be 60% or 60,000 members to assist. As noted at the first bullet point above, these are spread very widely across the membership attributes.

6. Modelling Retirement Outcomes: Inputs and Modelling Approach

6.1 Introduction

Chapters 2 to 5 considered the requirement to "understand attributes".

This chapter considers the second capability required to satisfy the RIC which is to "understand the outcomes" that different retirement strategies deliver.

At a high-level, given a member with particular attributes, the outcomes delivered by a retirement strategy depend upon:

- **Product strategy** – the mix of products, their benefit design, any market or longevity structuring/guarantees, and their interaction with the age pension and other entitlements;
- **Market performance** – investment market performance, interest rates and price (and wage) inflation. These impact product returns and age pension entitlement;
- **Length of retirement** – the member's (and their spouse's) life expectancy and mortality rates; and
- **Rate of drawing from product** – the members accessing of lump sum/draw down rates (where these have flexibility).

Sound approaches to performing this modelling and setting these assumptions are required to adequately "understand outcomes".

The remainder of this paper tries to bring this to life and highlight the steps involved by setting out the modelling approach and comparing outcomes for two different retirement strategies.

To keep the modelling manageable and highlight key dynamics, the analysis first focuses on a specific cohort/persona, being a 67 year-old female planning to retire immediately with a $500,000 superannuation balance. Other key characteristics include:

- Good health;
- Homeowner (no mortgage or other household debts);
- $50,000 of non-financial assets outside of superannuation (no other financial assets); and
- Single.

Subsequent chapters consider how the results may change under varying assumptions and broadening the analysis for different personas.

6.2 Product Strategy

6.2.1 Introduction

This chapter provides an example of how alternate strategies can be analysed and compared in terms of understanding outcomes based on the RIC objectives.

The two hypothetical strategies that are compared are as follows.

Base: 100% Investment in an Account Based Pension

The assumed asset mix is 65% growth and 35% defensive. While this may seem somewhat aggressive it seems reasonably consistent with a common account-based pension mix in retirement from data we have analysed. In Appendix C, analysis based on a 40% growth and 60% defensive asset mix has also been included.

Alternate: 60% Investment in ABP and 40% in a longevity product

Under the alternate strategy the total superannuation balance at retirement, is invested 60/40 across investment in an ABP and a longevity product.

The approach adopted was to retain the same overall asset mix as under the Base 100% ABP strategy (and draw down level – discussed further below) to enable the outcomes from the strategies to be compared most directly i.e. the comparison is not impacted by differences in return/risk profile of the underlying investments.

The modelling approach, for both strategies, involves maintaining an asset mix of 65% growth/35% defensive. For the strategy involving 60% in ABP and 40% in a longevity product, each product has the same 65%/35% asset mix (which is also the same as for the ABP in the Base 100/0 strategy).

There are various longevity products available in the market. By definition, they all involve a changed benefit profile relative to an ABP i.e. a higher living benefit and a lower death benefit. At a high-level and depending on the version of product adopted and how it is combined into an overall retirement strategy together with an ABP, similar impacts in modelled outcomes can be achieved with a range of longevity products. To illustrate the metrics and the difference when including a longevity product in the strategy, a hypothetical longevity product has been adopted which pays mortality credits at a fixed level.

An important feature of most longevity products is that they offer a level of death and/or withdrawal benefit – in some cases the member has a choice as to the level of death/withdrawal benefit.

There is peace of mind for some members from having a high death/withdrawal benefit that enables them to access all/most of the amount initially invested (less payments made). They may also value knowing they won't lose a large lump sum if they die early. On the other hand, if the benefit of qualifying for concessional treatment under the age pension assets means test is important for the member, the withdrawal/death benefits must not exceed the CAS. In summary there are different advantages for the different levels of withdrawal/death benefit that can be chosen. For the purposes of the analysis we have assumed a withdrawal/death benefit that enables the member to qualify for the CAS.

While the mortality credits and withdrawal/death benefits do not match any particular product in market they have been set at a level we consider not unreasonable and that include an overall embedded margin (i.e. on our assumed mortality basis, the present value of the mortality revenue to the fund/insurer is more than the present value of the mortality credits to the members). Further details are set out in Appendix A.

6.3 Market Performance

The ABP balance is projected to grow with investment returns less fees. As noted above this same asset mix has also been applied to the portion invested in the longevity product.

The economic assumptions utilised in this report are derived from Conning's Economic Scenario Generator ("ESG"), with data effective as of 31 December 2024[12]. Conning's ESG provides a comprehensive distribution of potential economic futures, projecting financial market scenarios over a span of 50 years.

Median returns and inflation rates were selected to determine single input variables which are fixed over the entire projection period. These are as follows with further details on the underlying assumed returns by sector set out in Appendix A.4:

- Investment returns (gross of fees, net of tax): 6.9% p.a.;
- Investment returns (net of fees and tax): 6.2% p.a.;
- Consumer Price Index ("CPI"): 2.6% p.a.; and
- Wage price index: 2.6% p.a. (used for purposes of age pension modelling and set equal to CPI as discussed below).

Age pension modelling is based on the current age pension rates and means testing rules. In our model, the amount of age pension received is calculated by taking the full age pension rate less the amount deducted based on the asset and income means tests.

We have assumed that indexation of the age pension (amount and thresholds) is in line with the CPI assumption. This can be likened to assuming the government changes the indexation rates or that Average Weekly Ordinary Time Earnings ("AWOTE") and Wage Price Index ("WPI") grow in line with CPI, noting that historically it has generally been higher than CPI.

We acknowledge that this is somewhat different to standards and assumptions in most superannuation fund and other industry calculators, the MoneySmart website, etc.

The reasons for this are to provide for some allowance for both the risk that WPI / AWOTE are less than CPI in future and also for the risk of changes to age pension (either means testing and/or to the full age pension amount itself) to make it somewhat less generous.

It is also noted, for readers that prefer modelling assumptions adopting a higher WPI assumption, we have provided some commentary on implications for results in Appendix C.

[12] Conning parameters and further details on the chosen asset mix are provided in Appendix A.

6.4 Length of Retirement / Mortality

In Chapter 3 it was noted that we have adopted an Institute of Actuaries of Australia published mortality table for the mortality of a healthy member. This table was produced by Rice Warner on behalf of the Actuaries Institute, to investigate the mortality of older Australians who hold annuities[13].

In particular we have chosen "Basis 1" from this study. It uses mortality rates derived from to the underlying Australian Life Tables, and the ratio of UK voluntary annuity mortality rates to UK population mortality rates. An allowance for future mortality improvements is included[14]. Further detail is included in Appendix A.

The resulting life expectancy of a "healthy" female 67-year-old is 91 years.

We note the disclaimers associated with this publication and that this table was published some time ago. Nonetheless, there are limited other public sources although we do note that it compares reasonably well with the limited other public information that is available on life expectancies of healthy lives as detailed in Chapter 3.

In Chapter 8 we explore the outcomes for an unhealthy female where we adopted a life expectancy of 85.

6.5 Rate of Draw Down from Product

The draw down strategy for target income is based on a stable real income (combined income from product and age pension) if earnings are as expected.

The real income level is set such that, under the base 100/0 strategy and under "average" market returns, the ABP is exhausted at two years beyond life expectancy, i.e. 93.

After this age, the retirement income received is the age pension (noting that under the alternate strategy income is received from the longevity product even after the ABP runs out).

In Chapter 8 we explore some alternatives to this approach of targeting a stable real income exhausted at 93 under the base strategy and under expected earning assumptions. This includes considering:

- Change target income in alternative strategy to run out at same age as baseline strategy;
- Targeting a longer period beyond life expectancy e.g. 5 years or 96 for this member; and
- A higher income earlier in retirement and lower later in retirement.

We have a strong view that, ultimately, retirement income for a member who has retired and is not willing or is unable to re-commence work is constrained by their existing resources.

[13] Institute of Actuaries of Australia (Rice Warner), 2018, Exploring Retiree Mortality

[14] Australian Government Actuary, 2019, Australian Life Tables 2015-2017 Improvement Factors

Therefore, significantly different approaches to those above should be considered with caution.

For example, other income/draw down benchmarks such as adopting a member's own desired lifestyle as the target, particularly if it is larger than the resources they can afford, are less useful as benchmarks and for assessing retirement strategies per the RIC.

Notwithstanding that some members may have a reasonably high appetite for market risk, it is unhelpful to unduly focus on strategies that involve undertaking considerable additional risk which expose the member to a modest chance of meeting their target and a significant chance of a low retirement income.

Similarly, while we consider fixed measures such as ASFA modest or comfortable are helpful for informing the retirement income level required to fund a particular lifestyle, it is a less useful benchmark when considering analysis to maximise expected retirement income and determining the appropriate strategy for a person that has retired and has fixed resources.

7. Modelling Retirement Outcomes: Results

7.1 Introduction

This chapter considers the modelling results based on the assumptions and comparing the base strategy and alternate strategy in Chapter 6.

Metrics are described for measuring the outcomes against each of the RIC objectives.

7.2 Pillar 1: Maximise Income

7.2.1 Introduction

The retirement income covenant requires trustees to formulate a strategy for how it will assist members achieve and balance the following objectives:

1. to maximise expected retirement income over the period of retirement;
2. to manage expected risks to the sustainability and stability of retirement income over the period of retirement of the following kinds:
    a. longevity risks;
    b. investment risks;
    c. inflation risks;
    d. any other risks to the sustainability and stability of the retirement income; and
3. to have flexible access to expected funds over the period of retirement.

This chapter focusses on the first objective above, to maximise expected retirement income over the period of retirement.

One metric we consider relevant to the maximise expected retirement income objective is the value in today's dollars of retirement income taking into account the member's likelihood of survival.

