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Bridging the Longevity Divide



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Acknowledgement of Country

The Actuaries Institute acknowledges the traditional custodians of the lands and waters where we live and work, travel and trade. We pay our respect to the members of those communities, Elders past and present, and recognise and celebrate their continuing custodianship and culture.

About this Paper

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The authors declare that they have provided professional advice to some of the insurers, governments or other entities discussed in this Paper.

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Foreword from the Actuaries Institute

The Actuaries Institute believes many retirees could enjoy higher standards of living if lifetime income products such as annuities played a larger role in Australia's retirement system. When considered among the mix of product solutions for funding retirement, lifetime income products distinctly deliver protection against the risk of outliving retirement savings. Where appropriate for household circumstances, they are an effective option for retirees wanting to increase confidence and manage the risk of exhausting their own financial resources during retirement.

Realising these benefits equitably requires care. Lifetime income products are generally most valuable for retirees with longer life expectancies and sufficient assets to benefit from guaranteed income beyond what the Age Pension provides; they are less suited to those with very low balances, or those whose health or circumstances suggest a shorter- than-average retirement horizon. Current annuity pricing necessarily reflects the mortality experience of those who purchase them — a population that has historically skewed towards healthier, longer-lived Australians. Broadening participation could improve product terms and market depth, but it also raises questions about how pricing assumptions should adapt, and about the risk of products being sold to those whose circumstances may not be well served by them.

This Dialogue Paper, ***Bridging the Longevity Divide***, presents new Australian evidence on socio-economic differences in life expectancy at older ages, drawing on linked microdata that has not previously been examined at this level of detail. It explores issues around incorporating such data to inform the design, pricing and adoption of lifetime income products.

There are other significant factors that influence uptake of lifetime income products, including access to existing public safety nets such as the Age Pension as well as access to high-quality and affordable financial advice. These are outside the scope of this Paper.

The Institute publishes Dialogue Papers, which present the views of the authors and not necessarily the Institute, to stimulate informed discussion on important and emerging issues. We acknowledge there are alternative views to those expressed in this Paper. Wider discussion, including with regulators, providers, consumer advocates and the broader retirement income community, is an essential part of improving how Australians can protect for longevity risk in retirement.

We welcome constructive engagement with this Paper and look forward to continuing the conversation.

1. Executive Summary

The Australian superannuation system faces the challenge of delivering equitable and sustainable income in retirement, yet access to and uptake of lifetime income products remain limited. A potential barrier to the design, pricing, and broader adoption of lifetime income products is the lack of locally relevant and granular evidence on mortality differentials across socio-economic groups. While it is well understood that mortality varies by factors such as income, education and gender, comprehensive Australian evidence — particularly for the retired population — has been scarce. In practice, this has meant that providers often rely on general population statistics or international experience, which do not accurately reflect the longevity patterns of Australian retirees.

Our results[1], based on individual-level linked data from the Australian Bureau of Statistics' Person Level Integrated Data Asset (PLIDA), reveal substantial disparities in mortality and life expectancy across socio-economic groups — as measured by area-level advantage and disadvantage, income, gender, marital status and home ownership (with or without a mortgage) — with differences narrowing at older ages. At age 60, the gap in period life expectancy (i.e., the expected remaining years of life based on mortality rates observed in 2016–2017) between the most and least advantaged males is 11.5 years, and 9.1 years for females. The extent of these longevity disparities is wider than those previously reported, for example, by the Australian Government Actuary[2]. This reflects the greater socio-economic stratification used in our analysis, which considers multiple dimensions of disadvantage and advantage and therefore compares more narrowly defined groups, in contrast to the AGA analysis that primarily examined area-level advantage and disadvantage.

These large and persistent differences in life expectancy suggest that a uniform approach to designing, pricing, underwriting, and valuing longevity products is unlikely to reflect the heterogeneity in members' circumstances. Because current pricing is calibrated to the experience of a relatively small, generally advantaged pool of existing purchasers, these products may offer poorer value to less advantaged Australians currently outside that pool should they wish to purchase such a product. This points to the potential for risk-based approaches to designing and pricing longevity products to improve retirement outcomes for more Australians, though the case for doing so is likely to vary across different population segments.

