# Can improving longevity literacy motivate interest in life annuities?

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33rd Colloquium on Pensions and Retirement Research

25 November 2025

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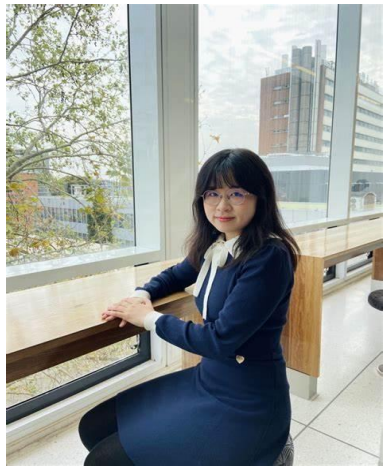

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# Longevity and Retirement Risk


"You can't take it with you"


"Alive, but the wallet's dead"

- People in major countries and regions are living longer than ever before

  In 2023, Europe: 81.4 years (Eurostat, 2025); Australia: 83.2 years (AIHW, 2025); Japan: 84.1 years; South Korea: 82.7 years (OECD, 2025); In 2024, China: 79 (NHCPRC,2025)

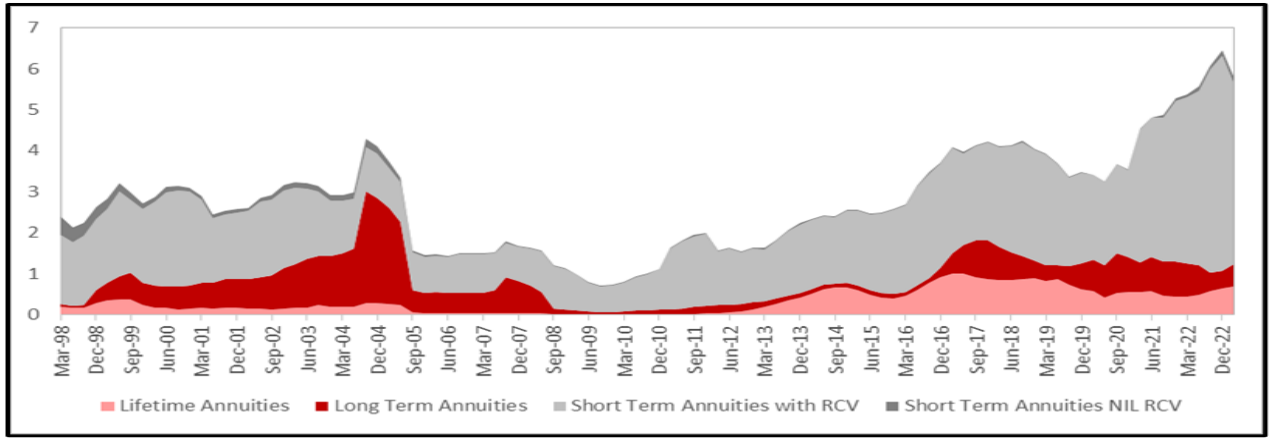
- Defined-contribution systems lack lifetime guarantees, and individuals face the risk of outliving their savings (longevity risk)
- In Australia, the Age pension provides good longevity risk protection
- Life annuities provide guaranteed lifetime income but remain underused

# The Annuity Puzzle

- Economic research has demonstrated the welfare benefits of using annuity (e.g., Yaari, 1965;Davidoff et al., 2005; Mitchell et al., 1999; Brown, 2001; Dushi and Webb, 2004; Horneff et al.,2020; Iskhakov et al., 2015)

- In Australia, 4.9% of pension member accounts held an annuity in 2024 (APRA, 2025). In the United Kingdom, 8.9% of pension plans accessed for the first time in the first quarter of 2025 were taken as annuities (FCA, 2025). In the United States, approximately USD 4.9 billion worth of deferred income annuities were sold in 2024 (LIMRA, 2025).

- A life annuity is a subset of annuities. The low take-up of annuities indicates that the demand for life annuities is even lower




Annuity sales in Australia, by type (1998-2023) $billion, Source: Plan for Life

# A New Insight to Explain the Puzzle

- Key question: Why do people avoid annuitization?

  "Consumption framing, reversible, death benefits, indexation, premium, personal characteristics, bequest preferences… …"

- **Longevity literacy** (Yakoboski et al., 2023) reflects individuals' understanding of how long they might live and the financial implications of longevity
  - Understand how long they might live: e.g., awareness of average life expectancy; survival probabilities
  - Understand the financial implications of living long: e.g., outlive savings

- Research question: **Whether improving longevity literacy can increase interest in life annuities**