While this is one useful overall metric – we consider that trustees should deepen their understanding of the outcomes that occur in a range of scenarios when evaluating the maximise income objective and particularly when balancing it against the other objectives. This chapter explores a number of presentations we consider helpful.

This chapter sets out an analysis under the base case of investment earnings being as expected. A limited analysis under varying investment earning assumptions is set out in Appendix C.

7.2.2 Chart Comparing Real Income in Retirement

Before considering the value of income analysis – the first analysis below is a visual presentation of the real income payable during each year of retirement assuming the member is alive.

These provide a key visual representation for comparing strategies.

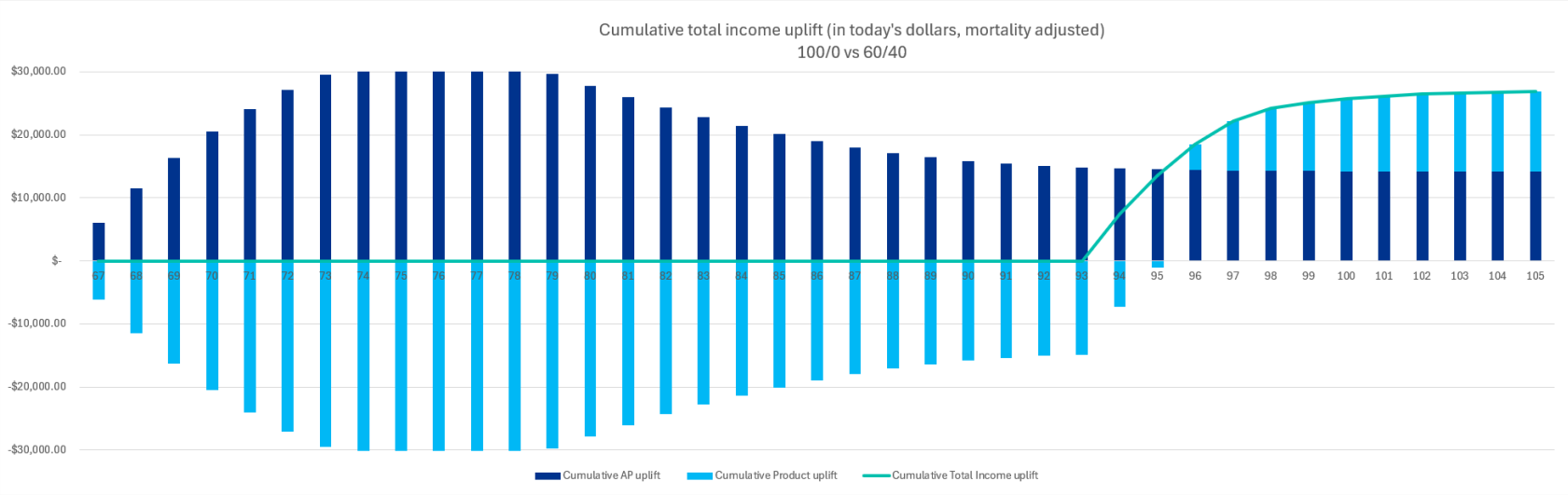
The chart highlights that under the alternate 60/40 strategy, target income lasts a further five years, running out at age 98. The income after the ABP runs-out is also significantly higher.

7.2.3 Cumulative Retirement Income by Source (Product vs Age Pension) and Value of Retirement Income

Both strategies produce the same retirement income under expected earnings until age 93 (because they both have a draw down rate to deliver a target income level, and the ABP is targeted to run out at age 93 under expected earnings under the Base strategy). This is illustrated by the chart below which also highlights how the higher age pension in the alternate strategy reduces the income that is required to be drawn from the product(s) in the early years of retirement.

This factor, plus the longevity pooling aspect of the product strategy enables retirement income to be boosted after age 93.

Also shown in the table below the chart, which we consider a key Pillar 1 measure as noted in the introduction, is the value in today's dollars of the expected retirement income based on the member's probability of being alive at each age (for this member in good health).



Expected Value uplift ($'000)

	Lifetime Total	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
AP Income	14	6	12	16	20	24	27	29	31	33	33	33	32	30	28	26	24	23	21	20	19	18	17	16	16	15	15	15	15	15	14	14	14	14	14	14	14	14	14	14
Product Income	13	-6	-12	-16	-20	-24	-27	-29	-31	-33	-33	-33	-32	-30	-28	-26	-24	-23	-21	-20	-19	-18	-17	-16	-16	-15	-15	-15	-7	-1	4	8	10	11	11	12	12	12	13	13
Total	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	14	18	22	24	25	26	26	26	27	27	27

Further detail of the analysis is set out in the following table.

Maximising Retirement Income: Uplift from Including Longevity Product in Strategy			
	Expected Value of Payments (Today's Dollars)		
	100/0 Strategy	60/40 Strategy	**Uplift: Including Longevity Product in Strategy**
Living Income			
Product Income	$609,870	$622,569	**$12,699**
Age Pension Income	$583,500	$597,669	**$14,169**
Total Living Income	**$1,193,371**	**$1,220,239**	**$26,868**
Death Benefit	**$93,242**	**$94,804**	**$1,562**
Total Living plus Death Payments	**$1,286,612**	**$1,315,042**	**$28,430**

This type of analysis highlights important aspects and outcomes trustees should consider.

In particular, the following is noted in relation to the drivers of maximising retirement income:

- Living income paid from the product is higher; and
- For this particular member, income from the age pension is also higher.

The analysis shows that in this case, there is also somewhat unexpectedly, a slight uplift to the expected value of the death benefit, caused by the uplift provided from the ABP balance at later ages when mortality is at its highest.

This is further discussed at Chapter 7.5 below. It is noted that this is not the case for all member segments as shown in Chapter 9 which indicates that for some other member segments the higher retirement income comes at the cost of a lower expected value of death benefits paid.

Longevity products move benefits otherwise payable as an inheritance/death benefit to living income via the effective insurance and pooling of benefits paid as death benefits to those who live longer than expected.

While death benefits are not part of Pillar 1 they have been shown here for information purposes and to assist readers understand the trade-off involved and as discussed in Chapter 4, the importance of understanding the bequest motive.

The following points are observed in relation to product income differences:

- The overall retirement income improvement may seem modest, however, it is noted that the longevity product modelled retains a significant death benefit and that only 40% of the strategy is invested in the longevity product. It is also noted that the analysis is based on benefits assessed from age 67 and therefore includes the majority of the retirement period from 67 to 93 when both strategies are paying the same amount.
- It is also noted that this analysis shows value amounts calculated as at age 67. The uplift is more significant, and the proportions are larger, at a later stage for those who reach more advanced ages – this is evidenced from the first chart presented in this chapter.

Therefore we also consider it is worth, particularly under Pillar 2 of the RIC which deals with managing risk, examining other analysis besides the first chart in this chapter. This includes values and amounts, specifically the impacts for those who reach an advanced age. As one example, at Chapter 7.3 below is set out analysis effective assuming the member has reached age 93 alive, which is when the living benefits under the two strategies diverge (under the assumption of expected earnings).

- Notwithstanding that the amounts may appear modest, the strategy with longevity product delivers a clearly optimal outcome for maximising retirement income and it does this in all circumstances.

  It is important to be aware that such strategies deliver this absolute improvement to retirement income – per Pillar 1 – without any loss of market exposure or upside potential from equity and growth investments. That is, the asset mix is the same between the two strategies and therefore the potential benefit from market growth has been maintained in the alternate strategy with the longevity product.

  In some instances, the only cost/trade-off is a lower death benefit and, if access to a large proportion of the lump sum is required.

- It is brought to the reader's attention that the analysis does not quantify potential benefits from the change in drawdown behaviour expected from increased confidence in the level of income the member can draw when including the longevity product in the product allocation.

7.2.4 Age Pension Uplift

For this member the age pension outcome is overall improved by the inclusion of the longevity product. In particular:

- Early in retirement there is an uplift to the age pension entitlement because of the concessional asset test treatment; and
- Later in retirement there is a detrimental impact because of the income test treatment.

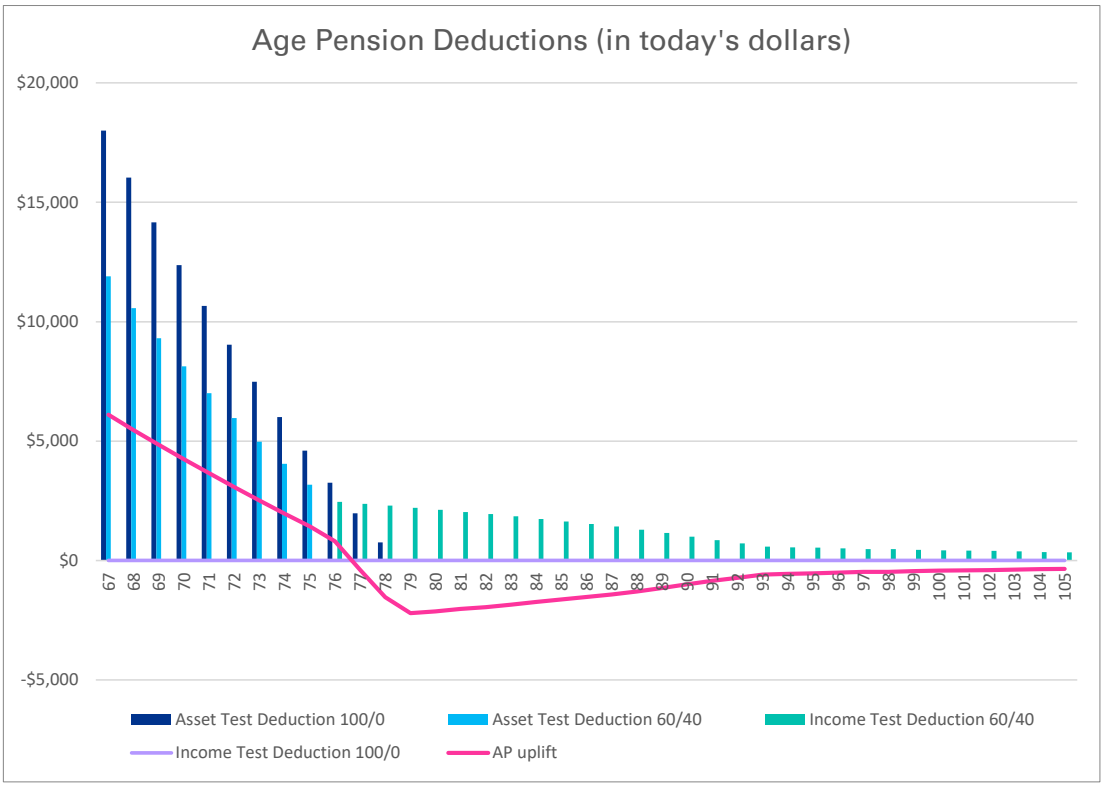
This is further analysed below.