We acknowledge, however, there are non-trivial practical considerations which must be worked through to know if these potential uplifts could be realised. These include consumer behavioural preferences, the interplay with the Age Pension, financial literacy and access to affordable advice, all of which inform the potential addressable market for providers.



1 We addressed this in a Paper presented at the All Actuaries Summit 2025 by analysing individual-level linked data from the Australian Bureau of Statistics' Person Level Integrated Data Asset (PLIDA), covering the entire Australian population aged 60–100 over 2016–2017. We examined mortality differentials across key indicators such as area-level socio-economic advantage and disadvantage, income, marital status and home ownership. The technical details of this analysis are provided in the original Paper presented at the All Actuaries Summit 2025.

2. Australia's Socio-economic Longevity Gaps

Key Points

- Life expectancy at age 60 varies by up to 11.5 years for males and 9.1 years for females across socio-economic groups.
- Key factors associated with shorter life expectancy include being single, not owning a home, having lower income and living in a more disadvantaged area.
- Disadvantaged groups fall substantially below the average (or benchmark) life expectancy, meaning using standard assumptions to price longevity products may not be appropriate.

> "Within the broad landscape of Australia's retirement income system, longevity risk plays a critical but often under-recognised role."

Australia's retirement income system is maturing, yet its retirement phase still falls short of delivering adequate and sustainable income that incorporates personalised longevity risk (the risk an individual outlives their savings) beyond the Age Pension. In response, the Australian Government introduced the Retirement Income Covenant, requiring superannuation trustees to support members with strategies that balance income adequacy, flexibility and risk. Building on the Retirement Income Covenant, the Treasury's *Guidance on best practice principles for superannuation retirement income solutions*[3], states that best practice means superannuation trustees will provide their members with access to a lifetime income product that is not the Age Pension.

Despite this renewed policy focus, uptake of longevity products so far remains low[4]. This limits the availability of data on the real-world experience of annuitants, and makes it challenging for providers to quantify longevity risk accurately. In the absence of rich internal datasets, insurers often rely on international findings or general population statistics, neither of which authentically reflect the longevity patterns of Australian retirees.

The Australian Life Tables (ALT), produced by the Australian Government Actuary (AGA), are the most widely used population mortality resource for longevity projections. They differentiate only by age and gender, and do not capture the selection effects whereby individuals who purchase longevity products tend to be healthier and wealthier than the average population. In practice, providers apply adjustments to reflect this, and current pricing broadly aligns with the experience of those who purchase these products. Products priced on such an advantaged population may thus offer poorer value for many Australians. An interesting question is whether, or how much, this is a barrier to the development of a deeper and broader privately provided longevity product market in Australia, to sit alongside the publicly provided safety net of the Age Pension.

Equity considerations increasingly cut across many elements of Australia's retirement income system, from superannuation tax concessions and group insurance pricing, to the design and assessment of retirement income products. Within this broad landscape, longevity risk plays a critical but often under-recognised role. Failing to account for systematic socio-economic differences in mortality when designing or pricing longevity products may risk compounding existing perceived inequities. Without careful implementation, there is a risk that some retirees may purchase products that deliver limited value for their circumstances, while others receive a greater share of the benefits.

Looking ahead, as the market for longevity products matures, the mortality experience underpinning these products is likely to evolve. Rather than reflecting today's relatively small pool of annuity purchasers, future product design and pricing may increasingly draw on the experience of a new pool of retirement income product users — a population that may be broader than current annuitants, while still differing from the general population. This evolution has the potential to extend pricing granularity to a broader cohort of retirees and improve product accessibility, while reinforcing the importance of ongoing monitoring of mortality assumptions and member outcomes. This study provides an empirical base at the population level, a starting point from which more refined, cohort-based assumptions could develop as data availability and market practice evolve.



About the Data

This research uses linked, de-identified microdata from the PLIDA, accessed through the ABS DataLab[5]. PLIDA links individual-level records across a range of government datasets using a unique identifier assigned by the ABS. Primary sources include:

- 2016 Census of Population and Housing — providing demographic and socio-economic data;
- 2009–2016 Social Security Related Information (SSRI) — covering social security payments, marital status history and education levels;
- Demographic data (2007–2017) — containing dates of birth, death and gender for individuals aged 50 and over.