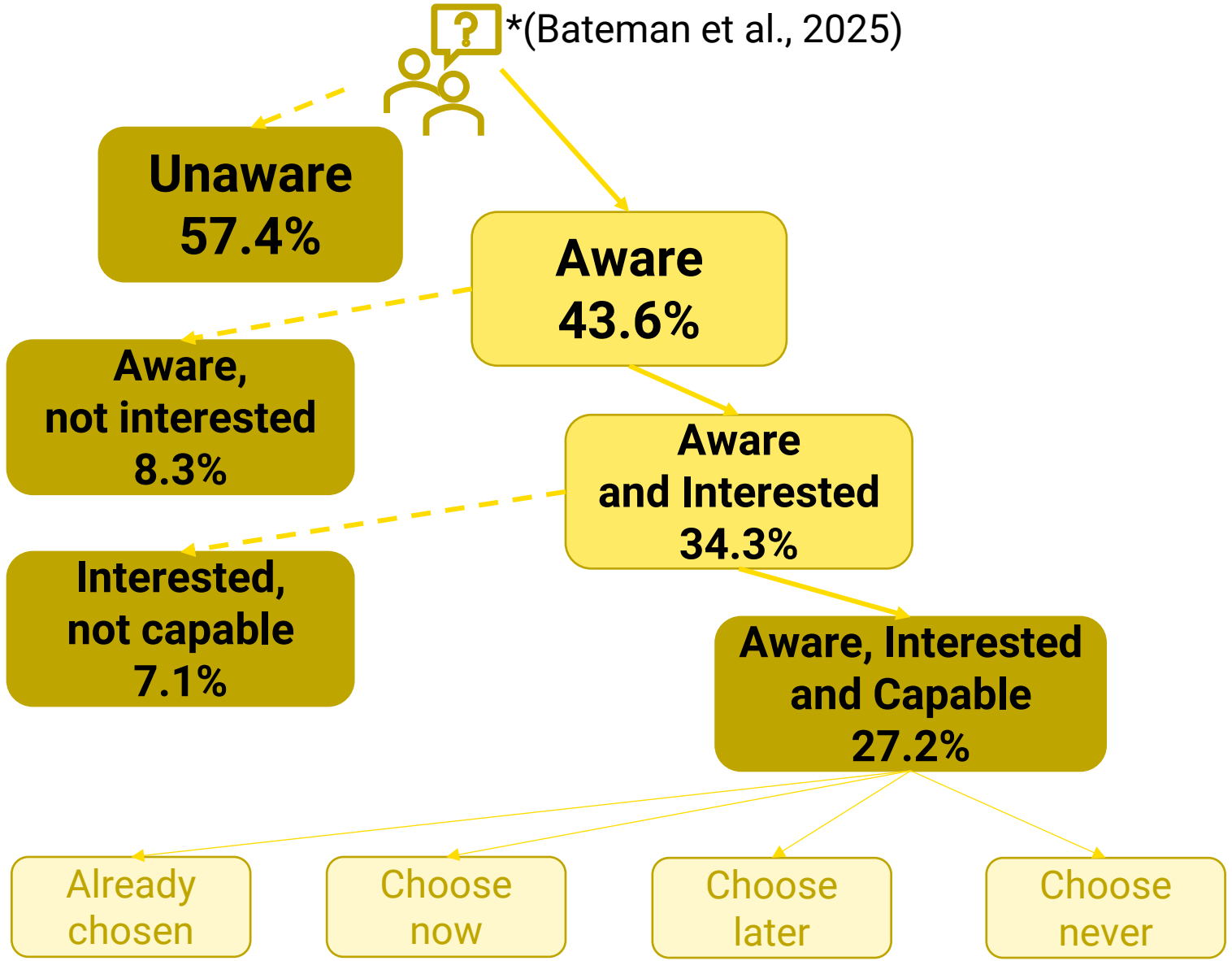
- Potential mechanism:

  Longevity beliefs/understanding of financial implications → perceived value of annuity → annuity interest

- Therefore, information interventions can update beliefs and promote understanding and shift interest

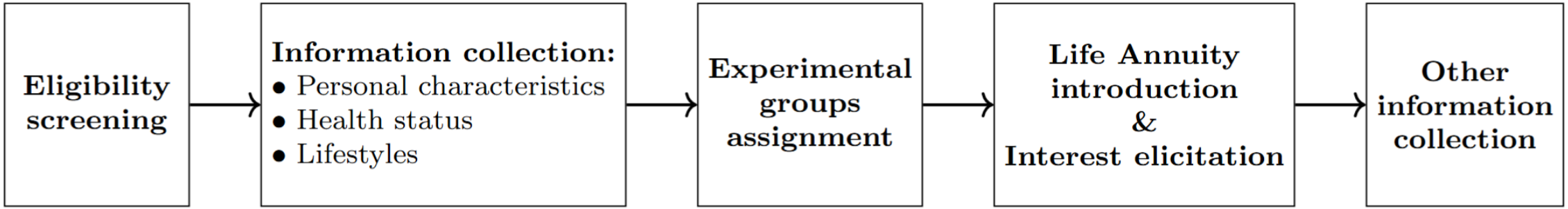
# Annuity Interests

- Around 2/3 (57.4%+8.3%) of a representative sample of Australians aged 50-75 are unaware or not interested in annuities
- Survey-based stated demand measures are prone to **hypothetical bias** (Sun and Morwitz, 2010; List and Gallet, 2001; Blumenschein et al., 2008)
- Interest measures are less affected by hypothetical bias and provide a clearer signal of true preference formation