There are members for whom changing the strategy will have limited or no impact on their age pension entitlement e.g. those likely to receive a full age pension entitlement regardless of the amount invested in CAS compliant products – or those unlikely ever to be entitled to age pension (again regardless of the amount invested in CAS compliant products).

It is also important to note that for members within the age pension taper (i.e. those with assets above the asset test thresholds), and for members with different attributes such as non-homeowners and assets outside of superannuation, the age pension outcomes can be different to those for the persona considered in this chapter.

To illustrate the range of outcomes and the importance of understanding this well, further analysis is contained in Chapter 9.4 and Appendix B.

Returning to this particular member, graphs setting out the age pension uplift for the chosen illustrative persona are set out below.



This graph shows how age pension eligibility outcomes tend to be more favourable under the asset test and less favourable under the income test when increasing the allocation to the longevity product.

This is explained by the high-level insight below:

- Under the asset test, 100% of the account balance in the ABP is counted towards the eligibility threshold. This means that at the start, 100% of the purchase value is considered, which changes over time as investment returns are credited and drawdowns and fees are deducted.

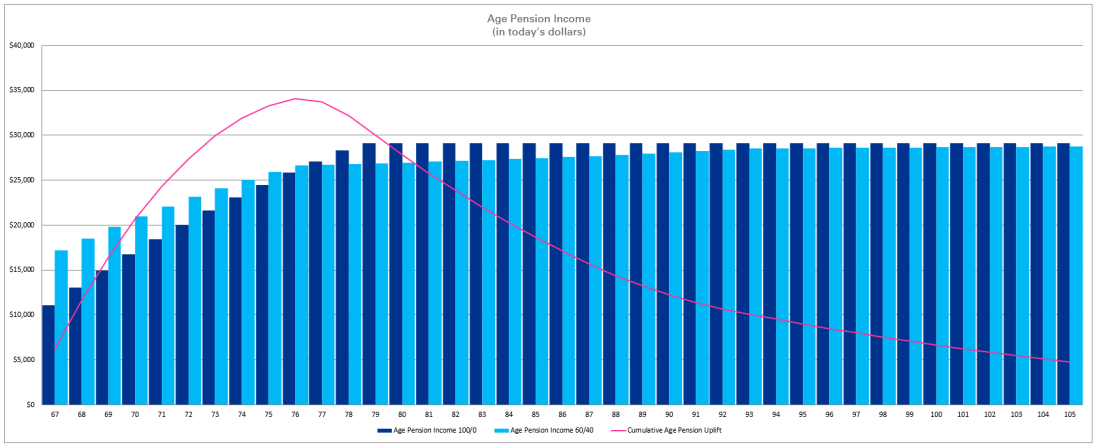
  This compares with the alternative under a CAS compliant longevity product, where 60% of its purchased value counts towards the asset test until life expectancy of 85, subject to a minimum of 5 years. From thereon, 30% of the purchase value is taken into account for purposes of the asset test.

- Under the income test, the assessable income for ABP is based on an amount of deemed income, at a deeming rate of 0.25% for financial assets below the deeming threshold (as defined in the age pension rules and dependent on spousal status) and 2.25% for any assets over the threshold.

  This compares with the alternative under a CAS compliant longevity product, where 60% of the income paid by the product is taken into account for the income test. This will tend to be higher than the deemed amount noted above for ABP.

It is important to appreciate – in this particular example and under the assumptions adopted – the "negative" impact to age pension in later years from the inclusion of the longevity product never catches up to or exceeds the "positive" impacts that accrue in the early years.

This is indicated by the table in Chapter 7.2.3 above and the graphs below. The outcome in the first graph is illustrated in today's dollars, on the bases that the member is alive at each age considered.



Age Pension Income - in today's dollars ($'000)	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
100/0	11	13	15	17	18	20	22	23	24	26	27	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
60/40	17	19	20	21	22	23	24	25	26	27	27	27	27	27	27	27	27	27	27	28	28	28	28	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29
Cumulative Uplift	6	12	16	21	24	27	30	32	33	34	34	32	30	28	26	24	22	20	19	17	16	14	13	12	11	11	10	10	9	8	8	8	7	7	6	6	5	5	5

7.3 Pillar 2 Manage Expected Risk (i) Risk of Living Longer than Expected: Spotlight on Impact on Retirement Income at Older Ages

Measures which focus specifically on outcomes at older ages can assist in understanding the impact of different strategies on managing longevity risk and on member confidence and peace of mind.

We have set out below analyses that focus on older age impacts and the effectiveness of different strategies for managing the risk of living longer than expected:

- Increased period at age of ABP run-out;
- % of target income achieved at age of ABP run-out; and
- Value in today's dollars of all income received after the age of ABP run-out. This is calculated from the date of run-out for the 100/0 strategy.

The table below sets out certain of this analysis – including under the last bullet point above, of the value of income assuming the member reaches age 93 alive.

Strategy	Expected Income over Lifetime		Income p.a. - post ABP runout			Expected Value Income - post ABP runout	
Product mix	Uplift Overall		Age target income achieved until	Average level of income after ABP exhausted		Age first strategy stops achieving target income	Total Expected Value of all income received thereafter
	$ Total	% of Total		$	% of target		Total	Uplift vs 100-0
100% ABP / 0% LP			93	29,094	56%	93	155,415	0
60% ABP / 40% LP	26,868	2.25%	98	39,004	75%	93	225,145	69,729

Adding the longevity product significantly improves these measures: the age until which target income is achieved is extended by five years, the average per annum income post ABP run out has increased by 19% relative to the target income and an uplift of $70k was observed for income received after the ABP is exhausted.

7.4 Pillar 2 Manage Expected Risk (ii) Investment Risk and (iii) Inflation Risk

As noted in Chapter 6, the approach adopted was to retain the same overall asset mix for both the base and the alternate strategy i.e. the comparison is not impacted by differences in return/risk profile of the underlying investments.

That is, lower returns impact both strategies.

Appendix C includes some limited further analysis of market returns and inflation different to expected. Nonetheless, it is noted that further analysis than has been illustrated in this paper is required, particularly where strategies are being compared that have different levels of market risk and inflation risk.

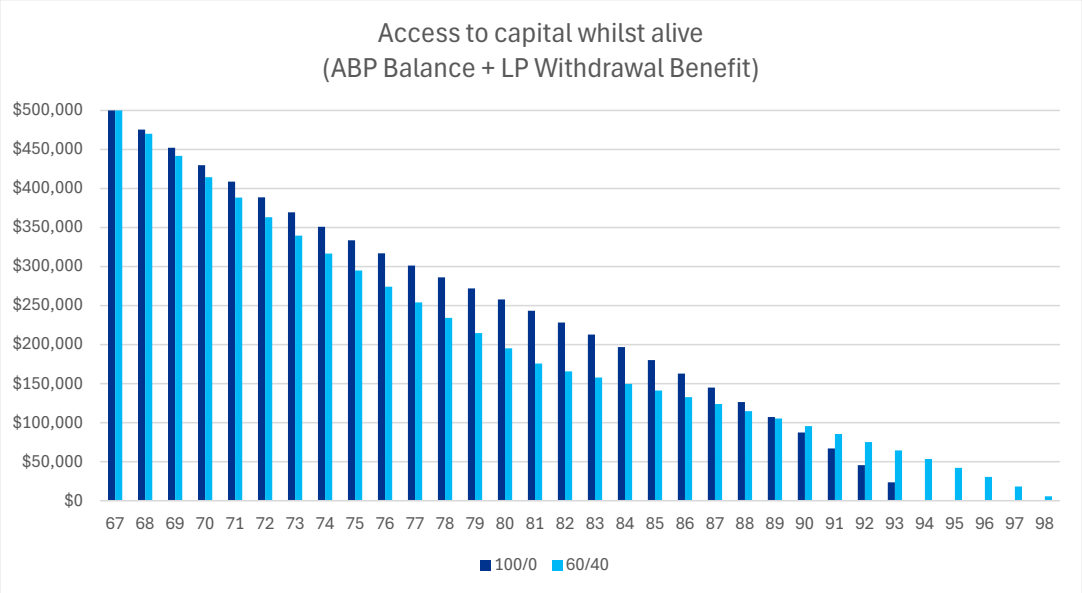
7.5 Access to Lump Sums

7.5.1 Access to Lump Sums when Returns are as Expected

Analysis of benefits available for withdrawal provide insight into the third RIC objective which considers flexibility of access to expected funds over the period of retirement.