The study focuses on the 12-month period from 1 September 2016 to 31 August 2017, which aligns with the Census reference date, allows maximum use of available covariates and minimises issues related to seasonality or under-reporting of deaths. Due to limitations in data availability or quality, our analysis excludes several other important factors such as ethnicity (including First Nations status), smoking status, health status and education. We also note that income is measured at the individual rather than household level. While household income may be a more comprehensive measure of socio-economic circumstances and may be more relevant when assessing retirement adequacy given that many retirees share financial resources with a partner, our analysis tested a range of income variables, including household and family income measures. Personal income emerged as the stronger predictor of mortality and therefore provided greater explanatory power within the model. On that basis, individual income was retained as the preferred variable for mortality modelling purposes.

Life Expectancy Gaps

To make the analysis easier to interpret and communicate, we grouped Australians aged 60–65 into five representative socio-economic profiles separately for females and males, combining income, marital status, home ownership and area-level advantage.

Table 1 reports, for each illustrative profile, the proportion of females and males aged 60–65 who fall into that profile, together with the corresponding period life expectancy at age 60. Together, these five profiles account for a minority of the population aged 60–65 and are intended to illustrate contrasts across the socio-economic spectrum, rather than to represent the full population distribution.The full distribution of life expectancy across all socio-economic profiles is shown in Figure 2.

Results reveal substantial disparities in life expectancy across socio-economic groups:

- Profile 1 (single, non-homeowner, <$499 weekly income, D1 IRSAD) presents the lowest life expectancy at age 60, with 18.7 years for males and 23.9 years for females, while Profile 5 (married, homeowner, $1,000+ weekly income, D10 IRSAD) presents the highest life expectancy, with 30.2 years for males and 33.0 years for females. This corresponds to a gap between the most and least advantaged profiles of **11.5** years for males and **9.1** years for females.
- Moreover, disadvantaged groups fall substantially below the ALT 2015–2017 life expectancy benchmark (24.1 years for males and 26.9 years for females).

Table 1: Period Life Expectancy at Age 60 for Representative Profiles

Profile	Proportion of Population aged 60-65		Period Life Expectancy at age 60	
	Females	Males	Females	Males
P1. Single, Non-homeowner, <$499 weekly income, D1	1.92%	1.62%	23.86	18.67
P2. Married, Homeowner, <$499 weekly income, D1	2.24%	1.42%	28.04	24.06
P3. Married, Homeowner, <$499 weekly income, D7	2.90%	1.48%	30.10	26.27
P4. Married, Homeowner, $1,000+ weekly income, D4	0.84%	2.30%	31.90	29.09
P5. Married, Homeowner, $1,000+ weekly income, D10	2.46%	4.74%	32.98	30.20

Note: Area-level socio-economic status is measured using the ABS Index of Relative Socio-economic Advantage and Disadvantage (IRSAD), which ranks geographic areas across Australia according to relative advantage and disadvantage based on Census indicators such as income, education, employment and housing. IRSAD scores are grouped into ten deciles, with Decile 1 representing the most disadvantaged areas and Decile 10 the most advantaged.

Figure 1: Demographic Breakdowns of the Population across Key Socio-economic Factors