# Experimental Design

- An online experiment with 1,589 Australian via PureProfile in 2025
- Participants aged 50 to 75 who currently hold or previously held a superannuation account
- We designed seven longevity-related treatments focused on improving longevity literacy
- Participants were randomly assigned participants to either a control group or one of 16 treatment groups, each of which received one or more of the treatments
- Participants were introduced to a hypothetical lifetime annuity product and asked to indicate their level of interest in it.



# The Lifetime Annuity Product

Irrespective of how you answered the previous question, we will now introduce you to a financial product called a lifetime income product, which can be bought with your superannuation savings when you retire.

A lifetime income product will pay you a regular income for as long as you live. The fact sheet below explains the main features of this product.

| **Questions** | **Answers** |
|---|---|
| How long will I receive income from the lifetime income product? | You will receive income for as long as you live. |
| Will my income change over time? | Your income will be adjusted each year in line with changes in the cost of living. |
| Will my income be impacted by movements in the share market? | No, your income will not change with movements in the share market. |
| Can I receive any money back if I change my mind? | Yes, if you change your mind, you can receive some money back until your life expectancy – as determined by the Australian Government Actuary for a person of your age and gender. However, you cannot withdraw a lump sum at any time without selling the product. |
| Will my family (or estate) receive anything back if I die? | Yes, until your life expectancy – as determined by the Australian Government Actuary for a person of your age and gender. |
| Can I buy a lifetime income product with other features? | Yes, you can buy a lifetime income product that will continue to pay income to your spouse (or partner) if they outlive you, or pay death benefits to your estate. |

# Interest Elicitation

Not Interested

Interested

How do you see yourself: are you interested in the lifetime income product?

- I am NOT interested in the lifetime income product AT ALL
- I am SOMEWHAT interested in the lifetime income product
- I am MODERATELY interested in the lifetime income product
- I am VERY interested in the lifetime income product
- I am EXTREMELY interested in the lifetime income product

# Longevity-related Treatments

1. **Subjective life expectancy (SLE)**
2. **Subjective survival probabilities (SSP)**
3. **Objective life expectancy information (OLE)**
4. **Objective survival probability information (OSP)**
5. **Personalized life expectancy information (PLE)**
6. **Personalized survival probabilities (PSP)**
7. **Financial consequence information (FC)**

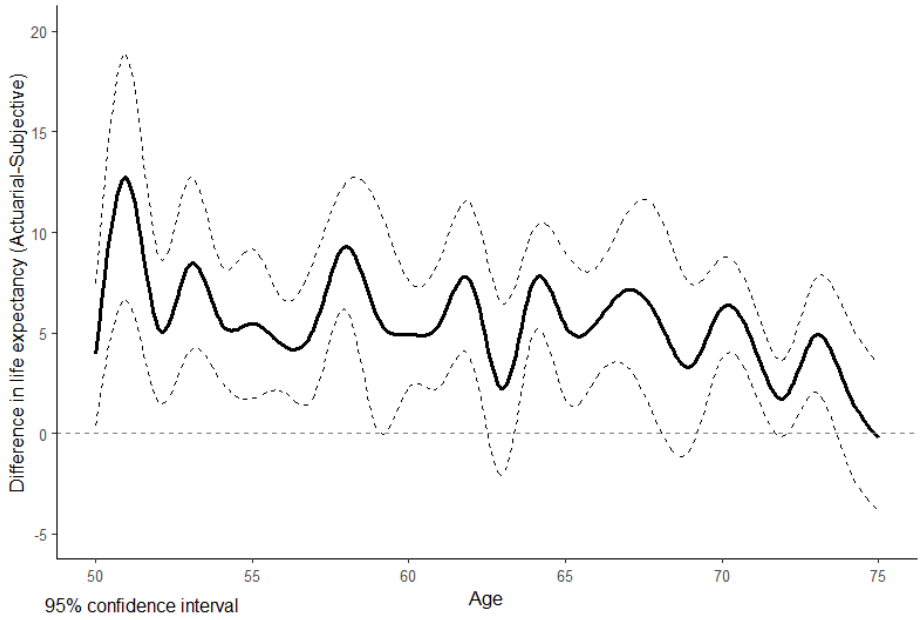
Notes: Participants who received life expectancy information were then asked to indicate whether they believed they would live longer, shorter, or about the same as their original estimate. Those who received survival probability information were asked to update their own estimates by adjusting the positions of sliders corresponding to the probabilities of living to ages 85, 90, and 95.