A longevity product involves a trade-off between higher living income and access to capital (and death benefits).

For the ABP, the access to lump sum is the full account balance. For a CAS compliant longevity product, the withdrawal and death benefits are limited to the moneyback feature but with a maximum withdrawal/death benefit based on the CAS schedule.



The introduction of the longevity product results in lower access to capital in earlier years, with an uplift from age 90, as the member gets closer to retirement and beyond. The uplift in later years comes from the ABP lasting longer (this is as a result of the longevity product providing more income at older ages, with a reduced need to draw down on the ABP to support the target total income).

At this point, the overall benefit from the longevity strategy comes through not just in living income but also in access to capital at that time.

It may be that this level of access provided under both retirement strategies is adequate for most members. Unless substantial access is needed to lump sum drawdowns, the longevity product strategy should still provide members with sufficient access to lump sums in early years – to support flexible spending for example – whilst at the later years providing an uplift.

Nonetheless, we recognise that the requirement to access lump sums is likely to vary significantly for members, dependant on items such as lifestyle spending, emergency funds and aged care.

As has already been discussed, the member's bequest preference and the value they assign to death benefits, add additional complexity.

As such, in determining the optimal retirement strategy, consideration should be given to the weight to assign to the third RIC objective, relative to those underpinning living benefits. The complexities of assigning a relative weighting to this objective in determining an overall product strategy have not been considered further.

However, one observation we would make is that, in some cases, it may assist simplify some optimisation analysis to consider the access to lump sums as more of a binary metric – i.e. that it is adequate or not adequate – rather than a continuum.

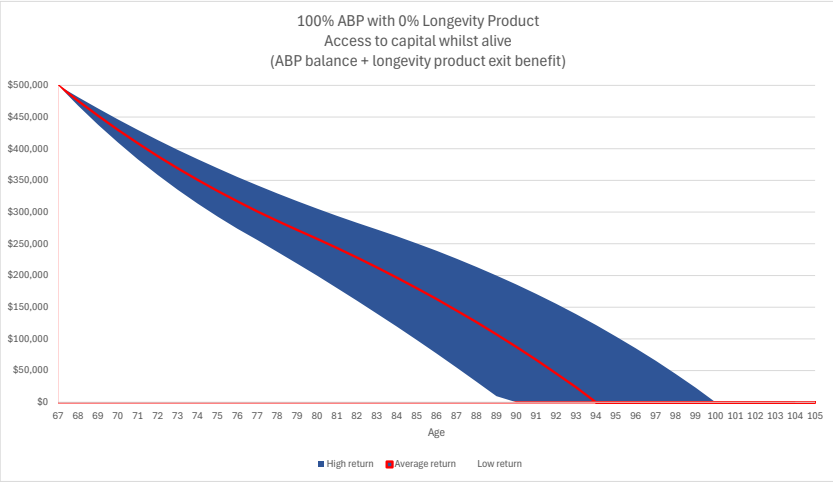
In a complex optimisation which already involves significant judgement, in some cases (not all) it may be considered spurious to value a small increase in access to lump sums if it is already well in excess of what the person expects to need.

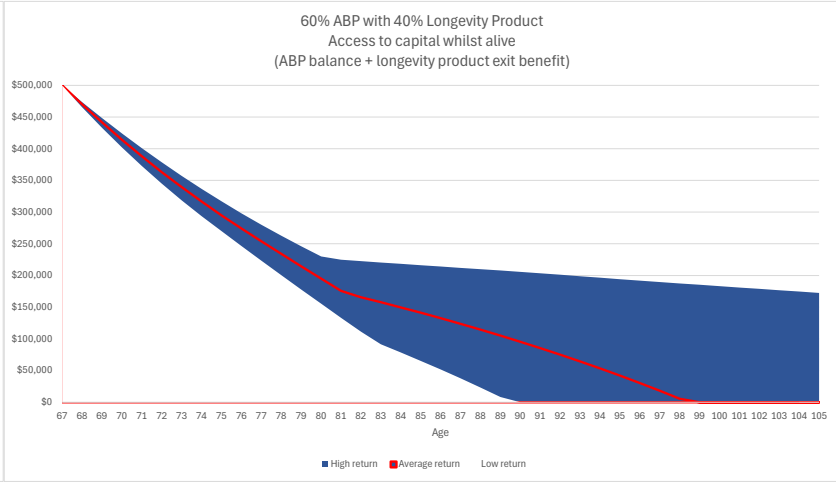
We also note that assets outside of superannuation have been excluded from the access to lump sum analysis.

Chapter 7.5.2 also sets out one analysis of access to lump sums when returns are different to expected.

7.5.2 Analysis of Access to Lump Sums Allowing for Risks of Returns Being Higher or Lower Than Expected

Set out below is analysis of access to returns under investment returns being a fixed 1.3% p.a. higher and fixed 1.6% p.a. lower than the base persona investment returns of 6.9% p.a. (gross of fees, net of tax). Further analysis – for example under stochastic returns can assist with understanding adverse outcomes and exposure to sequencing risk if there is a large fall in returns early in retirement.





8. Varying Approach / Assumptions

8.1 Introduction

This chapter sets out the impact on the results of varying the following assumptions:

- Target income / draw down rate;
- Health; and
- Other changes to assumptions and strategy.

8.2 Target Income/Drawdown Rate

8.2.1 Introduction

Some alternatives to the approach adopted of targeting a stable real income that will exhaust the ABP under the base strategy under expected earning assumptions at two years beyond life expectancy (i.e. at age 93) include:

- Change target income in Alternative Strategy to run out at same age as Base Case;
- Targeting a longer period beyond life expectancy e.g. 5 years or 96 for this member;
- Targeting the income drawdown to life expectancy e.g. 91 for this member; and
- A higher income earlier in retirement and lower later in retirement.

We noted in Chapter 6 that we consider for a member who has retired, their retirement income is constrained by their resources. Therefore, other income/draw down benchmarks such as adopting a member's own desired lifestyle as the target, particularly if it is larger than the resources they can afford, are less useful as benchmarks.

Therefore, we consider for members seeking to maximise their retirement income from their superannuation balance, slight variations (rather than dramatic ones) to our base approach are sensible to consider.

8.2.2 Change target income in alternate strategy to run out at same age as base strategy

Instead of setting the drawdown in the alternate strategy to target the same income rate as in the base strategy, some trustees or members might prefer analysis that targets the same age at ABP run out (i.e. changing the target income rate).

The objective of the analysis is to show how much higher the income level is in the alternate strategy.

This can be presented as follows:

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Base 100/0 with 60/40 strategy updated for target run-out age	$53,432	n/a	94	$ 21,281	$ 25,348	$ 46,629	3.0%	-$ 27,382	$ 11,097	21.4%	$ 91,855

Under this analysis, the drawdown strategy aiming for an unchanged age at which target income is first not achieved (i.e. 93), results in a target income rate of $53,432 and a total living income uplift of $46,629 (i.e. 3.0% higher than the base 100/0 strategy).

Similar to the analysis without sensitivity, both living product and age pension income is higher.

The value of death benefits paid is lower.

Overall, the strategy conclusions are quite similar, and therefore this seems primarily a choice about presentation.

8.2.3 Lengthening Period for Target Income to 96 / Shortening Period to 91

Below is set out analysis based on targeting a longer or shorter age for ABP run-out. i.e. the model is run increasing or decreasing the age after which, under the 100/0 base strategy, the target income is first not achieved.

Lengthening Period for Target Income from 93 to 96

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Lengthening Period for Target Income to 96	$ 50,243	96	105	$ 12,332	-$ 424	$ 11,907	1.0%	$ 17,281	$ 18,754	37.3%	$ 55,600

Lengthening the period to 5 years beyond life expectancy shows an overall uplift in total retirement income, albeit lower than the uplift achieved under the analysis without sensitivity.

At the same time, the lower draw down from the product extends the duration of the member's ABP balance resulting in an uplift to their death benefit.

Shortening Period for Target Income from 93 to 91

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Shortening Period for Target Income to 91	$ 53,336	91	94	$ 15,112	$ 20,080	$ 35,191	2.9%	-$ 8,085	$ 11,478	21.5%	$ 69,569

The results are overall broadly similar when shortening the period over which the ABP is exhausted. For this analysis, the uplift in living income comes as a cost to the expected value of the death benefit, where the ABP balance runs out sooner, therefore providing fewer later years where the death benefit is higher than under the 100/0 strategy.

8.2.4 Higher Income Early in Retirement / Lower Income Later in Retirement

To show a possible deviation from a stable real income, the member outcome for higher income drawn down early in retirement (for example, where more expensive lifestyle preferences may be concentrated) and lower income later on, is analysed below.

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Higher Income Early in Retirement / Lower Income Later in Retirement	$60,526 for 10 years, $45,979 thereafter	93	98	$ 12,403	$ 14,701	$ 27,104	2.2%	-$ 5,159	$ 12,991	28.3%	$ 70,343

The approach where a 16.5% increase in retirement income is targeted for the first 10 years for example, and a reduction of 11.5% thereafter (until the 100/0 ABP runs out), achieves a similar outcome. This is because the member is effectively holding less account balance back to later ages when mortality rates are higher (and therefore less benefits paid out as death benefit).

8.3 Health

As discussed in Chapter 3, a minority but nonetheless significant number of members, are likely to be in poor health.

To illustrate impact of poor health on retirement strategy, a member with a mortality rate reflective of life expectancy approximately six years[15] lower has been considered. This mortality rate has been set using the basis described in Chapter 6.4, with a flat increase by a factor of 2.29 for females. For the purpose of our analysis it is noted that the target income level has been left unchanged i.e. targeting an age at run out of 93.