Figure 1a: By Income

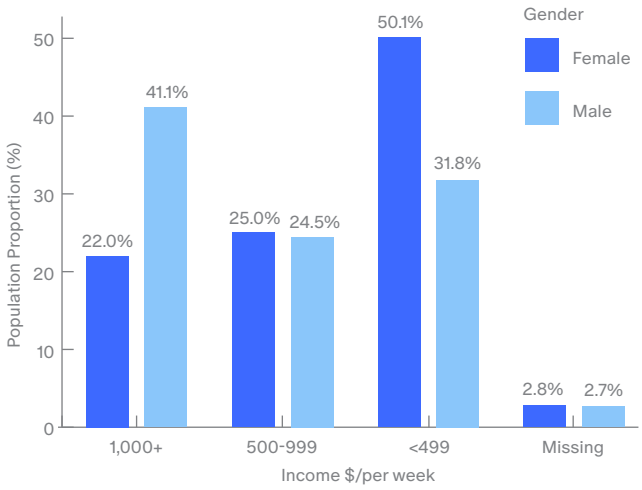


Figure 1b: By Marital Status

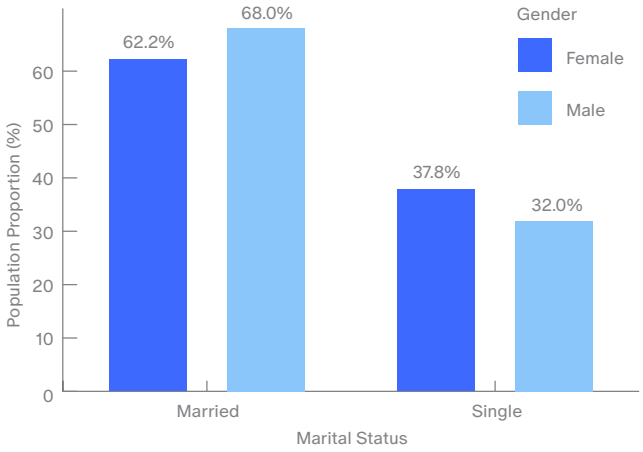


Figure 1c: By Home Ownership

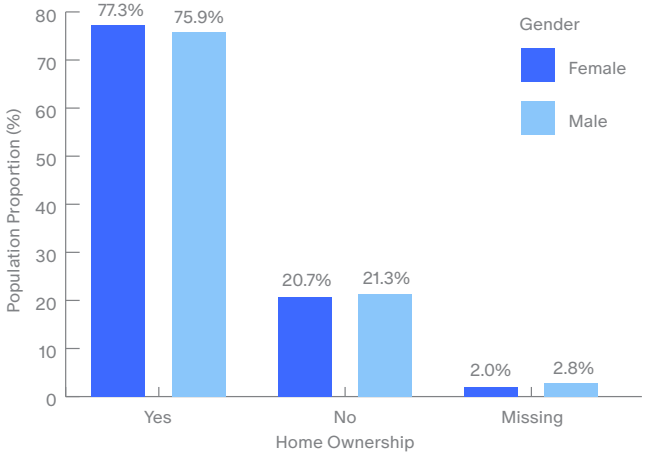
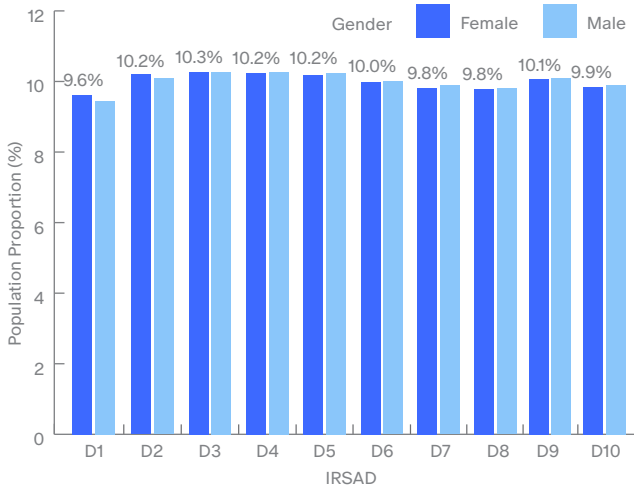