# Experimental Group Assignment

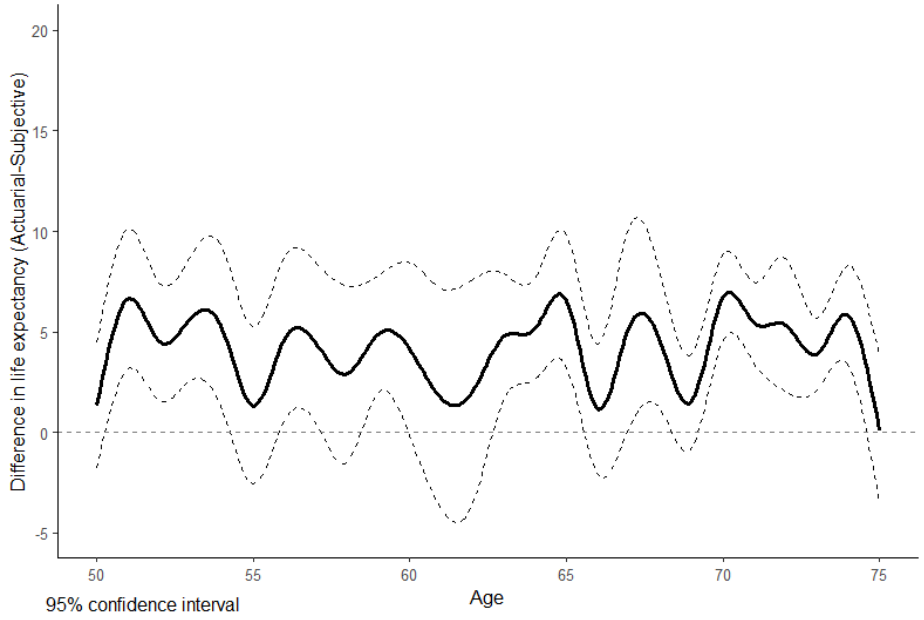
| | C | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 | T12 | T13 | T14 | T15 | T16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subjective life expectancy | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ |
| Subjective survival probability | | | ✓ | ✓ | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Objective life expectancy | | | | | | ✓ | ✓ | | | | | | | ✓ | ✓ | | |
| Objective survival probability | | | | | | | | | | ✓ | ✓ | | | ✓ | ✓ | | |
| Personalized life expectancy | | | | | | | | ✓ | ✓ | | | | | | | ✓ | ✓ |
| Personalized survival probability | | | | | | | | | | | | ✓ | ✓ | | | ✓ | ✓ |
| Financial consequence | | | | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ | | ✓ |

# Longevity Beliefs

Difference in the life expectancy
(Actuarial life expectancy – Subjective life expectancy)