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Increase mortality for poor health	$ 51,953	93	98	$ 19,573	-$ 17,885	$ 1,687	0.2%	-$ 19,580	$ 13,556	26.1%	$ 26,686

The key observation is that, not surprisingly, for the unhealthy member, there is limited uplift in the value of retirement income from the inclusion of longevity product in the alternate strategy. Income generated from the longevity product is priced inclusive of members in good health and as such will be of less value to those members who are in poor health.

As noted in Chapter 3, in the UK there is a well-developed impaired life longevity product market. It is possible that in Australia until the take-up overall for longevity products improves, there may be limited offers that provide different benefits/price specifically for unhealthy lives.

Other observations include:

- The mortality adjusted expected value for a member in poor health is lower as a result of a lower survival probability.
- It is acknowledged that for retirement strategies involving couples, poor health status for one life does not automatically imply poor health for the other life and as such, additional consideration needs to be given to couples.

In summary, our analysis highlights the importance of gaining a deeper understanding of life expectancy generally of members and the diversity of the health of members.

[15] The three year reduction in life expectancy noted in Chapter 3 broadly covers 25% of the membership in poor health, with the six year reduction being specifically chosen to illustrate a subset of this.

8.4 Other Changes to Assumptions and Strategy

In addition to the above discussed factors, assumptions that trustees may want to vary when conducting analysis of outcomes may include, amongst other things, investment return assumptions, inflation and the longevity product proportion in the alternate strategy. A limited analysis of these is set out in Appendix C.

It is noted that both strategies (and the underlying products, including the longevity product) considered in this paper have the same market exposure. They are therefore both impacted by risks such as sequencing risk, and low market returns generally. This paper has focussed on varying certain aspects that impact the strategies differently and has not included stochastic analysis. In summary, it is noted that while it has not been included in this paper, further analysis adopting stochastic returns and more detailed analysis of lower market returns generally assists with understanding exposure to sequencing risks.

Our overall observation is that analysis of products, tax and social security rules is complex. We consider that analysing the sensitivity of results to input assumptions is important as it deepens understanding of relationships and drivers of results. It assists with highlighting which inputs/assumptions the results/conclusions are most sensitive to and deserve close attention and analyses with varied values.

9. Extending Analysis to Other Cohorts

9.1 Introduction

This chapter highlights certain implications for the modelling results for members with different attributes.

As has been noted earlier, the results are high-level and indicative only. In expanding their own analysis, funds will, among other things, perform analyses for a wider range of members and more granular attribute values.

We initially look at the variability solely for the particular persona selected and then make some broader observations about the potential implications for members with different attributes.

9.2 Illustrative Segments from Chapter 5

The segments from Chapter 5 are as follows:

Illustrative Analysis of Profile of Superannuation Fund Membership for Females Reaching 67 Year-Old

Spouse Status		Member Health		Home Ownership		Superannuation Balance / Eligibility Age Pension		Assets Outside of Superannuation: Low $50,000 prsnl - no fncl assets	Medium $50,000 prsnl - $150,000 fncl	High More than $500,000
Single	37%	Good Health	27.8%	Homeowner	21%	Low Superannuation Balance	14.1%	7.0%	5.6%	1.4%
						Medium Superannuation Balance	4.5%	2.2%	1.8%	0.4%
						High Superannuation Balance	2.7%	1.4%	1.1%	0.3%
				Non-Homeowner	7%	Low Superannuation Balance	5.5%	2.7%	2.2%	0.5%
						Medium Superannuation Balance	0.8%	0.4%	0.3%	0.1%
						High Superannuation Balance	0.2%	0.1%	0.1%	0.0%
		Poor Health	9%		9%		9.3%	4.6%	3.7%	0.9%
Couple	63%	Good Health	47%	Homeowner	36%	Low Superannuation Balance	24.0%	12.0%	9.6%	2.4%
						Medium Superannuation Balance	9.6%	4.8%	3.8%	1.0%
						High Superannuation Balance	2.7%	1.4%	1.1%	0.3%
				Non-Homeowner	11%	Low Superannuation Balance	10.2%	5.1%	4.1%	1.0%
						Medium Superannuation Balance	0.6%	0.3%	0.2%	0.1%
						High Superannuation Balance	0.3%	0.2%	0.1%	0.0%
		Poor Health	16%		16%		15.8%	7.9%	6.3%	1.6%
Total	**100%**		**100%**		**100%**		**100%**	**50%**	**40%**	**10%**

We extended the approach and analysis described in Chapter 5 beyond the 67 year-old female to these cohorts as described in the chapter below.

9.3 Implications for Variability in Persona to 67 year-old Female

In this chapter we consider how results and conclusions vary with certain changes to the persona/attributes.

This includes:

- No Homeownership;
- Higher ($1,000,000) or lower ($250,000) superannuation balance at retirement than $500,000 if a homeowner, or $700,000 if not a homeowner;
- More or less assets outside super than $50,000 ($500,000 and $25,000 respectively); and
- Couple status[16] .

Further detail on the modelling approach for couple personas is given in Appendix A.

Rather than reproduce all the results – we have shown just the results for expected income (in today's dollars) and for healthy members.

Expected Value Total Living Income Uplift by Persona ($ amount)

Spouse Status		Home Ownership		Superannuation Balance / Eligibility Age Pension		Assets Outside of Superannuation Low $50,000 prsnl - no fncl assets	Medium $50,000 prsnl - $150,000 fncl	High More than $500,000
Single	37%	Homeowner	21%	Low Superannuation Balance	14.1%	8,565	8,565	21,284
				Medium Superannuation Balanace	4.5%	26,122	26,868	14,787
				High Superannuation Balance	2.7%	33,830	33,199	31,588
		Non-Homeowner	7%	Low Superannuation Balance	5.5%	8,565	8,565	14,740
				Medium Superannuation Balanace	0.8%	599	7,894	28,960
				High Superannuation Balance	0.2%	36,119	36,270	28,274
Couple	63%	Homeowner	36%	Low Superannuation Balance	24.0%	4,764	4,764	9,649
				Medium Superannuation Balanace	9.6%	15,773	21,814	16,749
				High Superannuation Balance	2.7%	46,943	46,627	33,483
		Non-Homeowner	11%	Low Superannuation Balance	10.2%	4,764	4,764	7,542
				Medium Superannuation Balanace	0.6%	-13,560	-13,338	34,286
				High Superannuation Balance	0.3%	26,944	31,287	42,468

Expected Value Total Living Income Uplift by Persona (by % of account balance)

Spouse Status		Home Ownership		Superannuation Balance / Eligibility Age Pension		Assets Outside of Superannuation Low $50,000 prsnl - no fncl assets	Medium $50,000 prsnl - $150,000 fncl	High More than $500,000
Single	37%	Homeowner	21%	Low Superannuation Balance	14.1%	3.4%	3.4%	8.5%
				Medium Superannuation Balanace	4.5%	5.2%	5.4%	3.0%
				High Superannuation Balance	2.7%	3.4%	3.3%	3.2%
		Non-Homeowner	7%	Low Superannuation Balance	5.5%	3.4%	3.4%	5.9%
				Medium Superannuation Balanace	0.8%	0.1%	1.1%	4.1%
				High Superannuation Balance	0.2%	3.6%	3.6%	2.8%
Couple	63%	Homeowner	36%	Low Superannuation Balance	24.0%	1.9%	1.9%	3.9%
				Medium Superannuation Balanace	9.6%	3.2%	4.4%	3.3%
				High Superannuation Balance	2.7%	4.7%	4.7%	3.3%
		Non-Homeowner	11%	Low Superannuation Balance	10.2%	1.9%	1.9%	3.0%
				Medium Superannuation Balanace	0.6%	-1.9%	-1.9%	4.9%
				High Superannuation Balance	0.3%	2.7%	3.1%	4.2%

[16] In modelling the couple persona: i) the spouse's age has also been set to 67, ii) the couple's combined balance at retirement and total assets outside of super has been set equal to the equivalent single persona amount - for example, a low superannuation balance of $250,000 for a single member translates into a $125,000 balance for each of the main member and spouse iii) the spouse invests their balance at retirement in the same split between ABP and longevity product as the main member.

The following high-level observations are noted:

- Personas with superannuation and asset balances of a size that they are eligible for full age pensions still benefit from the longevity product strategy as a result of increased product income.
- For most personas with high superannuation balances where assets exceed the minimum asset test threshold (but are still entitled to some age pension), they gain a benefit from concessional assets treatment for the longevity product. Therefore, adding the longevity product tends to be more beneficial than for the same personas with lower assets outside of super.
- Personas with some eligibility to age pension, but without homeownership in some cases benefit less from a CAS compliant longevity product compared with those with homes. This is because of age pension impacts – in particular, the asset test thresholds increase for non-homeowners but the income test thresholds do not (the income test thresholds tend to "bite" more for the strategy with longevity product).
- The age pension uplifts (or detriments) can vary significantly. We discuss this further in Chapter 9.4 and Appendix B.
- As noted in the chapters above, there are differences when applying different modelling approaches and assumptions. The reader should be aware that these have the potential to impact the broader range of cohorts in similar ways to how they impacted the 67 year-old cohort.

9.4 Age Pension Entitlement

Age pension entitlement is complex – subject to change over time and this should be taken into account in considering the results in this chapter.

Nonetheless, an analysis of the rules and entitlement as they currently exist is worthwhile – and assumptions and modelling approaches which are key to the results are brought to the reader's attention through further analysis which is set out in Appendix B.

10. Conclusion

Superannuation funds are in the middle of a wave of retirees needing assistance with retirement strategies.