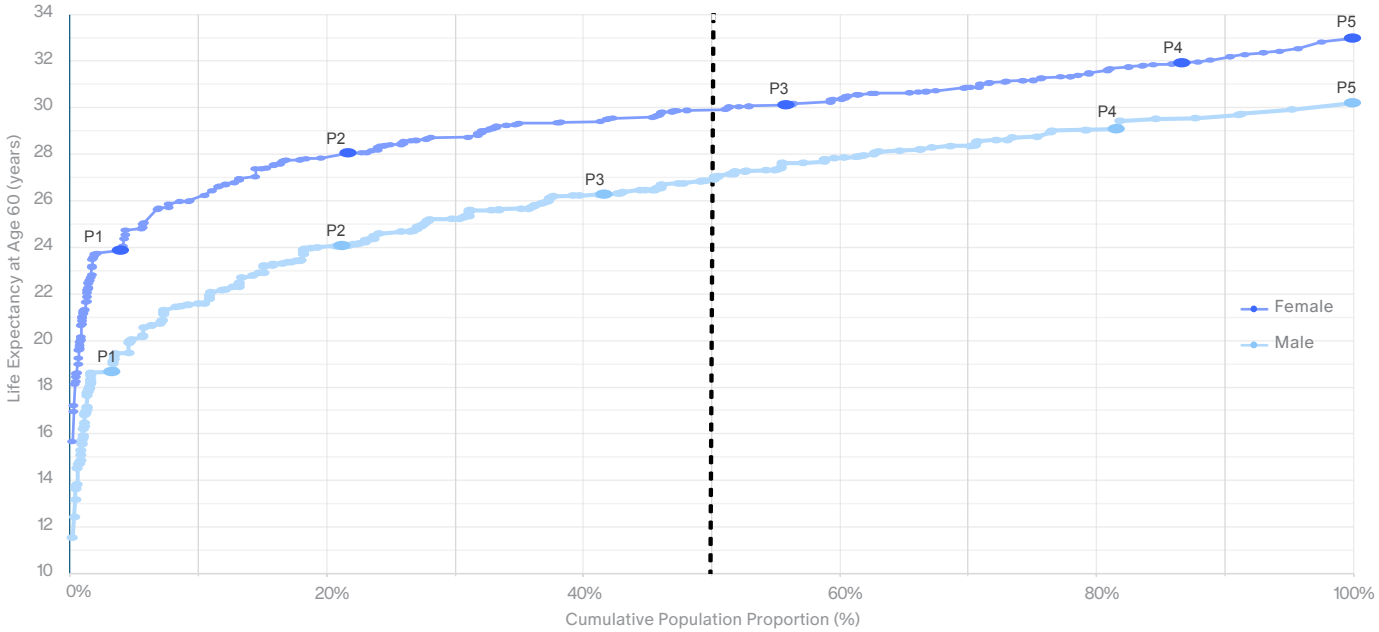
Figure 1d: By IRSAD



Note: May not add up to 100% due to rounding and missing values.

Results show a substantially higher percentage of females (50.1%) fall into the lowest income group (<$499 per week) compared with males (31.8%), while a relatively large percentage of males (41.1%) fall into the highest income group ($1,000+). This suggests gendered economic disparities which persist into retirement. Males are also more likely to be married (68.0%) compared with females (62.2%). Around 77% of the population are homeowners, with a slightly higher proportion of females (77.3%) owning their homes compared with males (75.9%) at ages 60–65. Finally, the IRSAD results show a relatively even distribution across deciles, which is to be expected given the definition of the index.

Figure 2: Cumulative Distribution of Life Expectancy at Age 60 Across the Australian Population Aged 60–65

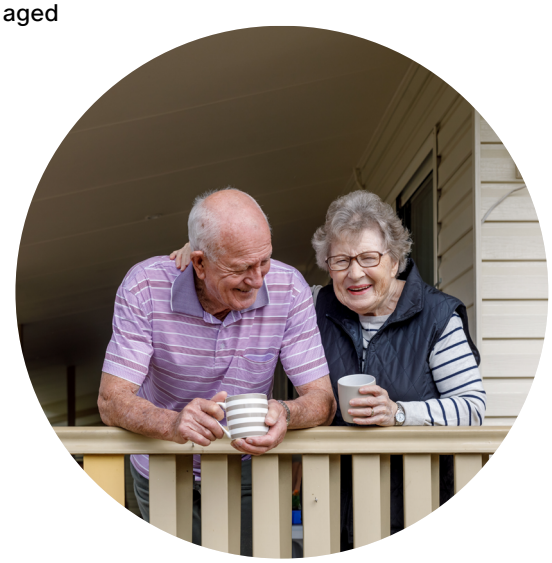


Note: Based on people aged 60-65 in our sample.

To better understand differences in life expectancy across the full spectrum of the Australian population, Figure 2 presents the cumulative distribution of life expectancy at age 60. Each point on the two curves represents a specific socio-economic mortality profile, combining factors such as income, home ownership, marital status and area-level advantage or disadvantage. We also highlight the five representative profiles first presented in Table 1, ranging from the most disadvantaged (Profile 1 or P1) to the most advantaged (Profile 5 or P5).

The cumulative distribution reveals several important patterns. For both males and females, the curves rise gradually, showing that life expectancy is spread across a broad range rather than concentrated at specific values. The female curve lies consistently above the male curve, with women living on average 3–4 years longer than men.