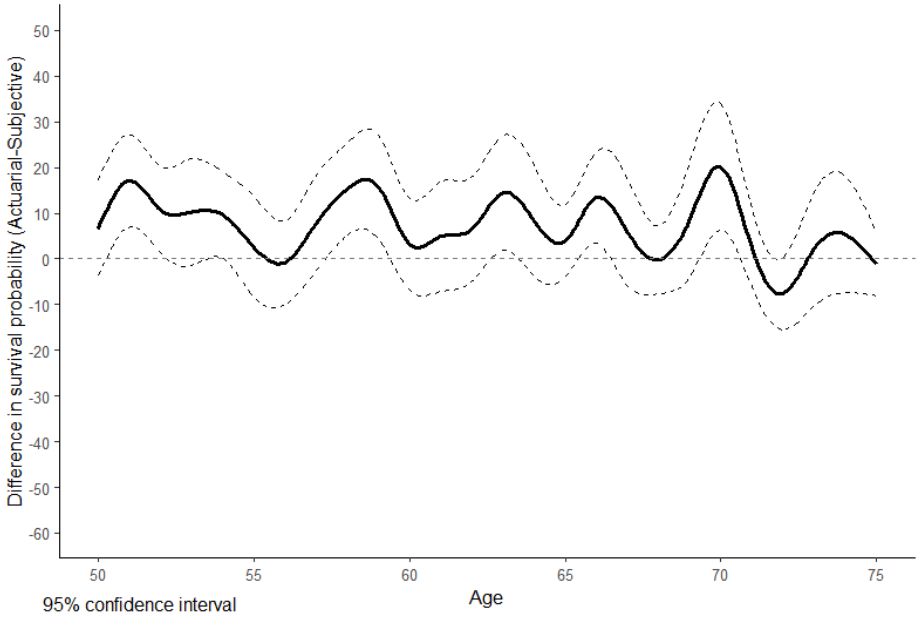

Female



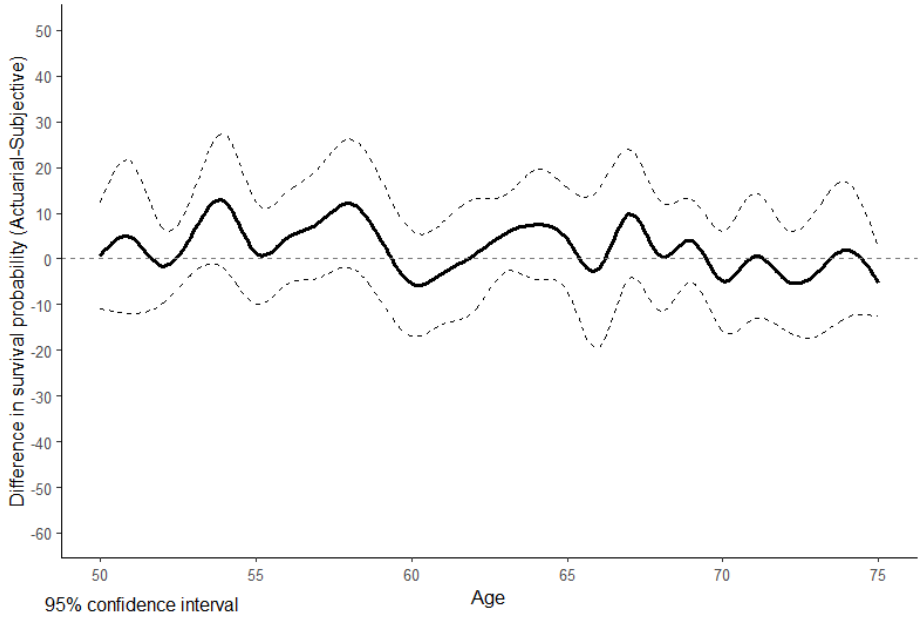

Male

# Longevity Beliefs

Difference in the survival probability age 85
(Actuarial survival probability – Subjective survival probability)




Female




Male

# Belief Update: Life Expectancy

Panel A: Participants who received the average life expectancy information for individuals of the same gender and age

| SLE vs. OLE | N | Belief updating after receiving OLE information | | |
|---|---|---|---|---|
| | | Downward revision | No change | Upward revision |
| SLE<OLE | 285(75.4%) | 16 (5.6%) | 168 (58.9%) | 101 (35.5%) |
| SLE=OLE | 10(2.6%) | 0 (0%) | 10 (100%) | 0 (0%) |
| SLE>OLE | 83(22.0%) | 9 (10.8%) | 69 (83.1%) | 5 (6.1%) |
| Total | 378(100%) | | | |

Panel B: Participants who received personalized life expectancy information

| SLE vs. PLE | N | Belief updating after receiving PLE information | | |
|---|---|---|---|---|
| | | Downward revision | No change | Upward revision |
| SLE<PLE | 243(64.9%) | 18 (7.4%) | 135 (55.6%) | 90 (37.0%) |
| SLE=PLE | 13(3.5%) | 1 (7.7%) | 11 (84.6%) | 1 (7.7%) |
| SLE>PLE | 118(31.6%) | 20 (16.9%) | 87 (73.7%) | 11 (9.4%) |
| Total | 374(100%) | | | |

# Belief Update: Survival Probability

| SSP vs. OSP | N | Belief updating after receiving OSP information (age 85) | | |
|---|---|---|---|---|
| | | Downward revision | No change | Upward revision |
| SSP85 < OSP85 | 183(47.7%) | 7 (3.8%) | 108 (59.0%) | 68 (37.2%) |
| SSP85 = OSP85 | 7(1.8%) | 1 (14.3%) | 6 (85.7%) | 0 (0%) |
| SSP85 > OSP85 | 194(50.5%) | 42 (21.6%) | 132 (68.0%) | 20 (10.3%) |
| Total | 384(100%) | | | |

| SSP vs. PSP | N | Belief updating after receiving PSP information (age 85) | | |
|---|---|---|---|---|
| | | Downward revision | No change | Upward revision |
| SSP85 < PSP85 | 146(39.0%) | 12 (8.2%) | 83 (56.8%) | 51 (34.9%) |
| SSP85 = PSP85 | 7(1.9%) | 0 (0%) | 6 (85.7%) | 1 (14.3%) |
| SSP85 > PSP85 | 221(59.1%) | 56 (25.3%) | 144 (65.2%) | 21 (9.5%) |
| Total | 374(100%) | | | |

# What Affect Annuity Interests?

- All seven longevity-related treatments have no significant direct effect on annuity interest
- Demographics, product characteristic perceptions and retirement confidence matter