This paper has revealed a number of key facets of the problem that superannuation funds need to solve, including:

- The attributes relevant to solving the RIC are wider and more complex than those in the pre-retirement phase. There are a large number of attributes that need to be understood to assist members into a retirement strategy that best suits them. Many of these attributes are not well understood and/or not available in the typical member records in superannuation systems. Work needs to continue with additional sources.
- High-level analysis based on population data and for the small number of attributes considered in this paper indicates that any large fund will have very diverse members.
- Superannuation funds need to combine a closer understanding of members with a deeper analysis of available strategies and how to measure the outcomes that alternative strategies deliver based on those member attributes and against those preferences. Only when funds have the deepest understanding of members and the best possible understanding of strategies and what they deliver can they best assist members into the strategy that suits them.
- There may be members who are outliers for whom a superannuation fund is not well placed to deliver solutions. The impacts of cohorting should identify these, which allows a consideration of whether the strategy should be adapted or alternatively, if best financial interests considerations lead to the conclusion that the spend to accommodate outliers is not within best financial interest parameters, that perhaps those members are better served in a different fund. Importantly, member data and insights are obviously valuable in determining and reviewing a RIS.

Funds should not be frozen from acting by this complexity. Key to solving the RIC is to get started and to appreciate that the development and approval of the RIS is not where the analysis ends. The application of outcome modelling and monitoring against the defined cohorts will assist with continuous improvement and understanding of the success of the strategy against the desired member outcomes.

Further, we hope that this paper has shown ways to avoid becoming overwhelmed and paralysed by the complexity of the problem. In particular a second key to solving the RIC problem is to focus energy on material and practical matters and simplify where possible. Two examples in this paper include:

1. The analysis in Chapter 6 to 8 shows that, by combining modern products, the level of market growth potential and the management of longevity risk can be separately optimised. Trustees can confidently look to assist members knowing that products can solve for each aspect to some extent independently. Market risk and longevity protection do not need to be seen and packaged in inflexible combinations forcing a choice between a range of less than ideal outcomes
2. Identify opportunities to cut-through complexity – retirement strategies which combine products may provide ample access to lump sums for many members. In these cases there may be limited need to unduly focus on third pillar considerations.

Solving the RIC requires new approaches to understand members and modelling to evaluate alternative strategies and outcomes in retirement.

Superannuation funds are developing their approaches, but much work remains to be done.

In summary, we hope that this paper has stimulated thinking as superannuation funds address the vast undertakings to better "understand members" and "understand outcomes". We look forward to seeing further developments which we expect will see rapid improvement and change in the coming years.

A Model Methodology and Assumptions

A.1 Model Methodology

The following outputs are produced by the model for each chosen persona and for each year post retirement:

- Annual retirement income benefits from:
  - Account-based pension;
  - Longevity product;
  - Age pension; and
- Withdrawal and Death Benefits.

The ABP drawdown assumed and against which the model outcomes are assessed is set such that under the Base 100% ABP strategy and for singles, the ABP balance is exhausted after age 93 for females.

This is two years higher than the life expectancy used in determining the expected value of living income throughout this paper. The couples persona variation equivalent has been set to 95.

Our modelling supports a like-for-like comparison by modelling all variations based on the draw down rate to achieve the same target income as the Base 100% ABP strategy.

It is noted that currently the majority of retirees adopt a 100% ABP strategy with drawdowns based on the legislated minimums. The drawdown approach utilised throughout this paper therefore differs from the currently observed approach (with statutory minimums generally being lower than the assumed optimal drawdown rate per our analysis).

Where necessary, to achieve the same the same amount of income drawn down as with the 100% ABP strategy, the legislative minimum draw down rate on the ABP was removed for some scenarios.

Although at first glance this appears to be inconsistent with superannuation legislation, it is important to note that the overall amounts involved are relatively small. It is also observed that a member might achieve a comparable outcome by reinvesting the additional amount withdrawn (under the strategy involving an allocation to the longevity product) into an investment outside of superannuation. Although there may be different tax treatments, given that the amounts are small, it is unlikely to significantly alter the results.

The ABP and longevity product modelling for couple personas assumes benefits are paid up to survivorship of the last life.

A.2 Longevity Product

The key modelling features of the longevity product are set out below:

- Member chooses how assets are invested. Under the modelling approach, the same growth/asset investment mix is chosen as for the ABP.
- Member account balances are credited with:
  - investment returns, net of fees; and
  - mortality credits, distributed as long as the member is alive.
- Members withdraw a regular income from their account balance for life, the payment rate of which is set as a % of their account balance.
- The death and withdrawal benefits are determined as follows:
  - The death/withdrawal benefit includes a money-back feature, capped according to the CAS schedule. The money-back amount is calculated as the amount invested in the product minus the cumulative income payments made to date.
  - The death benefit will be the smallest of the money-back amount, the account balance, and the CAS Death benefit amount. Similarly, the withdrawal benefit is determined by the minimum of the money-back amount, the account balance, and the CAS Exit amount.
- For the couple modelling, it is assumed the longevity product continues to pay benefits up to survivorship of the last life.
- The mortality credit and income levels are set out in the table below. They have been set at levels which result in the level of real income from the longevity product being reasonably stable under our best estimate earning and inflation assumptions. As noted in the body of the report, they have also been set at a level we consider not unreasonable and that include an overall embedded margin in the longevity product (i.e. on our assumed mortality basis, the present value of the mortality revenue to the fund/insurer being more than the present value of the mortality credits to the members).

Age	Single		Couple	
	Annual Income Rate	Annual Mortality Credit Rate	Annual Income Rate	Annual Mortality Credit Rate
67	6.00%	0.23%	5.51%	0.01%
68	6.13%	0.33%	5.55%	0.02%
69	6.32%	0.43%	5.70%	0.03%
70	6.46%	0.43%	5.81%	0.03%
71	6.67%	0.53%	5.97%	0.04%
72	6.89%	0.63%	6.15%	0.06%
73	7.12%	0.73%	6.34%	0.08%
74	7.37%	0.83%	6.54%	0.10%
75	7.64%	0.83%	6.76%	0.12%
76	7.92%	1.03%	6.99%	0.17%
77	8.22%	1.13%	7.24%	0.22%
78	8.59%	1.23%	7.56%	0.27%
79	8.93%	1.43%	7.86%	0.35%
80	9.35%	1.73%	8.23%	0.48%
81	9.74%	2.03%	8.58%	0.64%
82	10.21%	2.33%	9.01%	0.82%
83	10.65%	2.53%	9.42%	1.00%
84	11.14%	2.83%	9.88%	1.24%
85	11.70%	3.23%	10.42%	1.55%
86	12.30%	3.63%	11.00%	1.90%
87	13.00%	4.13%	11.68%	2.35%
88	13.69%	4.73%	12.36%	2.90%
89	14.37%	5.33%	13.05%	3.50%
90	15.11%	6.13%	13.80%	4.28%
91	15.91%	6.93%	14.61%	5.09%
92	16.86%	8.03%	15.57%	6.14%
93	17.87%	9.13%	16.60%	7.25%
94	19.05%	10.43%	17.80%	8.59%
95	20.30%	11.63%	19.06%	9.95%
96	21.64%	13.23%	20.41%	11.72%
97	23.05%	15.03%	21.79%	13.56%
98	24.71%	17.23%	23.42%	15.69%
99	26.20%	19.53%	24.88%	17.87%
100	27.69%	21.73%	26.36%	19.97%
101	29.25%	23.93%	27.92%	22.23%
102	30.85%	26.13%	29.51%	24.49%
103	32.36%	28.53%	31.01%	26.93%
104	33.88%	30.03%	32.50%	28.43%
105	35.81%	30.03%	34.38%	28.47%

A.3 Age Pension

Age pension eligibility is assessed on beginning of year asset balances with full age pension rates and thresholds assumed to be indexed annually with CPI.

Age Pension modelling for Spouse Cohort

When modelling the age pension entitlement for a persona with a spouse, we have assumed a couple status. This means our modelling approach does not account for or calculate the age pension entitlement in scenarios where the couple may become single during the retirement period, such as due to the death of one partner at a different time or because of divorce.

It is noted that this is a simplification in the modelling approach which was considered reasonable to illustrate results and taking into account other overall simplifications and assumptions. Nonetheless, it should be noted that a more complex analysis which allowed for death/divorce and impacts on age pension entitlement would impact the results somewhat – including in some cases reducing the age pension entitlement and therefore the value of income under the alternate strategy.

A.4 ESG Assumptions and Asset Mix

The economic assumptions utilised in this report are derived from Conning's Economic Scenario Generator, with data effective 31 December 2024. Conning's ESG provides a comprehensive distribution of potential economic futures, projecting financial market scenarios over a span of 50 years.

Investment earnings and the Consumer Price Index are modelled using stochastic sector return outputs from Conning's ESG. For the purposes of this report, single input variables were determined by taking the median over 1,000 scenarios of the geometric average of returns weighted by the period of ABP run out. As such, each sector return, index, interest rate, and inflation rate are fixed over the entire projection period, rather than varying. Allowances were made for imputation credits on Australian equities and withholding tax on global equities.

The below table sets out the resulting model inputs including the returns and asset class allocations of each of the underlying asset classes.

Asset Class	Allocation	Return	Risk Premium
Risk Free		***3.8%***	
AU Large Cap	19.90%	9.36%	5.56%
Global Equity Hedged	9.15%	7.62%	3.81%
Global Equity Unhedged	15.25%	6.98%	3.17%
AU Fixed Income	15.45%	5.42%	1.61%
Global Fixed Income	8.32%	6.21%	2.40%
AU Listed Property	0.86%	7.52%	3.71%
AU Unlisted Property	6.87%	6.81%	3.00%
AU Listed Infrastructure	2.23%	6.51%	2.70%
AU Unlisted Infrastructure	6.68%	7.01%	3.20%
AU Cash	11.73%	4.04%	0.23%
Private Equity	3.58%	8.60%	4.80%
Total	**100.00%**	**6.91%**	**3.10%**

A.5 Wage Inflation

Wage Inflation has been set equal to CPI for the main analysis.