At the lower end of the life expectancy spectrum (below 20 years for men and 25 years for women) the curves rise steeply, indicating that only a small share of the population experiences relatively short life expectancy. These groups are typically characterised by multiple disadvantages. Profile 1 is a clear example: single, non-homeowning individuals with incomes of $499 or less, living in the most disadvantaged areas (D1); around 1.92% of women and 1.62% of men aged 60–65 fall into this profile.



In the middle range of life expectancy (24–29 years for males, 28–32 years for females), roughly between Profiles 2 and 4, the curves increase more gradually. This segment comprises 63% of the population, including 57.6% of men and 68.4% of women, and encompasses a broad mix of socio-economic circumstances. At the lower end is Profile 2 (married homeowners with incomes under $499 living in D1), while at the higher end is Profile 4 (married homeowners with incomes of $1,000 or more living in D4). Most representative female profiles fall within this band: 23.5% of women aged 60–65 are married homeowners who have incomes of $499 or less and live in areas D2–D9, with life expectancy at age 60 ranging between 28.7 and 30.6 years. For example, Profile 3 (married homeowners with incomes under $499 living in D7) accounts for 2.90% of women aged 60–65.

At the upper end of the life expectancy spectrum (above 29 years for men and 32 years for women) the curves continue their gradual rise, representing the most advantaged groups. Profile 5, at the far right of Figure 2, consists of married homeowners with incomes of $1,000 or more living in the most advantaged areas (D10). This group is especially common among men, with 4.74% of men aged 60–65 falling into this profile — the single largest male socio-economic grouping. More broadly, over 17% of men aged 60–65 are married homeowners with incomes of $1,000 or more, living in areas D6–D10, and all with life expectancy greater than 29 years.

The substantial spread of the curves across the life expectancy range underscores the importance of accounting for differences in socio-economic factors during retirement planning and policy development.

What Are the Benefits of Annuities?

Lifetime income products (annuities) can offer retirees several important benefits beyond simply providing a regular income stream:

- **Longevity risk protection:** Annuities provide income that continues for as long as the retiree lives, protecting against the risk of outliving their savings.
- **Spending certainty:** By guaranteeing a known level of income, annuities reduce uncertainty about how much a retiree can afford to spend in each period, supporting better budgeting and financial wellbeing.
- **Mortality pooling:** Annuities work by pooling longevity risk across a group of retirees. Those who die earlier effectively subsidise those who live longer, enabling the group as a whole to achieve higher income than could be sustained through individual drawdown alone.
- **Age Pension optimisation:** Lifetime income products receive favourable treatment under the Age Pension income and assets tests, which can increase a retiree's Age Pension entitlements and overall retirement income.
- **Complementary income strategy:** The benefits above are most effectively realised through partial annuitisation, combining a lifetime income stream with other retirement income sources such as account-based drawdown and the Age Pension, rather than full annuitisation of retirement savings.

3. Retirement Income Implications

Key Points

- This Paper highlights the value of examining whether, and how, socio-economic longevity assumptions could be used to benefit the design of retirement income strategies, the development and pricing of retirement income products, underwriting practices, and the valuation of lifetime income streams.
- The Age Pension already provides longevity protection for retirees with limited private wealth and wealthier retirees may have some capacity to self-insure, pointing to where incorporating longevity differentials could add the most value.
- Which retirees stand to benefit most from lifetime income products, and how differentiated longevity assumptions could improve outcomes for them, is a question that warrants further consideration by the industry.

The mortality differentials documented in Section 2 raise a broader question: whether, and if so how, socio-economic differences in longevity should be reflected in the design of retirement income strategies, the development and pricing of retirement income products, underwriting practices, and in assessing the value of lifetime income streams. These are related but distinct applications, and the case for incorporating differentiated longevity assumptions may not be the same across each.

These considerations matter because a uniform approach, i.e., one that does not distinguish between socio-economic cohorts, may not adequately reflect the heterogeneity in members' circumstances documented in this Paper. As outlined in Section 2 regarding lifetime income streams, mortality assumptions that implicitly reflect the experience of a relatively small, more advantaged pool of existing purchasers may not be representative of the wider population that a retirement income strategy is seeking to serve.