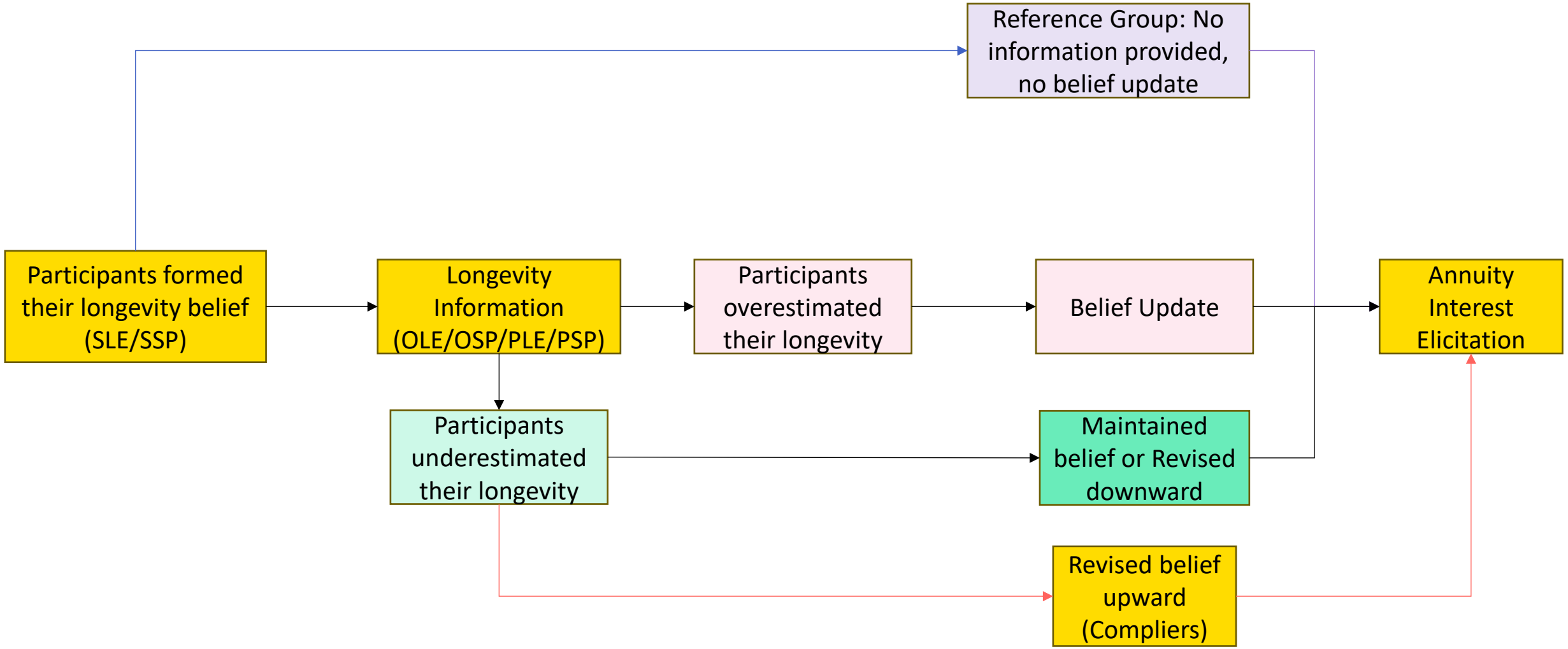
| Selected factors | Estimated Effects on the Likelihood of Being Interested in the Product |
|---|---|
| Age | -0.73 percentage points *** |
| Female | -12.51 percentage points *** |
| No. Children | -1.66 percentage points ** |
| Perceived control over product | +2.61 percentage points *** |
| Perceived risk of product | -3.27 percentage points *** |
| Understanding of product features | +3.85 percentage points *** |
| Worry about later-life income | +3.53 percentage points *** |
| N=1,589; Adj.R2=0.1186 | |

Significance: * <0.1; ** <0.05; *** <0.01

Factors have no statistically significant effects (p>0.05):