A.6 Fees

Fees comprise 0.7% p.a. of the account balance for the ABP. The longevity product includes this amount of fee plus further margin allowances, for example including for the cost of providing within the income rates and mortality credit levels noted at Appendix A.2 above.

A.7 Mortality Basis

The mortality basis for determining the expected retirement income allowing for survival probabilities has been set assuming personas are in good health using:

- Basis 1 from the December 2018 Actuaries Institute paper titled "Exploring Retiree Mortality"; and
- The Australian Government Actuary ("AGA") 25-year mortality improvement factors from the Australian Life Table Series 2015 – 2017.

The mortality basis for members in poor health in Chapter 8.3 has been adjusted from the above such that life expectancy is approximately six years lower.

B Further Analysis of Age Pension Entitlement

B.1 Introduction

This Appendix sets out an analysis of age pension entitlement impacts underlying the analysis, particularly for the single personas.

Age pension income is derived based on the member's (and spouse if applicable) projected assets and income, allowing for the current means testing rules[17]. These are influenced by several factors, including a member's total assets (and their types), income generated from those assets, single or couple status, and homeownership.

The amount of assets/income assessable under the means test are subject to market movements (e.g. ABP movements).

	ABP/Other assets	Longevity Product
Asset test – assessable amounts	100%	- 60% up to age 85 (subject to min of five years) - 30% thereafter
Income Test - assessable income	0.25% for assets below the deeming threshold (Single- $62,600, Couple - $103,800). 2.25% for any assets over the threshold	0.25% for assets below the deeming threshold & 2.25% for any assets over the threshold (Single- $62,600, Couple - $103,800). However, only 60% of the product income is considered for income test.

The asset and income test above are also subject to below thresholds:

Age Pension Thresholds

Situation	Homeowner Asset Cap (part Age Pension)	Non-Homeowner Asset Cap (part Age Pension)	Fortnightly Income Cap (part Age Pension)	Full Fortnightly Age Pension
Single	$314,000	$566,000	$212	$1,144
Couple	$470,000	$722,000	$372	$1,725

Noteworthy assumptions and modelling approaches specifically applicable to the spouse persona have been provided in Appendix A.

[17] Services Australia, *Age Pension*, https://www.servicesaustralia.gov.au/age-pension (accessed 23rd May 2025)

Our analysis considers both the immediate age pension entitlement as well as an expected value in today's dollars of age pension entitlement which is based on the methodology set out above.

Key aspects considered include:

- Superannuation balance;
- Homeownership; and
- Assets outside of superannuation (for low adopted $0 and high adopted $250,000).

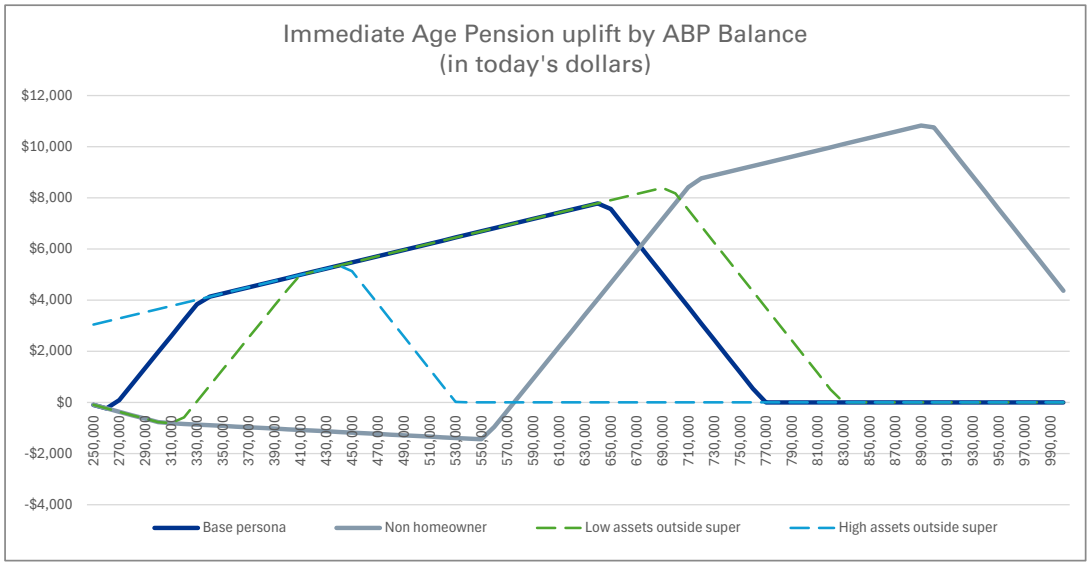
It is noted that the analysis is based on a fixed set of assumptions – expanded analysis would include consideration of varying assumptions including those noted in Chapter 8.4 for example.

B.1.1 Modelling Results

Immediate Age Pension Entitlement:

The table below shows the uplift to age pension observed in the first year of retirement for the 60/40 longevity strategy relative to 100% investment in ABP.

High assets outside of super has been set to $250,000. Low assets outside of super has been set to $0.



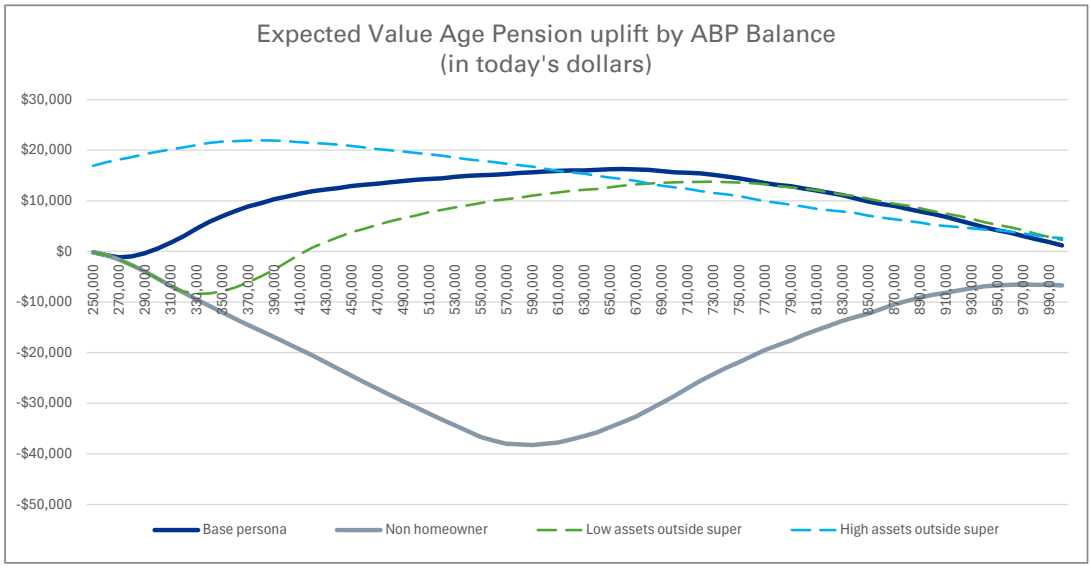
Observations on these results include:

- For the base persona, the longevity product strategy yields an uplift in immediate age pension entitlements for superannuation balances ranging from $280,000 to $760,000. For superannuation balances in excess of $760,000, the asset test thresholds are exceeded under both strategies (zero immediate age pension uplift from the Alternate Strategy). It is noted that in future years post-retirement, as the ABP reduces, the member becomes entitled to some level of age pension – the chapter below consider the value of age pension entitlement over the entirety of retirement.

- For a non-homeowner with super balance less than $600,000 (but with the same other attributes) the longevity product strategy results in reduced immediate age pension. For super balances above this, the asset test deduction from 100% ABP strategy exceeds the income test deduction in the alternate strategy.
- As expected, a benefit to the immediate pension uplift for the persona with low assets outside of superannuation occurs at a higher level of superannuation balance than that for the same persona with a lower level of assets outside of superannuation.

Value of Age Pension Uplift

The table below shows the uplift to the value of age pension in today's dollars over retirement for a healthy member, allowing for the likelihood of being alive at each age. The uplift is based on comparing the outcome for the 60/40 longevity strategy relative to 100% investment in ABP.



The analysis shows that, for the base analysis, as well as lower and higher assets outside of superannuation, the uplift in the lifetime value of age pension benefits for homeowners is similar from superannuation starting balances of above $550,000.

Similar to the results in Chapter 9.3 for single, non-homeowner, low and medium assets outside of super personas, the alternate longevity strategy for non-homeowners is detrimental to the present value of age pension entitlements for the superannuation balances considered.

B.1.2 Overall Age Pension Conclusions

The following are general observations on the impact on age pension entitlements of including longevity products (that are CAS compliant) in retirement strategies.

Many of these are already well understood.

- **Maximum uplift to age pension** – the maximum uplift to immediate age pension entitlement tends to occur for those with assets at the threshold for a part pension.
- **No change to age pension eligibility** – this occurs for personas where the asset balance is low enough that both the asset and income test are not triggered, or high enough that the member is not eligible under either strategy.
- **Income Test and Non-homeowners** – non-homeowners have the same income test for age pension as homeowners. This impacts the benefit of age pension entitlement. This is so much so that the longevity product in some circumstances has a marginal negative impact for immediate pension entitlement (as well as for the lifetime value analysis).

C Additional Sensitivity Analysis

C.1 Introduction

Analysis of products, tax and social security rules is complex.