The above question also arises against a backdrop of sustained policy attention to retirement income adequacy. The Retirement Income Covenant requires superannuation trustees to formulate a retirement income strategy for members in the retirement phase, having regard to income, risk management including longevity risk, and flexibility. Treasury's associated best practice principles guidance further states that best practice involves trustees providing members with access to a lifetime income product other than the Age Pension. Despite this policy focus, as noted in Section 2, uptake of lifetime income products in Australia remains low, and the retirement phase of the superannuation system continues to fall short of delivering adequate and sustainable income beyond the Age Pension[6]. It is against this backdrop that this question is worth examining.

One lens for examining the above question is to ask who is likely to benefit from lifetime income products, and why. Australia's retirement income system already provides longevity protection through the Age Pension, which is available to eligible retirees for as long as they live. At the other end of the spectrum, retirees with substantial private wealth may have the capacity to self-insure against longevity risk. Between these two groups, the segment where lifetime income products add value is not always clear without doing detailed projections and full assessment of their personal finances.

Whether potential benefits from lifetime income products sit with retirees in the middle of the wealth distribution, for example those who are only partially reliant on the Age Pension, is a question we encourage the industry to explore further in light of the mortality differentials presented in this Paper. Answering it would require investigating actual patterns of Age Pension reliance, savings behaviour and product take-up across the spectrum of retirees.

This also affects how the socio-economic mortality differentials documented in Section 2 should be interpreted for policy purposes. Those differentials are estimated across the full population and to what extent they persist specifically among the subset of retirees who are realistic purchasers of lifetime income products has not been established here. However, it is expected the most disadvantaged retirees, with the steeper mortality gradient as shown on the left side of the life expectancy graph by proportion of retirees in Figure 2, would generally not be found within lifetime income participants.

A related consideration is whether cohorts with meaningfully different retirement income needs and longevity risk can be identified using practical indicators, such as superannuation balance, Age Pension eligibility, home ownership and relationship status.

To what extent retirees benefit from lifetime income products may also depend on how well they understand their own longevity risk, given that people are known to misjudge both their own life expectancy and the extent to which it varies across the population. How this awareness gap interacts with the socio-economic factors examined in this Paper is a separate consideration from the pricing and segmentation questions above.

The relevance of socio-economic mortality differences may also extend beyond the pricing of lifetime income products, to retirement adequacy modelling, sustainable drawdown pathways, and assessments of the value that different retirement income strategies offer to different cohorts.

Taken together, these questions point to a clear opportunity. Sharpening our understanding of which retiree segments stand to gain most from lifetime income products, and the circumstances under which differentiated longevity assumptions would serve them well, could extend the value of these products to a broader range of Australians than the narrow base of purchasers seen today. We encourage the industry to pursue this opportunity.

Finally, any move to incorporate differentiated longevity assumptions into any of the aforementioned applications would also need to be tested against practical constraints, including data availability, product viability for providers, the duties trustees owe to the whole of their membership under the Retirement Income Covenant and other regulatory obligations, and how any differentiation would interact with financial advice. We explore these practical considerations further in the next section.

“To what extent retirees benefit from lifetime income products may also depend on how well they understand their own longevity risk.”

4. Practical Considerations

Key Points

- The evidence in this Paper, together with international experience and tools to improve longevity literacy, has the potential to inform more differentiated retirement income strategies, products and advice, an opportunity we consider worth pursuing further.
- Realising this potential would also need to address practical issues, including the practicality of differentiation for providers and trustees, and its interaction with the Age Pension and financial advice.

This Dialogue Paper sets out clear evidence of socio-economic longevity differentials in Australia. We encourage the industry, including trustees, providers, regulators and financial advisers, to explore how this evidence could inform retirement income strategy design, product development and pricing, underwriting and valuation, and what role tools such as longevity literacy resources could play in improving retirement outcomes.

There is evidence that individuals' own expectations about their survival probabilities can diverge from objective mortality patterns[7]. Public information resources, superannuation fund calculators, and adviser conversations could potentially help retirees better understand their own longevity risk, including through cohort-based longevity information of the kind presented in this Paper.

Overseas markets offer relevant examples of how differentiated longevity assumptions can be incorporated in practice. For many years, insurers in markets such as the United Kingdom have incorporated observable characteristics, including postcode-based indicators of socio-economic status, health status and lifestyle factors, into mortality modelling and, in some cases, into an underwritten market for enhanced annuities, while drawing a clear line at characteristics protected under anti-discrimination law such as ethnicity, religion, sexual orientation and sex.

Some of these markets pair a standard lifetime income product, available with very limited disclosure, with an optional enhanced-rate tier for retirees willing to provide additional information through limited underwriting, with those who prefer not to disclose retained on the standard rate. Group self-annuitisation and participating annuity structures offer a different approach again, sharing longevity and investment risk within a defined cohort rather than fully guaranteeing outcomes. Whether any of these approaches, or some other design, suits the Australian market is a question we suggest the industry could explore, drawing on this Paper's evidence.

Exploring these opportunities would also need to address a number of practical considerations, including the following:

- Practicality for providers and trustees: We encourage providers and trustees to explore differentiated retirement income solutions, taking into account their cost and complexity for providers, and the duties trustees owe to their whole membership under the Retirement Income Covenant and other regulatory frameworks.
- Persistence of differentials over time: Some characteristics, such as relationship status, can change over the course of retirement, while others, such as home ownership, tend to be more stable, and this affects how far the differentials identified in this Paper hold over time.
- Interaction with the Age Pension and financial advice: The relevance of any differentiated approach depends on how it interacts with Age Pension eligibility and access to financial advice, both of which vary substantially across the retiree population.
- Improving longevity awareness: Any effort to help retirees better understand their own longevity risk would need to balance accuracy with accessibility, since overly technical information can undermine engagement while an overly simplified message may not convey the extent of variation across the population. Getting this balance right is important if longevity literacy initiatives are to build trust and support better retirement planning.

This Paper is intended to stimulate discussion among actuaries, trustees, providers, regulators and consumer groups on these issues. It does not advocate a particular solution. We welcome engagement from across the retirement income community as this conversation continues.

5. Supplementary Materials

The dataset containing modelled annual probabilities of death (q_x) for ages 60 to 100 across all socio-economic profiles is openly available via the Harvard Dataverse: Australian Socio-economic Retiree Mortality 2016–17[8].

An interactive online tool to support public understanding of longevity variation and its implications for retirement income is available at:

https://auslongevity.org/



6. Glossary

Term	Definition	First Reference
Longevity	The general ability to live to older ages, and a key consideration in retirement planning.	Section 2
Mortality	The rate at which people die at each age; the technical foundation for estimating life expectancy and pricing longevity products.	Section 2
Life Expectancy	The average remaining years of life for a person at a given age, calculated from mortality rates.	Section 2
Period Life Expectancy	Life expectancy calculated from mortality rates observed in a single period (e.g., 2016–17), without assuming future improvements.	Section 2
Longevity Risk	The financial risk of outliving one's retirement savings.	Section 2
Australian Life Tables (ALT)	Population life tables published by the Australian Government Actuary, differentiated by age and gender only.	Section 2
Index of Relative Socio-economic Advantage and Disadvantage (IRSAD)	An ABS index ranking geographic areas by relative advantage and disadvantage, grouped into deciles from D1 (most disadvantaged) to D10 (most advantaged).	Section 2
Person Level Integrated Data Asset (PLIDA)	An ABS data asset linking individual-level records across a range of government datasets, accessed through the ABS DataLab.	Section 2
Lifetime Income Stream	A product that provides income for life and protects against longevity risk (e.g., annuities, GSAs).	Section 3
Group Self-Annuitisation (GSA)	A lifetime income stream sharing investment and longevity risk among a cohort, without insurer guarantees.	Section 4
Participating Annuity Structures	Annuities where payments can vary based on investment returns or experience adjustments.	Section 4
Retirement Income Strategy	The strategy trustees must develop under the Retirement Income Covenant to balance income, flexibility, and risk.	Section 4
Drawdown Pathway	A structured plan for withdrawing retirement savings over time; longevity assumptions guide sustainable drawdown rates.	Section 4

7. Endnotes

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7. Wu, S., Stevens, R., & Thorp, S. (2015). *Cohort and target age effects on subjective survival probabilities: Implications for models of the retirement phase.* Journal of Economic Dynamics and Control, 55, 39–56.
8. Huang, F., Hui, F. & Villegas, A. (2025). *Australian Socioeconomic Retiree Mortality 2016-17*. Harvard Dataverse. https://doi.org/10.7910/DVN/C0HRDE

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