Saving less and taking risks: including the Age Pension in retirement saving and investment decisions

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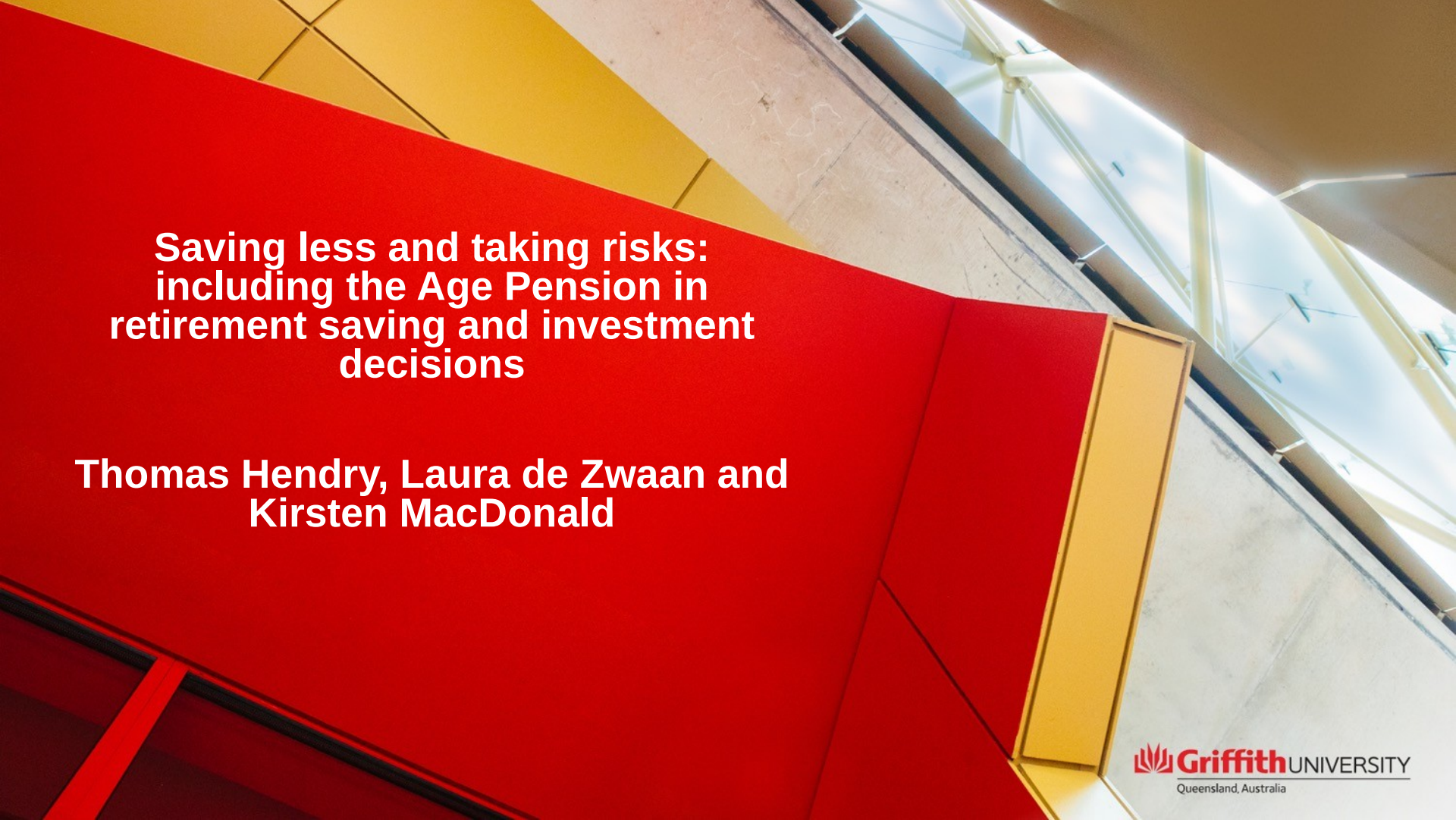

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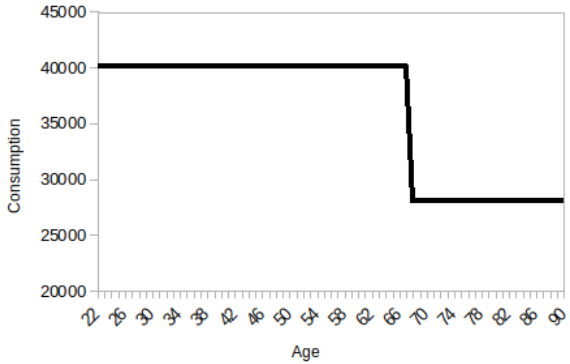
Question 1 – Optimal Saving

- **How much retirement saving is 'optimal' if many will already receive the Age Pension?**
- Life-cycle models can help answer this question (Modigliani et al. 1954, Friedman 1957).
- Often used to empirically test whether people save in a certain way, but now also used as a normative guide (Bodie 2003, Hanna & Lindamood 2010, Pfau 2011).