Funds should identify key judgements and assumption inputs. Undertaking analysis under varied assumptions and inputs highlights impacts on the relative outcomes between alternate strategies.

This chapter sets out a limited analysis of examples of the impact of the analysis in Chapter 7 to changes to certain assumptions.

C.2 Changed Asset Mix / Investment Returns

C.2.1 Investment Returns

Set out below is an analysis under higher or lower return assumptions as follows:

- 1% reduction/increase in expected real return (i.e. through a change to expected future nominal interest rates but unchanged inflation) – note for this scenario we have assumed no change to deeming rates; and
- 1% reduction/increase in equity (and other growth assets) risk premium.

+/-1% expected real return

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Increase in expected real return	$ 54,334	93	100	$ 9,308	$ 23,092	$ 32,400	2.6%	$ 7,089	$ 17,707	32.6%	$ 84,088
Decrease in expected real return	$ 49,692	93	97	$ 17,296	$ 4,402	$ 21,698	1.9%	-$ 1,007	$ 10,222	20.6%	$ 56,312

+/-1% risk premium

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Increase in risk premium	$ 53,480	94	99	$ 11,112	$ 19,241	$ 30,353	2.5%	$ 4,533	$ 17,374	32.5%	$ 93,547
Decrease in risk premium	$ 50,480	93	97	$ 16,591	$ 7,023	$ 23,614	2.0%	-$ 255	$ 11,418	22.6%	$ 61,285

Overall, the results indicate that the outcomes are somewhat sensitive to changes in assumed returns.

For example, an increase in the expected real return increases the product income (as a result of higher returns earned) but decreases the age pension entitlement (as a result of increased assets towards the asset test and income deeming). Similarly, an increase in the equity (and other growth assets) risk premium also increase product income, but decreases age pension entitlement, but to a lesser extent than an increase in the expected real return.

C.2.2 Asset Mix

Changing the asset mix changes the expected return e.g. adopting a higher defensive asset mix to say, 40/60 (growth/defensive mix) results in a reduction in expected returns of around 0.7%. This is similar to the sensitivity above of a 1% reduction in expected returns.

It is acknowledged that change in asset mix would impact stochastic or other scenario analysis of investment returns.

C.2.3 Male Total Average Weekly Earnings

As noted in Chapter 6 we have adopted wage growth (Male Total Average Weekly Earnings, "MTAWE") / indexation of the age pension benefit at the same rate as price inflation.

The Australian Securities and Investments Commission (ASIC) updated wage growth used in superannuation forecasting from 4.0% p.a. to 3.7% p.a., effective from 1 January 2025[18]. Set out below is analysis using ASIC's changed assumption of 3.7% p.a. rather than CPI for age pension benefit. We have also increased the target income and discounted the present values using 3.7% p.a. rather than CPI.

	In Today's Dollars										
				Uplift (vs 100/0)							
	Solved Target Income	Run-Out Age (100/0)	Run-Out Age (60/40)	Expected Value AP Uplift	Expected Value Product Uplift	Expected Value Living Income Uplift	% Living Income Uplift	Expected Value Death Benefit Uplift	Average Income Uplift (after run-out age 100/0)	% of Target Income	Expected Value Total Income Uplift (after run-out age 100/0)
Analysis without sensitivity	$ 51,953	93	98	$ 14,169	$ 12,699	$ 26,868	2.3%	$ 1,562	$ 19,472	37.5%	$ 69,729
Male Total Average Weekly Earnings	$ 48,698	93	96	$ 15,272	$ 16,046	$ 31,317	2.4%	-$ 1,962	$ 9,465	19.4%	$ 58,755

Generally, the results are similar or improved somewhat when adopting an MTAWE growth assumption consistent with ASIC's proposed changed assumption of 3.7% p.a. (currently it is 4.0% p.a.). The overall uplift to income (in today's dollars) is $4,449, with $3,347 from product and $1,103 coming from the age pension.

If MTAWE was 1.2% (or 1.5% as it is currently) above CPI in the near future, it would not "catch up" to the CPI indexed calculation of age pension for some time. In our calculations

[18] Australian Securities and Investments Commission, "ASIC updates superannuation forecasts relief instrument", https://asic.gov.au/about-asic/news-centre/news-items/asic-updates-superannuation-forecasts-relief-instrument (accessed 3rd June 2025)

above we have assumed that it has already "caught up" i.e. age pension based on MTAWE growth immediately. The age pension is therefore increased and results in a slightly higher share of the overall benefit.

C.2.4 Deeming Rates for Age Pension Income Test

While we have not performed detailed analysis of changes to deeming rates, the following is noted.

Current deeming rates to determine income generated from financial assets for purposes of the income test are 0.25% of financial assets up to $62,600 and 2.25% thereafter for singles. For couples where at least one person is receiving a pension, the deeming rates are the same, but the threshold is higher at $103,800. This reduces to $51,900 if neither person is receiving a pension.

Deeming rates themselves last changed in 2020 when they were updated from the previous rates of 1% and 3% respectively. The current freeze on deeming rates – implemented to protect retirees during the economic uncertainty arising from COVID-19, is due to expire on 30 June 2025, at which point government can adjust them to reflect economic conditions. With interest rate increases since 2020, if deeming rates were adjusted to reflect the current cash rate of 3.85%, or return to pre-COVID levels, retirees could see their deemed income rise.

Longevity products are assessed on the basis of 60% of income payable. As this seems somewhat unlikely to change, or at least to change to a more adverse treatment in the short term given the government objectives to reduce disincentives to such products, no sensitivity to this assumption has been performed.

C.2.5 Other Inputs

Other assumptions have not been tested but for which analysis may be worth performing include:

- Changes to tax and social security rules. The government may signal or it may otherwise become clear that rules may be likely to change and funds may want to understand how the analysis is impacted under such potential changes. As has been illustrated throughout this paper, outcomes are significantly impacted by the tax and social security rules and tax or social security changes can impact different retirement strategies differently.
- Expected/actual future mortality. Relative outcomes will generally be impacted by the expected/actual mortality rates. The comparison of "healthy" and "unhealthy" lives provides an example of this. Per the discussion of the "healthy" lives mortality basis, significant judgement is involved even in setting the assumption for healthy lives. Further the actual mortality will be different to the assumed level.
- Inflation.
- Longevity product proportion in the alternate strategy.

D Acknowledgements

We would like to thank Mark Lapedus and Estelle Liu for their thoughtful contribution to this paper. Their feedback and review have helped shape several key aspects of the content. Any errors in this paper remain the authors' responsibility.

E References

Chapter 3.1.2

Disease/Condition	Reference
Diabetes	Australian Bureau of Statistics, "Diabetes." ABS, 2020-21, https://www.abs.gov.au/statistics/health/health-conditions-and-risks/diabetes/2020-21. (accessed 3rd June 2025) U.S. Centers for Disease Control and Prevention, "How People with Type 2 Diabetes Can Live Longer", 2024, https://www.cdc.gov/diabetes/data-research/research/treatment-goals.html (accessed 3 June 2025)
Overweight – BMI above…	Australian Bureau of Statistics, "Waist circumference and BMI." ABS, 2022, https://www.abs.gov.au/statistics/health/health-conditions-and-risks/waist-circumference-and-bmi/latest-release. (accessed 3rd June 2025) University of Oxford, "Moderate obesity takes years off life expectancy", https://www.ox.ac.uk/news/2009-03-18-moderate-obesity-takes-years-life-expectancy (accessed 3rd June 2025)
Hypertension	Australian Bureau of Statistics, "Hypertension and high measured blood pressure." ABS, 2022, https://www.abs.gov.au/statistics/health/health-conditions-and-risks/hypertension-and-high-measured-blood-pressure/latest-release. (accessed 3rd June 2025)
Cancer	Australian Bureau of Statistics. "Cancer." ABS, 2022, https://www.abs.gov.au/statistics/health/health-conditions-and-risks/cancer/2022 (accessed 3rd June 2025) U.S. National Institutes of Health, "Changes in life expectancy for cancer patients over time since diagnosis", NIH, 2019, https://pmc.ncbi.nlm.nih.gov/articles/PMC6710558/ (accessed 3rd June 2025)
Heart attack, Stroke, Vascular Diseases	U.S. National Institutes of Health, "Long-term survival and life expectancy following an acute heart failure hospitalization in Australia and New Zealand", NIH, 2022, https://pmc.ncbi.nlm.nih.gov/articles/PMC9804480/ (accessed 3rd June 2025) The University of Queensland, "Stroke cuts life expectancy by one third", 2022, https://www.uq.edu.au/news/article/2022/04/stroke-cuts-life-expectancy-one-third (accessed 3rd June 2025) Australian Bureau of Statistics. "Heart, Stroke and Vascular Disease." ABS, 2022, https://www.abs.gov.au/statistics/health/health-conditions-and-risks/heart-stroke-and-vascular-disease/latest-release (accessed 4th June 2025)
Smoker	U.S. National Institutes of Health, "Reduced Life Expectancy due to Smoking in Large-Scale Cohort Studies in Japan", NIH, 2008, https://pmc.ncbi.nlm.nih.gov/articles/PMC4771605/ (accessed 3rd June 2025)
COPD	Australian Bureau of Statistics. "Chronic Obstructive Pulmonary Disease." ABS, 2022, https://www.abs.gov.au/statistics/health/health-conditions-and-risks/chronic-obstructive-pulmonary-disease/latest-release. (accessed 3rd June 2025)
Dementia	Australian Institute of Health and Welfare, "Dementia in Australia", AIHW, 2024, https://www.aihw.gov.au/reports/dementia/dementia-in-aus/data (accessed 3rd June 2025)