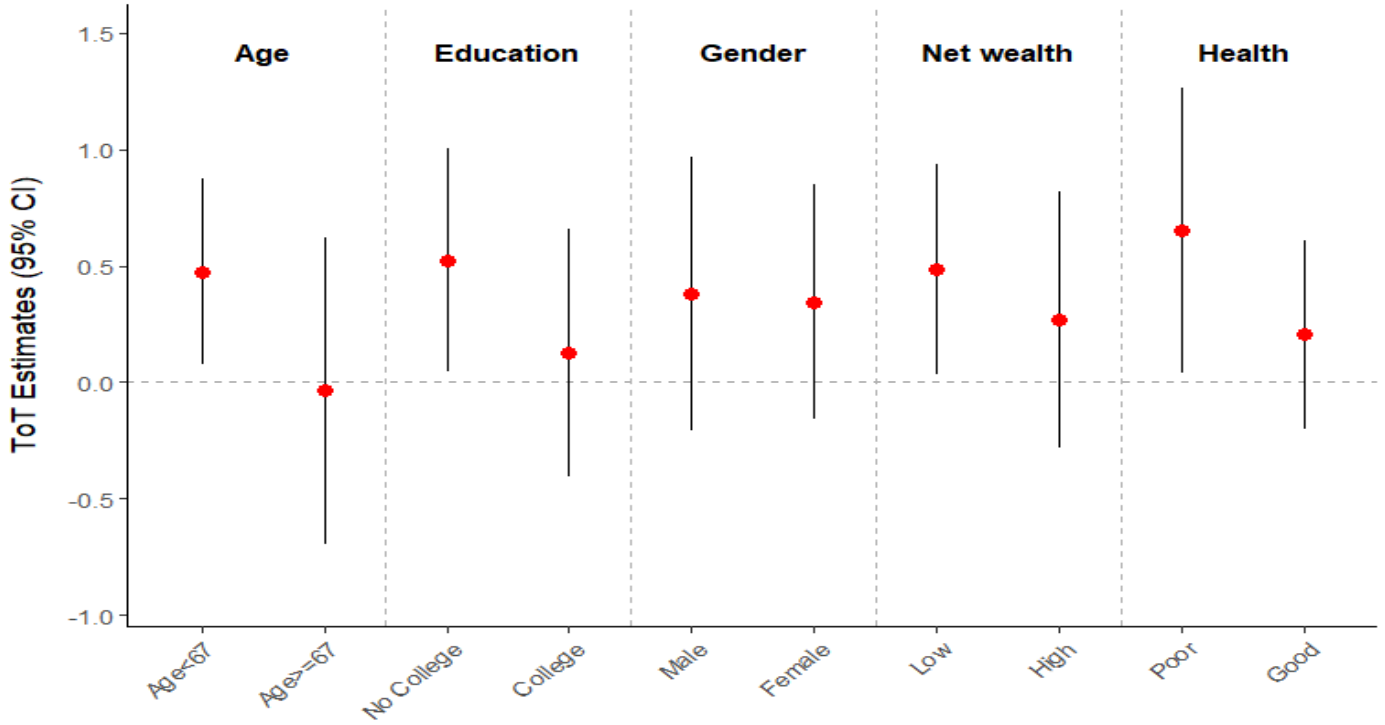
- Education
- Marital status
- No. children
- Income
- Eligibility of Age Pension
- Financial stress
- Self-reported health
- Financial Literacy
- Patience
- Risk attitude
- Bequest motives
- Retirement confidence
- Worry about outliving savings

# Treatment Effects on Annuity Interest through Belief Update



# Treatment on Treated Effects

- Among participants who initially underestimated their life expectancy and subsequently revised it upward after receiving objective information, the likelihood of being interested in the lifetime annuity product increased by 38.59 percentage points (5% significance)



# Take Away Message

- Improving longevity literacy (OLE) can indirectly increase annuity appeal
- Experimental evidence linking longevity literacy and annuity interest
- Documents asymmetric belief updating in the longevity domain
- Provides new behavioral explanation for the annuity puzzle
- Policy: Promote longevity literacy education and tools
- Industry: Use peer-based framing in communication

# Q&A

**Contact:**
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# Appendix: SLE

**To what age do you think you will live?**

# Appendix: SSP

We will now ask you about the likelihood that you will live to ages 85, 90 and 95. To answer this question, please use the sliders to indicate your answer on a scale of 0 to 100, where 0 means "no chance at all" and 100 means "absolutely certain". ***You must move the slider at least once at each age to proceed***.