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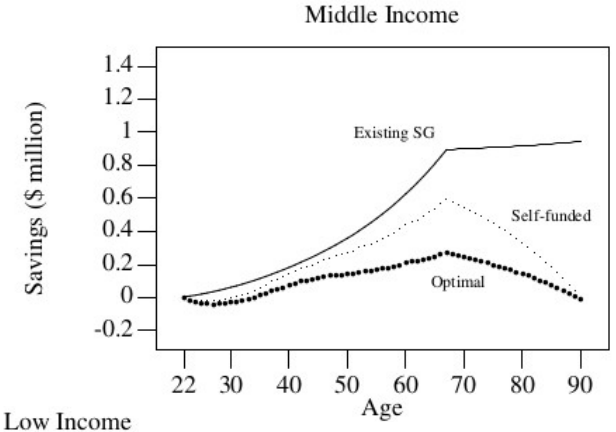
Question 1 – Optimal Saving

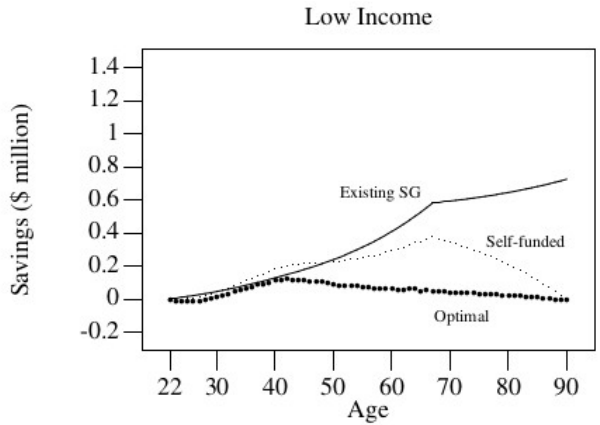
- **What important parameters/assumptions do we use?**
- Income profile: 25th, 50th and 75th percentile of HILDA sample.
- Investment returns: 4.4% real return (ASFA, 2021).
- Utility:

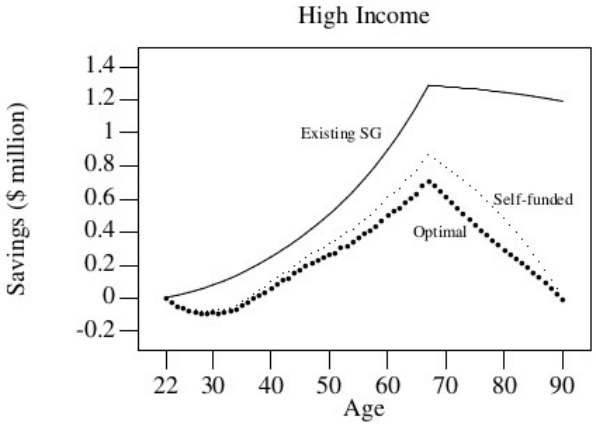
$$\max U(c_t) = \sum_{t=22}^{N} \beta_t \ln c_t$$

- Beta assumes discount rate = rate of return.
- Retirement income: 70% of last 15 working year average (Biggs, 2017).
- No bequest motive.
- Age pension means tests apply.
- Life expectancy 90.

Question 1 – Optimal Saving







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Question 1 – Optimal Saving

- **Some thoughts...**
- There is a low incentive to save voluntarily for retirement. The SG is already sub-optimal.
- Low income earners are affected most by including the Age Pension.
- How equitable is a flat rate SG?
- Should financial planners recommend some clients don’t save? Or is savings at retirement the preferred measurement? Why?
- Financial planning costs and insurance costs should often be paid for out of superannuation...maybe even other costs?
- Is superannuation more accurately framed as a collective goal towards national saving and less about individual saving?

Question 2 – Optimal Risk

- **What effect does the Age Pension have on the optimal asset allocation in superannuation?**
- Mean-variance optimisation models can help (Markowitz, 1952).
- Consider a two-asset portfolio (stocks and bonds) and a three-asset portfolio which also includes the present value of the Age Pension.
- How is the Age Pension PV calculated (See; Fraser et al., 2001)?
- $$PV_{ap} = \frac{1}{(1+y)^{mur}} \times \frac{1-(1+y)^{-mir}}{y} \times benefit \quad \text{and} \quad \frac{PV_{ap}}{PV_{ap} + superannuation}$$

- Age Pension PV is constrained by the second formula.
- Example: superannuation = $200,000 and, AP = $100,000. Therefore, AP is constrained to 33.33% (i.e.100,000 / 300,000).

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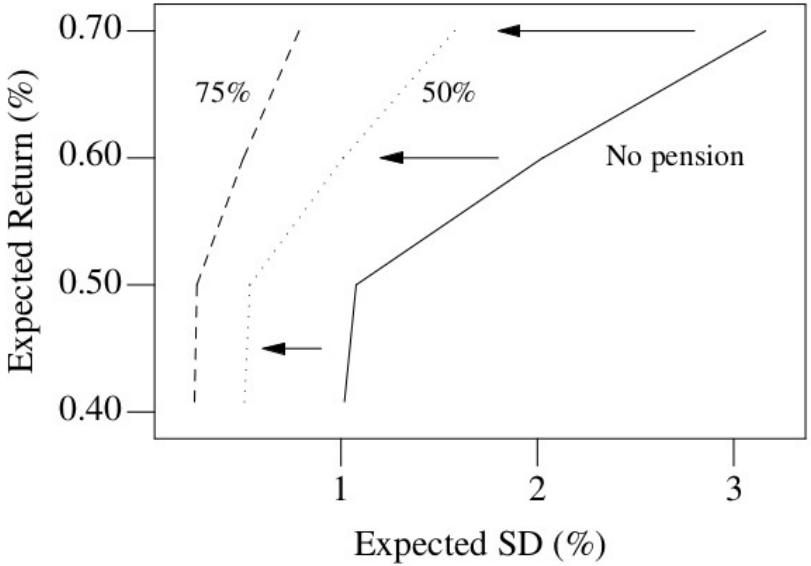
Question 2 – Optimal Risk

- **What effects Age Pension present value?**
- Age and income are most important.
- Young people may not receive as much AP in retirement (because they are saving so long) but AP can still make up most of their portfolio because they also have minimal superannuation.
- Example: superannuation = $5000 and AP = $50,000 therefore AP is still 91% of portfolio (50,000/55,000).
- **What is the ‘return’ and ‘standard deviation’ of the Age Pension?**
- Returns are average increases (above CPI). AP is adjusted twice yearly.
- Standard Deviation is minimal because most months it does not change.

Question 2 – Optimal Risk



Question 2 – Optimal Risk

- **Some thoughts...**
- The Age Pension (if calculated) will be a hedge for many investors which encourages more risk in superannuation (i.e. more stocks).
- Catch 22 - lessen AP and encourage investors to seek risk for higher returns, keep AP and encourage investors to seek risk against the AP hedge.
- For financial planners it may be difficult to communicate the AP hedge. A drop in superannuation balance will still be uncomfortable for risk-averse clients.
- Also, risk-minimising opportunities from including such a low SD asset (if desired).

Concluding thoughts

- Overall the Age Pension is important in optimal saving and asset allocation calculations.
- The Age Pension is an incentive to save less and take more risk in superannuation.
- This study presents a mathematical framework that might help us understand exactly why this is so.
- An important question for the financial planning industry: is the goal of retirement advice to encourage a self-funded retirement or maximise life-cycle utility for the client.

Thank you!

Any errors in this presentation or accompanying paper are my own.
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References

- Biggs, A. G. (2017). The Life Cycle Model, Replacement Rates, and Retirement Income Adequacy. *The Journal of Retirement*, 4(3), 96–110.
- Bodie, Z. (2003). Thoughts on the future: Life-cycle investing in theory and practice. *Financial Analysts Journal,* 59(1), 24–29.
- Fraser, S. P., Jennings, W. W., & King, D. R. (2001). Strategic asset allocation for individual investors: The impact of the present value of Social Security benefits. *Financial Services Review*, 9(4), 295–326.
- Friedman, M. (1957). A theory of the consumption function. Princeton University Press.
- Hanna, S. D., & Lindamood, S. (2010). Quantifying the economic benefits of personal financial planning. *Financial Services Review*, 19(2).
- Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance*, 7, 77-91.
- Modigliani, F., Brumberg, R., & Kurihara, K. (1954). Utility Analysis and the Consumption Function: An Interpretation of Cross-Section Data. *Post-Keynesian Economics*, 388–436.
- Pfau, W. D. (2011). Safe savings rates: A new approach to retirement planning over the lifecycle. *Journal of Financial Planning*, 24(5)