**How likely do you think it is that you will live to age 85?**



**0** No chance at all — **100** Absolutely certain

**How likely do you think it is that you will live to age 90?**



**0** No chance at all — **100** Absolutely certain

**How likely do you think it is that you will live to age 95?**



**0** No chance at all — **100** Absolutely certain



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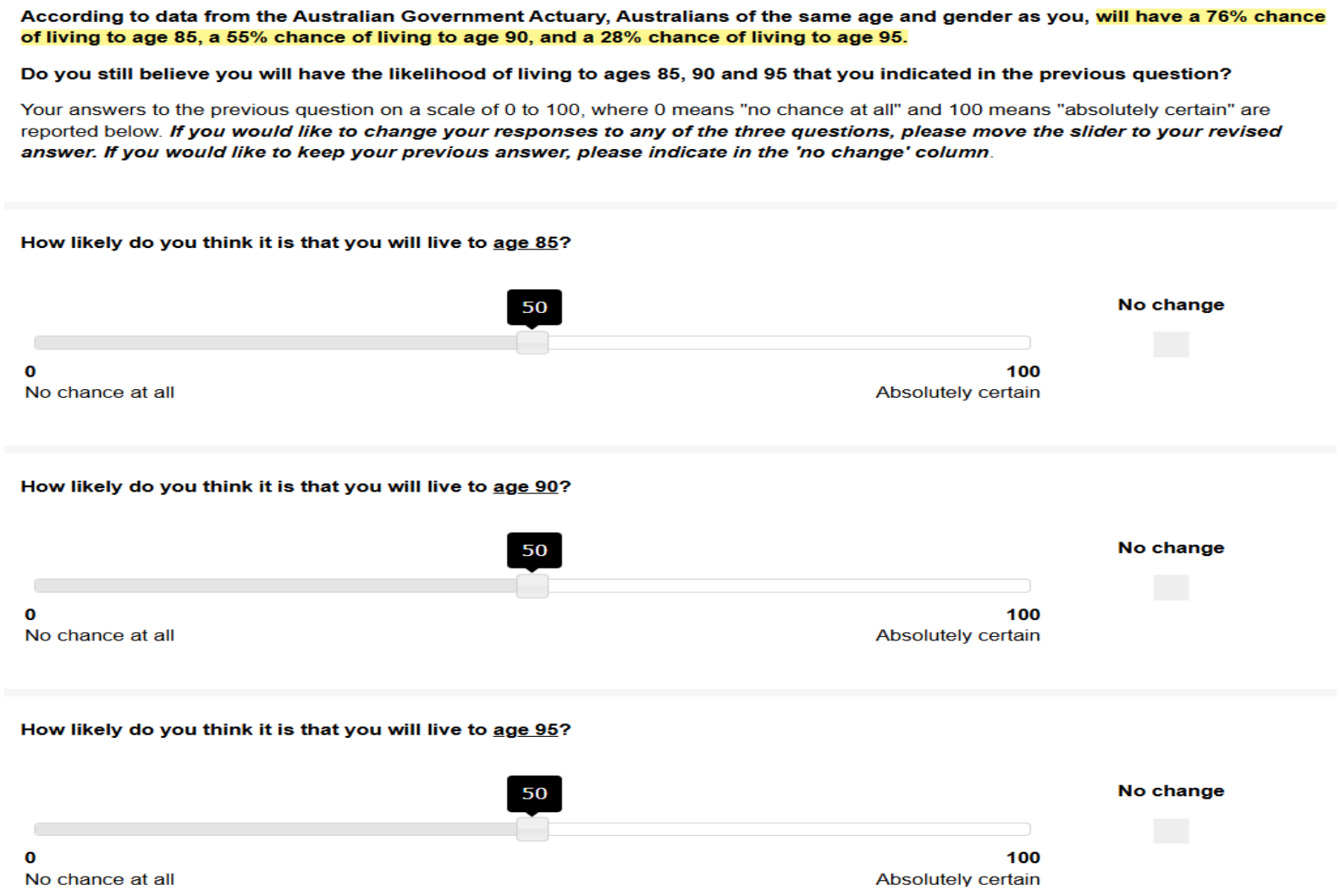
# Appendix: OLE

**According to data from the Australian Government Actuary, Australians of the same age and gender as you will live to be at least 91 years old on average, which is 11 years more than your estimate of how long you will live.**

**Do you still believe you will live to age 80?**

- No, I think I will live to a higher age
- No, I think I will live to a lower age
- Yes, I think I will live to age 80

# Appendix: OSP



# Appendix: PLE

**According to your responses to the earlier personal information questions, we used a lifespan calculator to predict your life expectancy considering your age, gender, marital status, work status, health status, and lifestyle. The result shows that your personalised expected lifespan is at least 88 years old, which is 7 years more than your estimate of how long you will live.**

**Do you still believe you will live to age 81?**

- No, I think I will live to a higher age
- No, I think I will live to a lower age
- Yes, I think I will live to age 81

# Appendix: PSP

**According to your responses to the earlier personal information questions, we used a lifespan calculator to predict your survival probabilities considering your age, gender, marital status, work status, health status, and lifestyle. The result shows that you have a 55% chance of living to age 85, a 32% chance of living to age 90, and a 16% chance of living to age 95.**

**Do you still believe you will have the likelihood of living to ages 85, 90 and 95 that you indicated in the previous question?**

Your answers to the previous question on a scale of 0 to 100, where 0 means "no chance at all" and 100 means "absolutely certain" are reported below. ***If you would like to change your responses to any of the three questions, please move the slider to your revised answer. If you would like to keep your previous answer, please indicate in the 'no change' column***.

**How likely do you think it is that you will live to age 85?**


**How likely do you think it is that you will live to age 90?**


**How likely do you think it is that you will live to age 95?**

# Appendix: FC

Next, we will present some information to prompt you to think about your financial circumstances in retirement.

You have saved superannuation over your working life to live on in your retirement. Depending on how you draw down your superannuation, **your superannuation savings may run out**.

For example, Jamie, a 67-year-old single homeowner, has around $300K in a superannuation account at retirement and no other savings. Suppose Jamie withdraws from superannuation to supplement the Age Pension in order to maintain the comfortable lifestyle recommended by the Association of Superannuation Funds of Australia (ASFA). **Jamie's super will last for just over 20 years (running out at age 87). After that, Jamie will have to rely on the Age Pension only**.

The figure below shows **Jamie's annual income from superannuation and the Age Pension**: