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Overcoming a lack of resilience in income drawdown products

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The '**Minimising Longevity and Investment Risk while Optimising Future Pension Plans**' research programme is funded by the Actuarial Research Centre.

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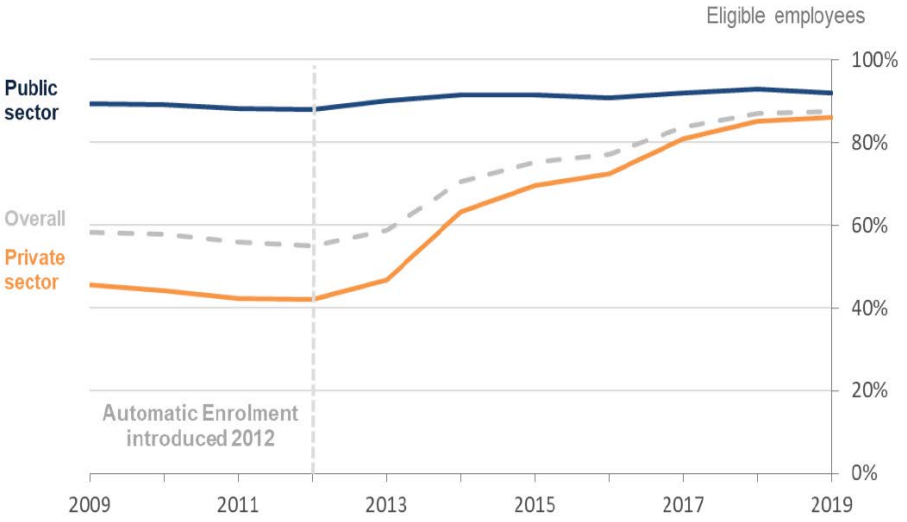
Current situation

- Workplace pension contribution rate now 8% p.a.
- 19.2 million workers saving into work-place pension.
- £100bn saved by them to Dec 2019 since 2012.



Source: DWP estimates derived from the ONS ASHE, GB, 2009 to 2019

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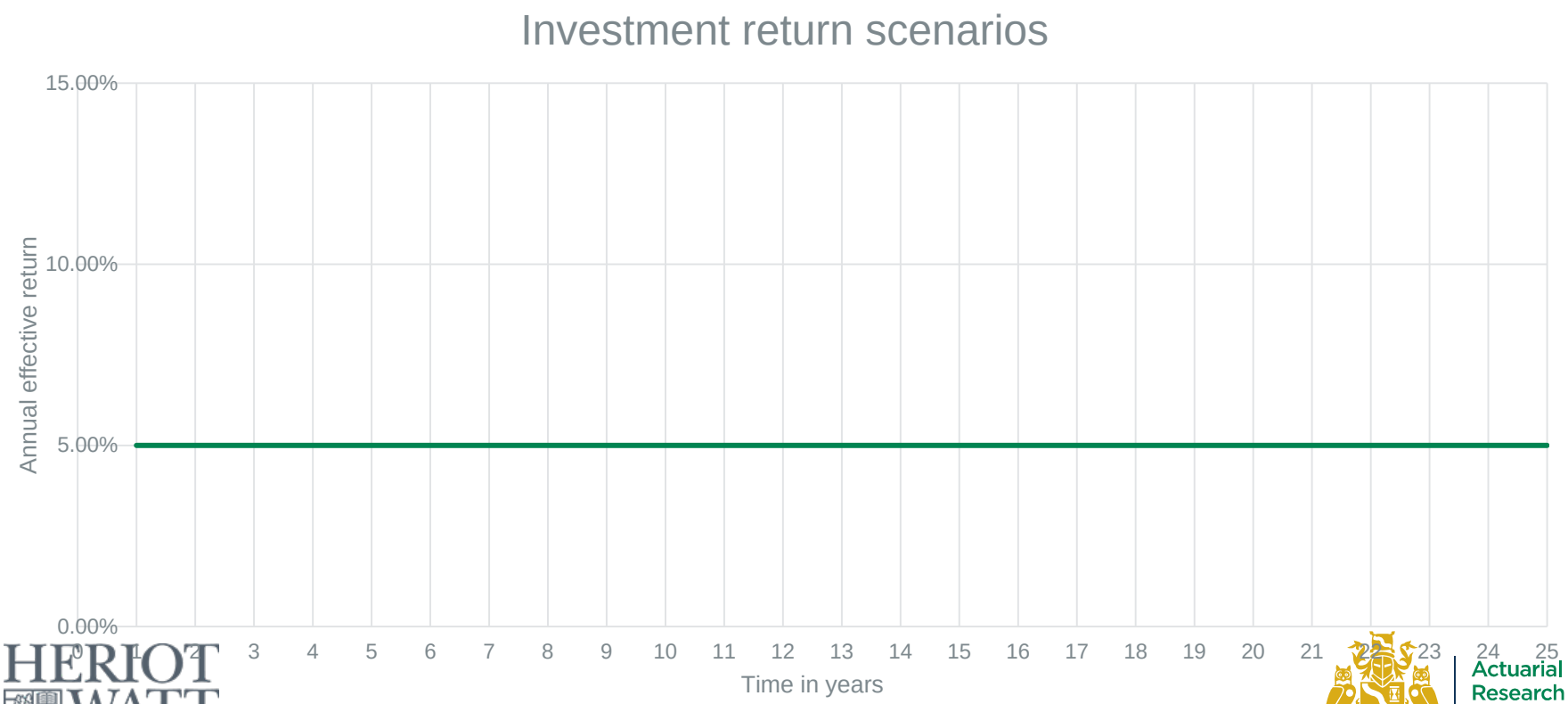
Income drawdown assumptions

- Customer, age 70, with £100,000 pension pot.
- Withdraw annual income until age 95.
- Assuming 5% p.a. constant returns, can sustainably withdraw £6,750 p.a.

Future investment scenario



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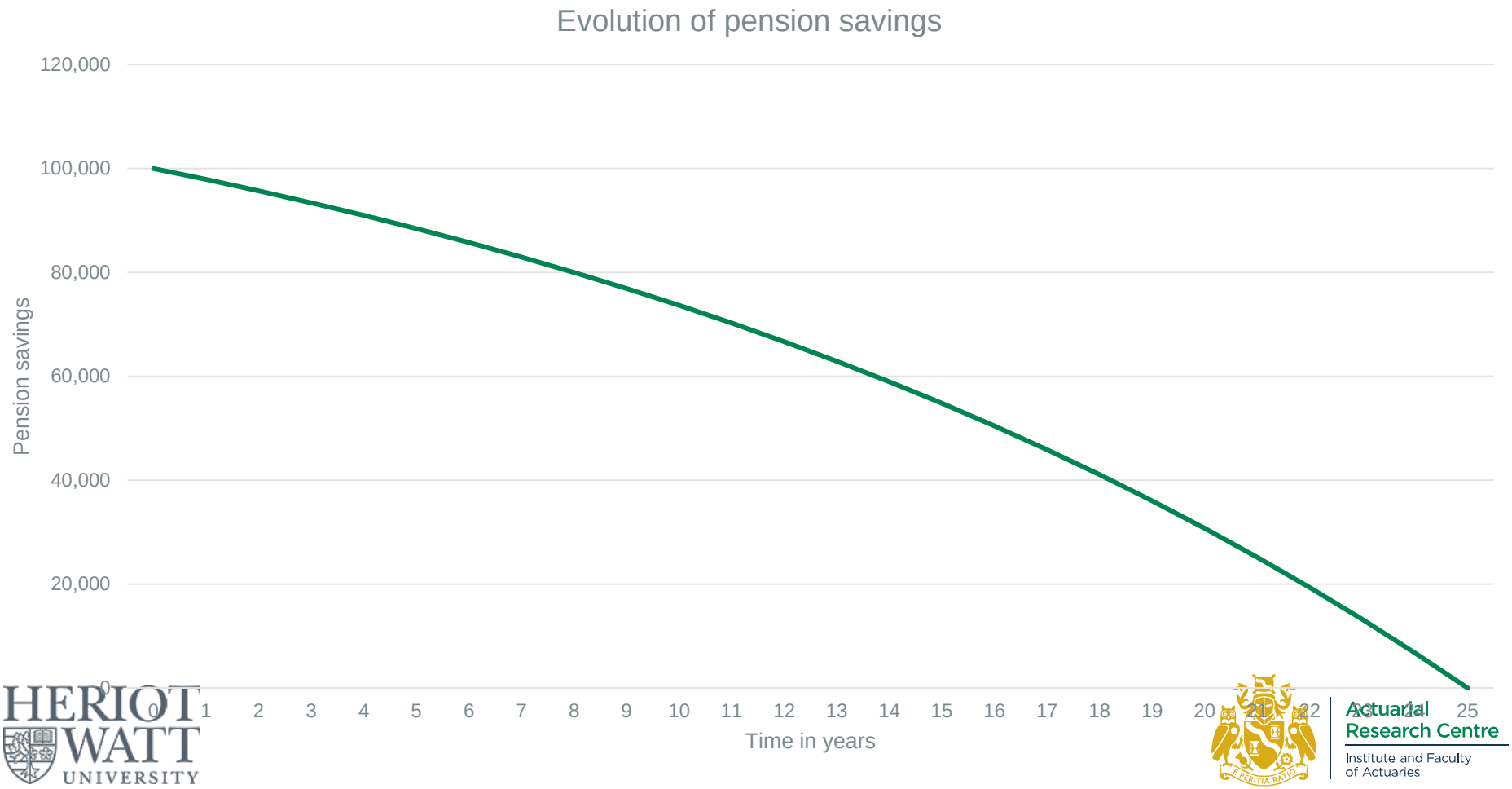
Withdraw £6,750 p.a. under constant returns



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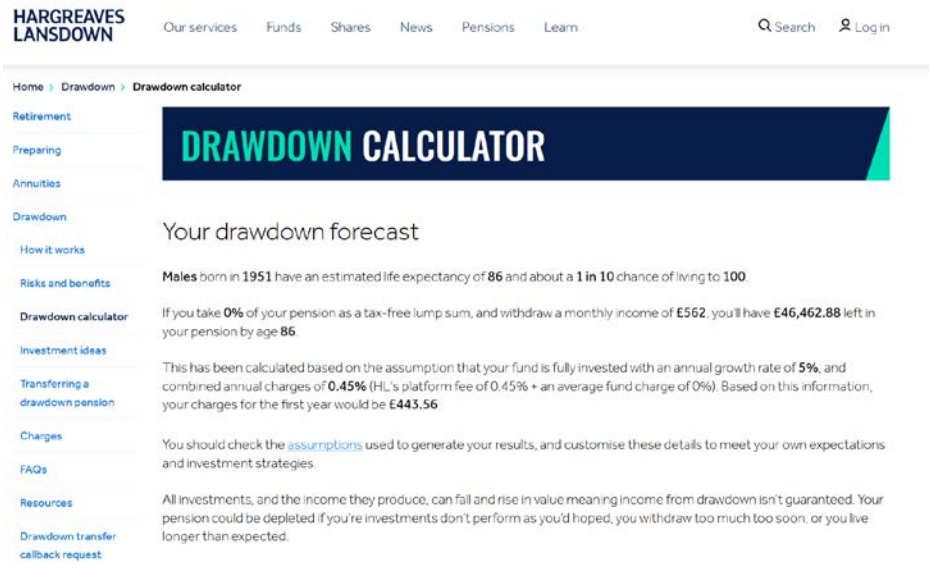
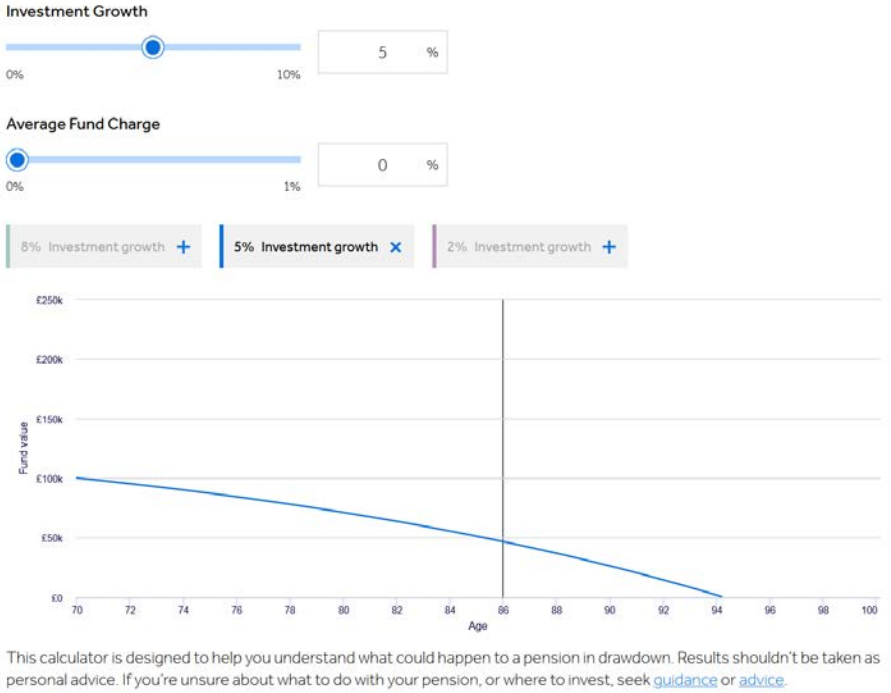
Typical online income drawdown calculator





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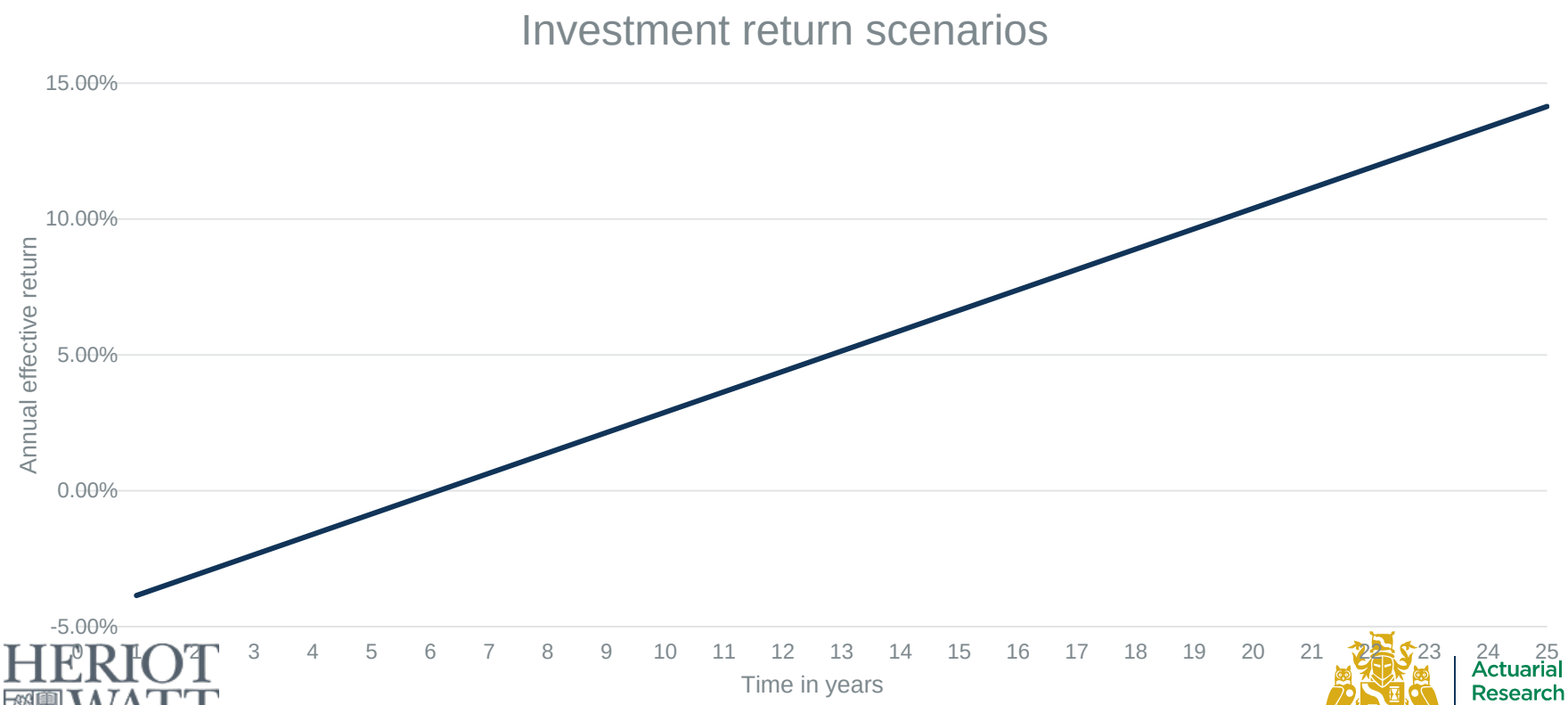
Increasing returns scenario, same geometric average return of 5% p.a.



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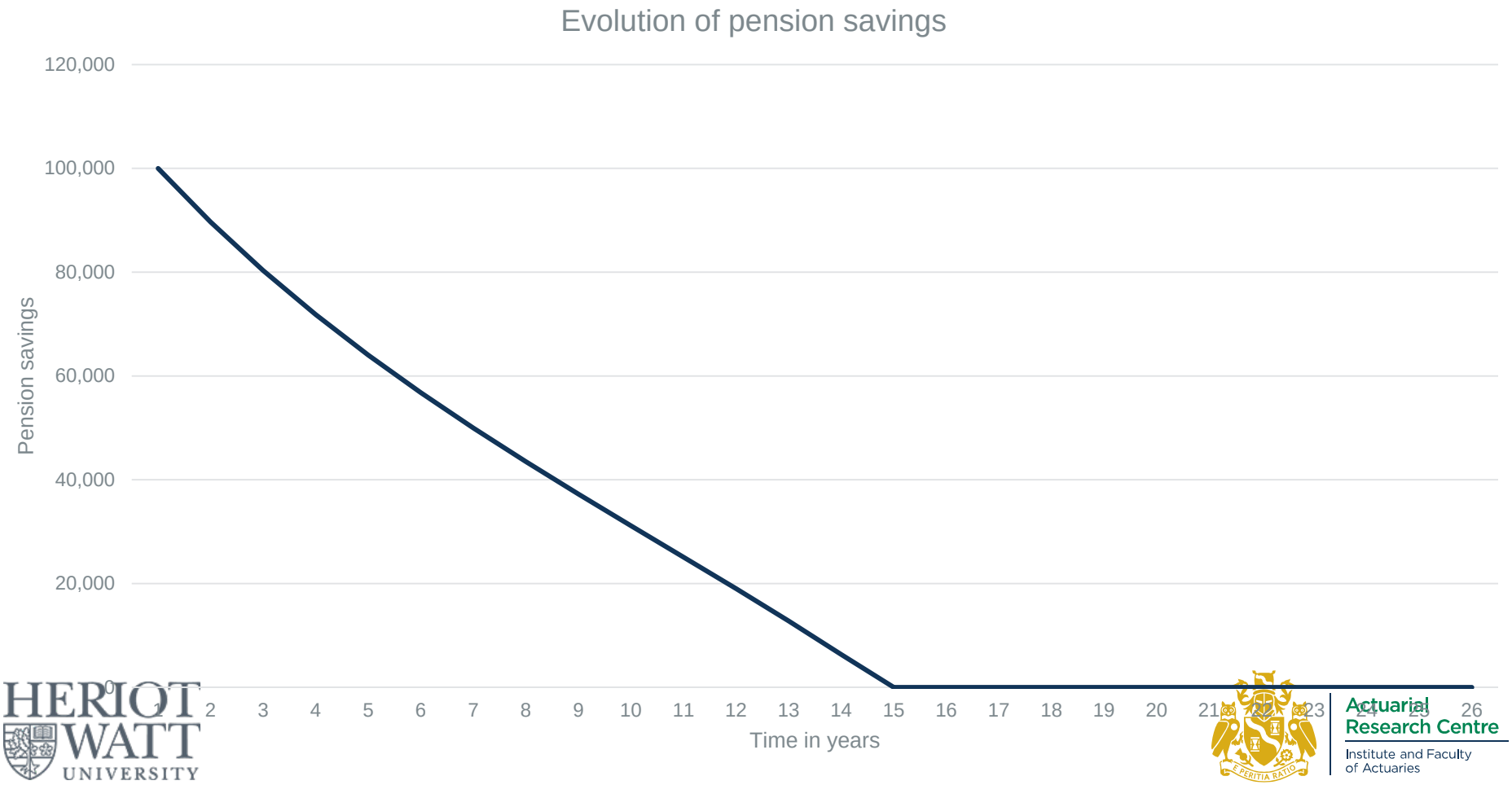
Withdraw £6,750 p.a. under increasing returns



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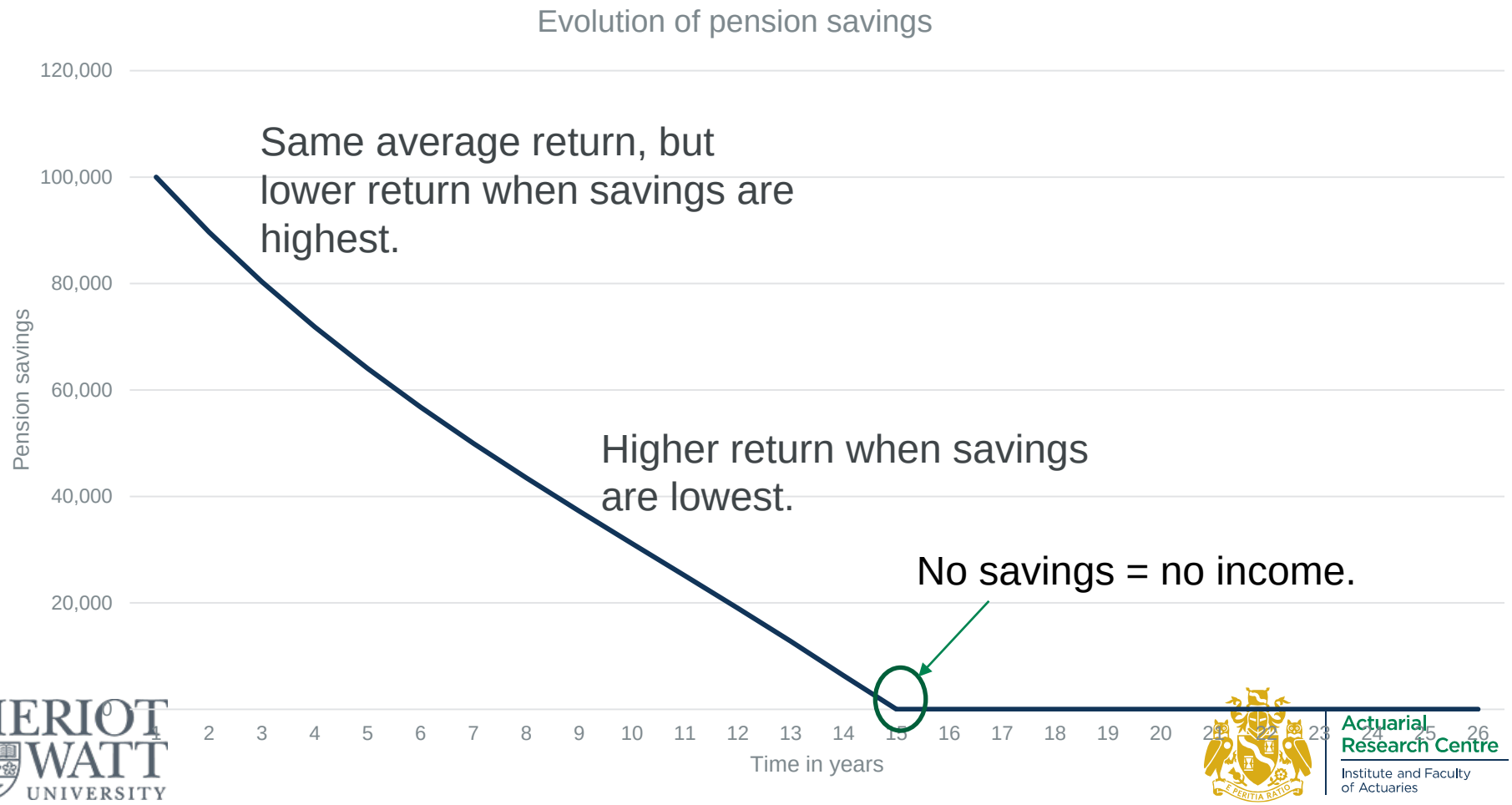
Withdraw £6,750 p.a. under increasing returns



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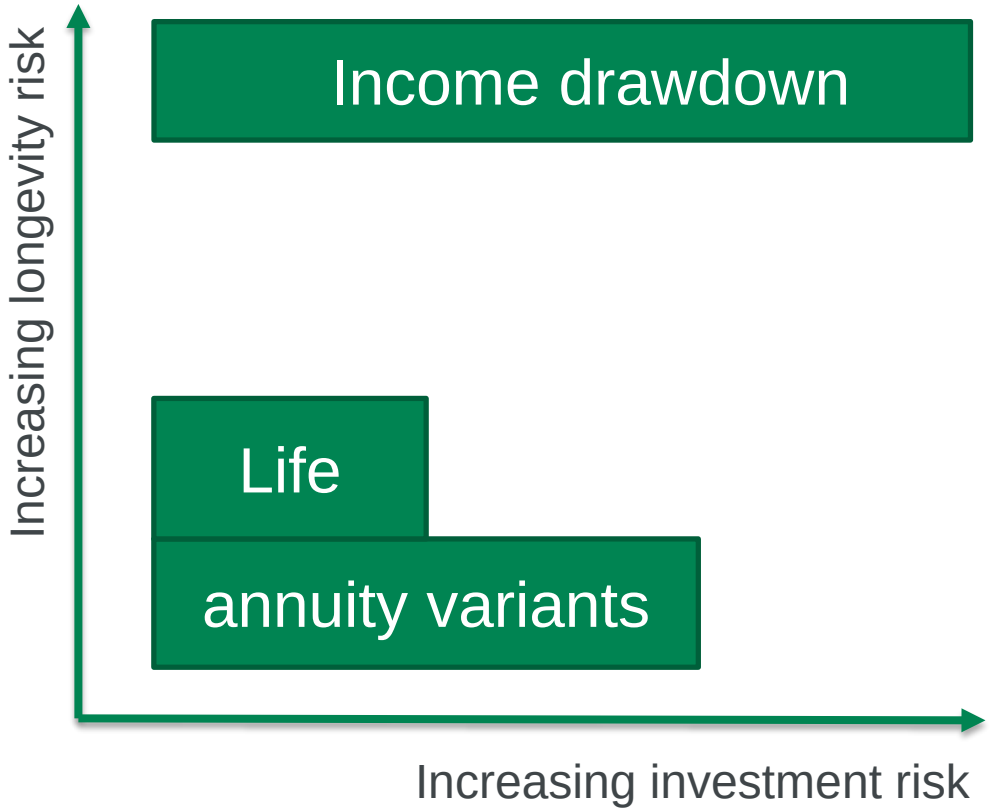
Decumulation options



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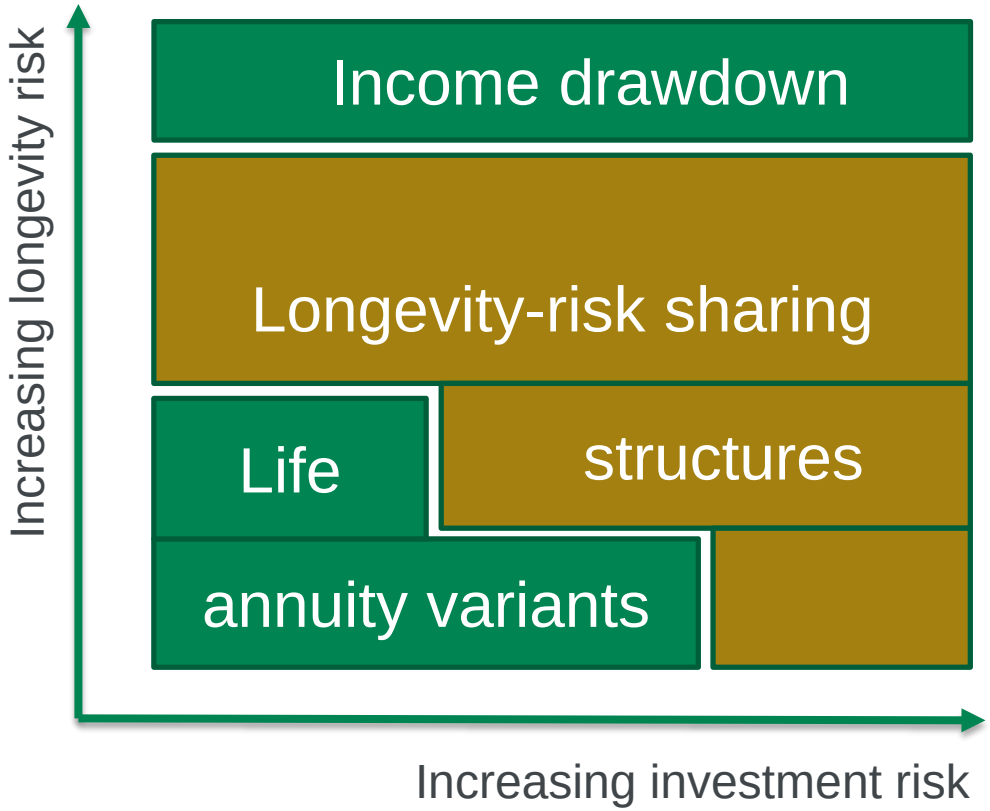
Decumulation options



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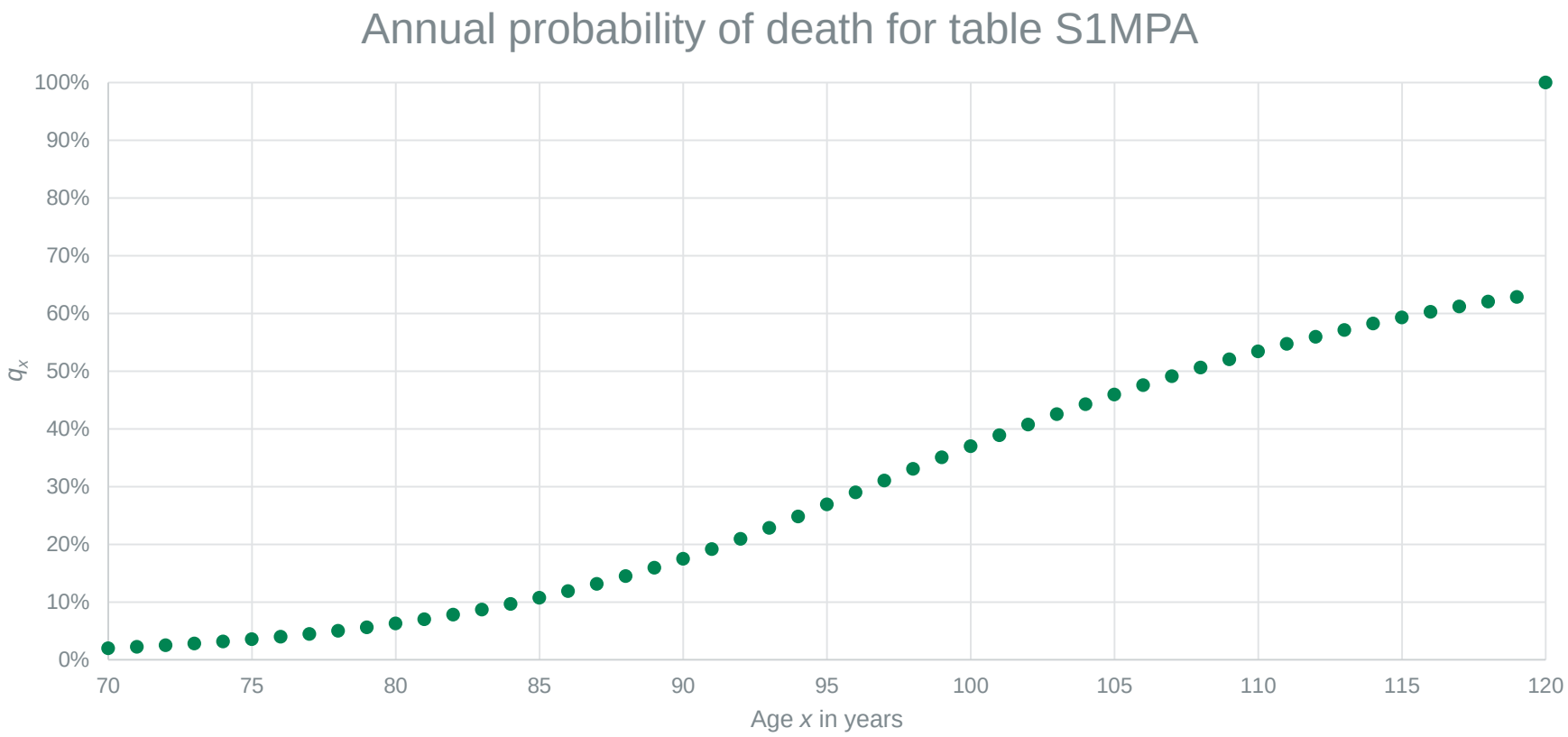
Probability of death against age



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Longevity risk-sharing interpretation

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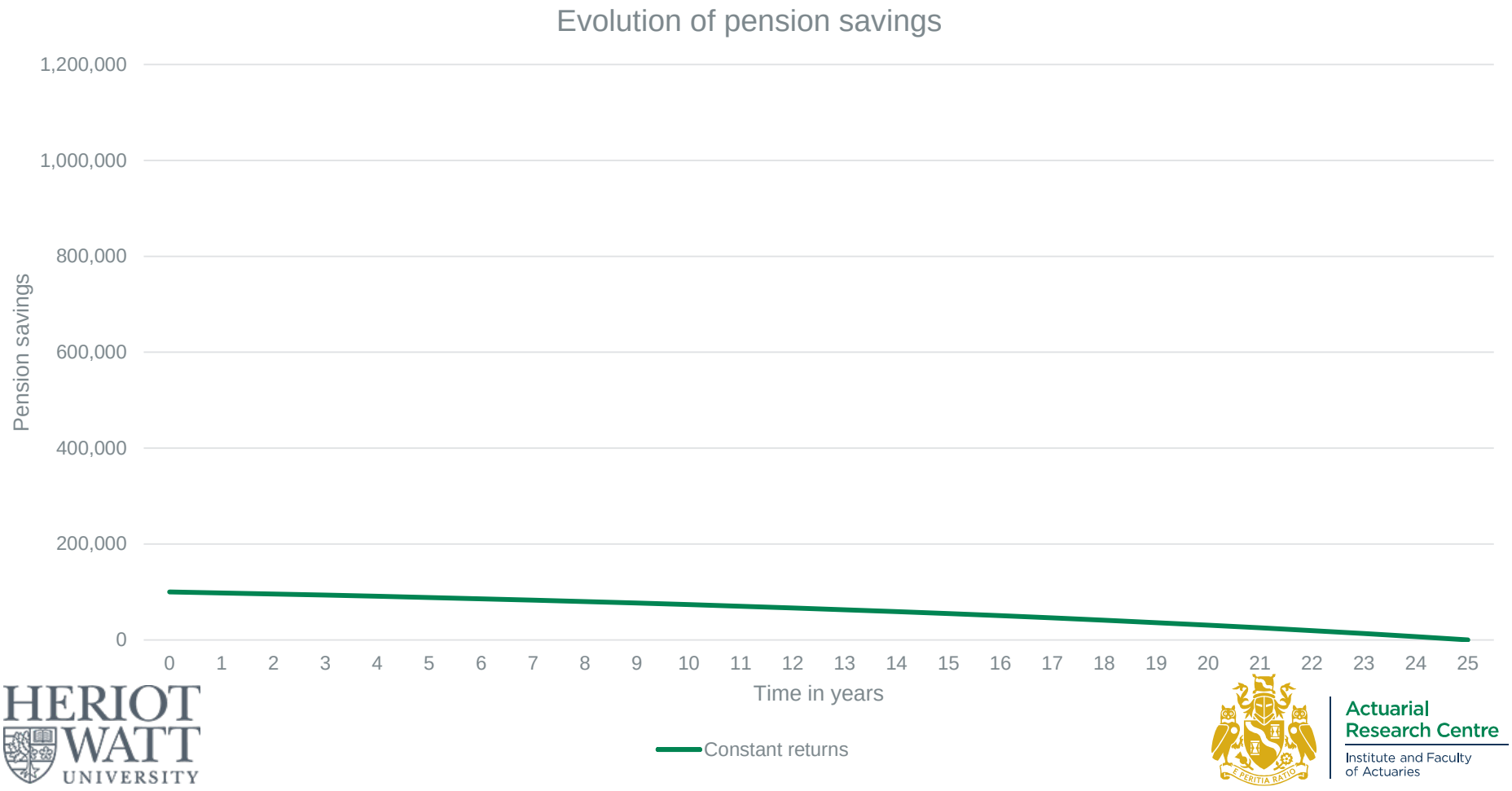
Pension savings under constant investment returns



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Allow for credits due to longevity-risk sharing

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Pension savings under increasing investment returns

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Allow for credits due to longevity-risk sharing

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However, ruin is not always avoided

- Assume a more negative return at the start.
- Then increase the return in steps of ~1% p.a.
- Keep geometric average return fixed at 5% p.a.
- Continue to withdraw £6,750 p.a.

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Steeply increasing returns, same geometric average return of 5% p.a.

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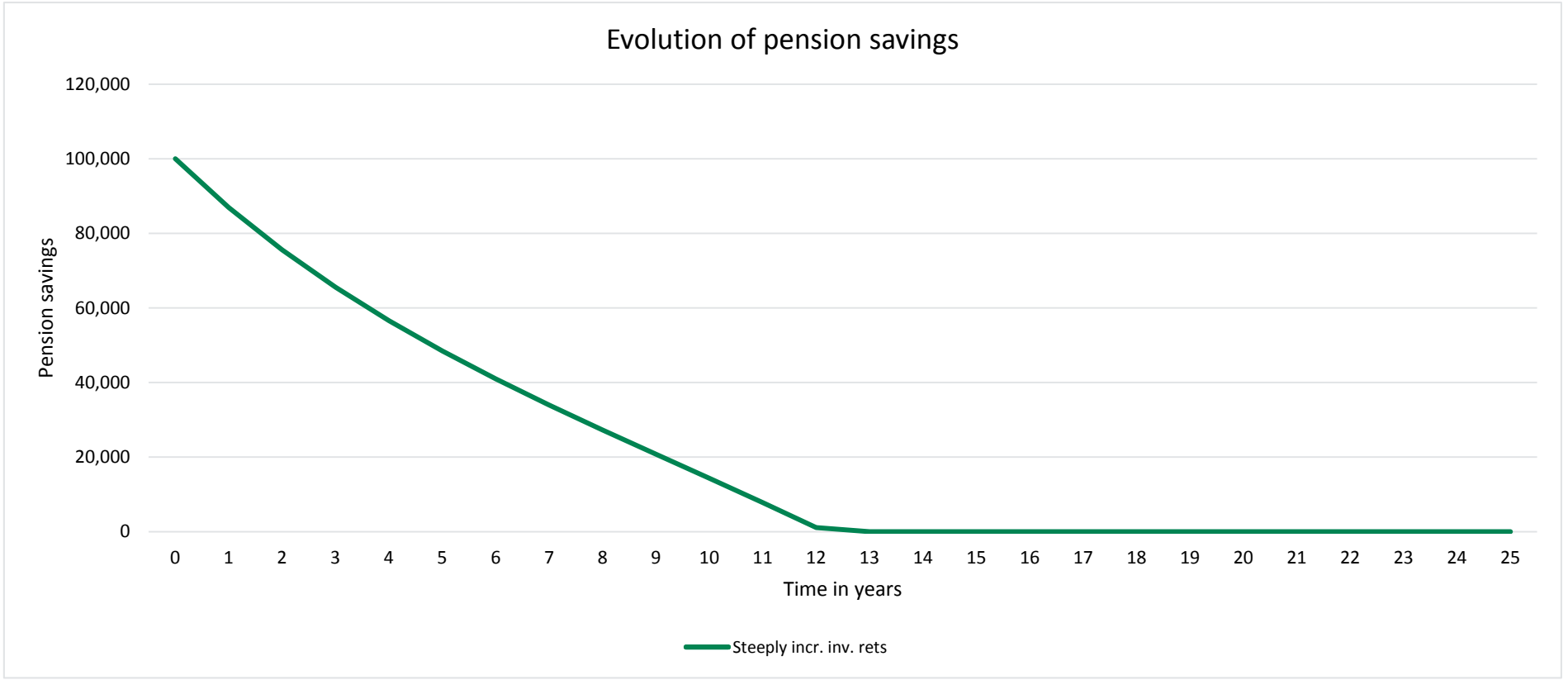
Pension savings under steeply increasing investment returns



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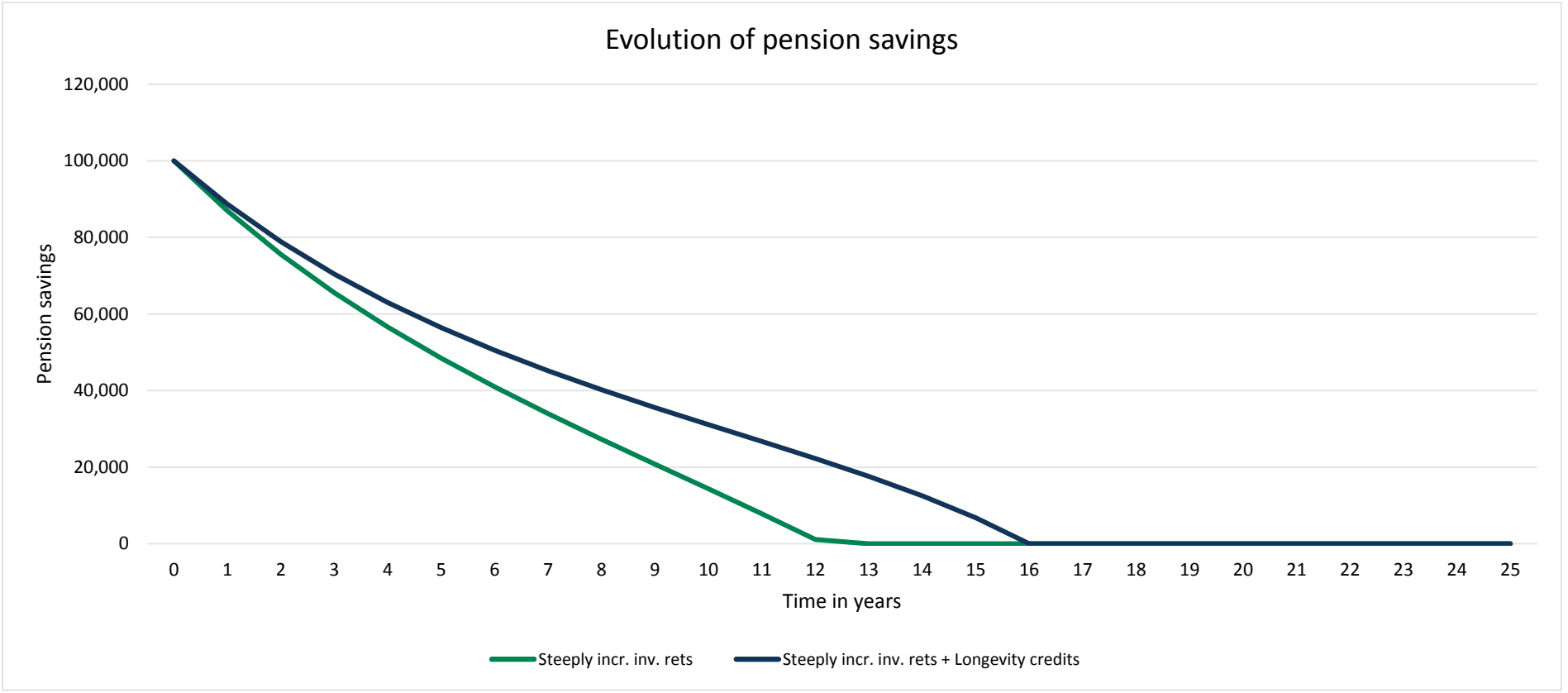
Allow for credits due to longevity-risk sharing



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Summary

- Negative investment returns at the start of the drawdown period are bad news.

- Longevity risk-sharing mitigates this risk:
  - Adds an additional, positive return to the investment return.

- Quid pro quo: give up residual savings upon death to the longevity risk-sharing group.
  - Akin to life annuities/DB pensions/CDC pensions situation.

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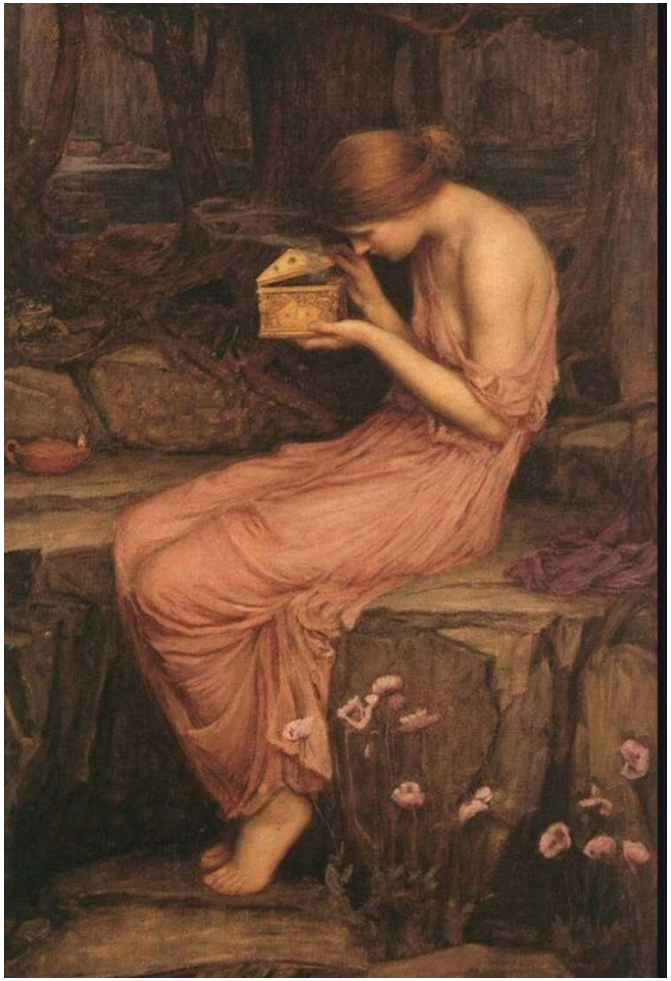
Pension freedoms



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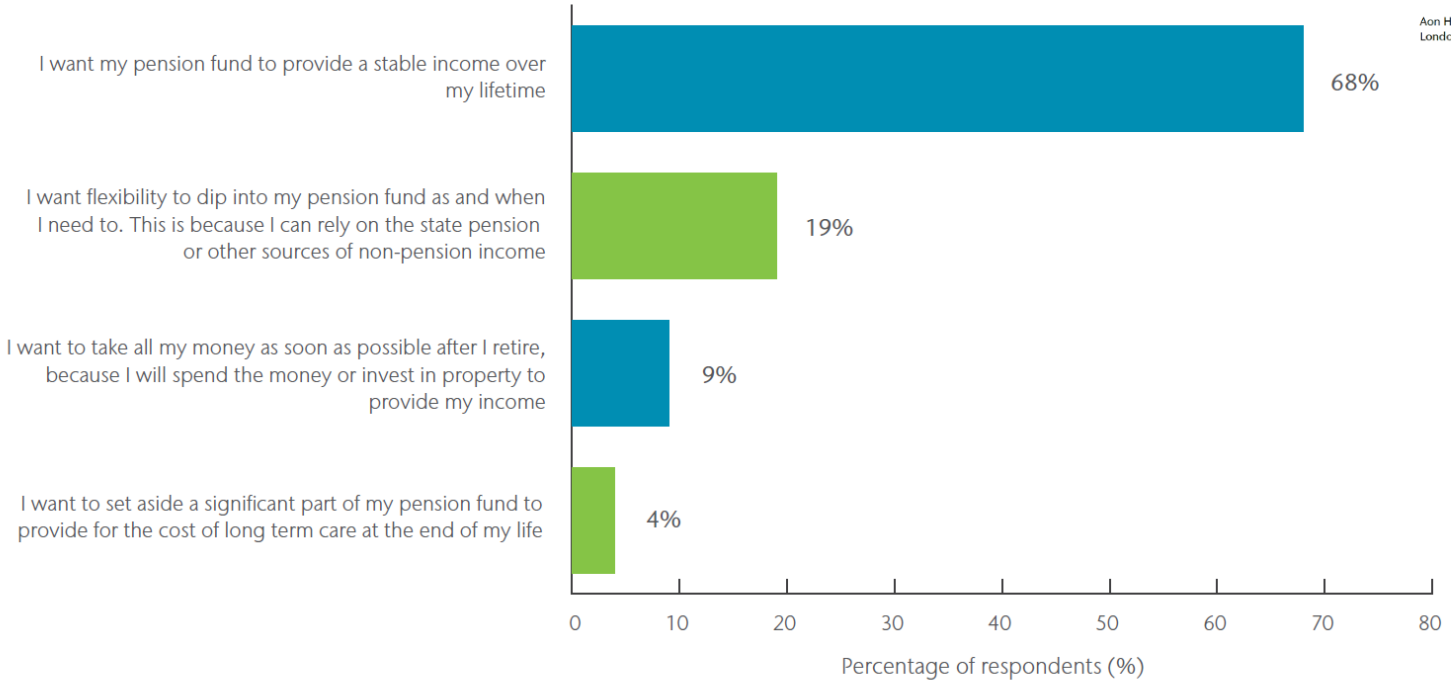
What do people want financially during retirement?

Chart 9 – Using retirement savings

Which of the following statements best describes your attitude towards how you might spend your pension fund?



In a brave new pensions world what will DC members really want?

Aon DC Member Survey

Aon Hewitt and Cass Business School
London, December 2014

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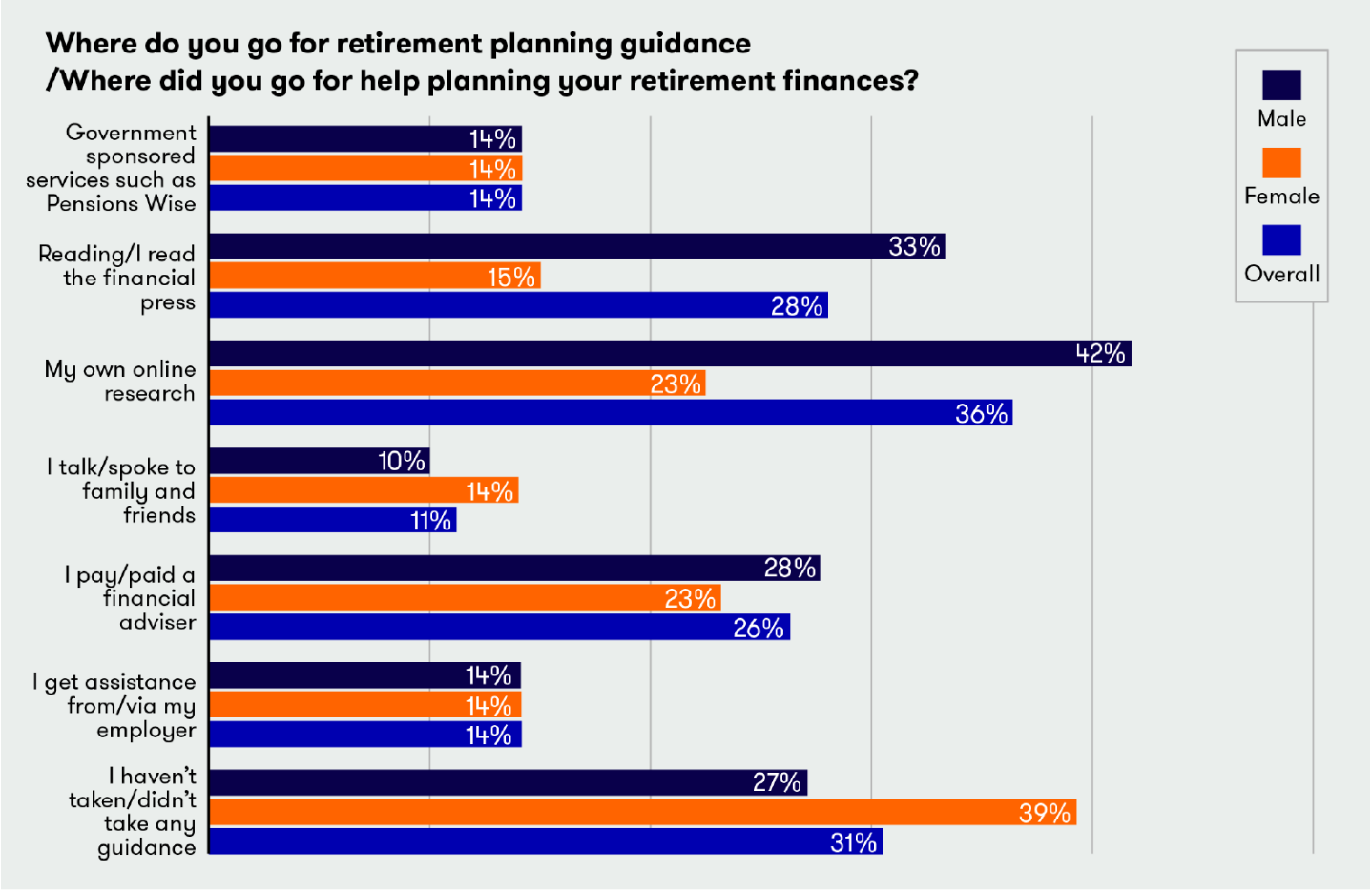
1 in 4 pay for financial advice
1 in 3 do not seek *any* guidance



interactive investor

The Great British Retirement Survey 2020

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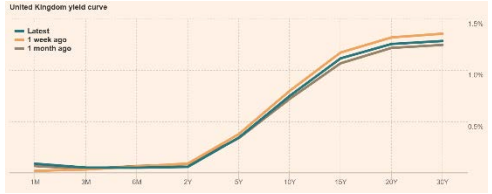
Covid 19 – the worst crisis since Pension Freedoms

The Great British Retirement Survey 2020

interactive investor

"Coronavirus has wiped out £60k of our savings in our portfolio. This was my husband's pension pot. He has no [other] pension."

– survey respondent 11917, retired



"Coronavirus has probably knocked 25% off the value of my pension pots and investments just as I am about to start drawing money down."

– survey respondent 11072, retired but still doing some paid work

"Before the stock market crash of February and March of 2020 I felt that my capital and income were sufficient for my needs. However, over £800 of dividend income for next year has already been cancelled."

– survey respondent 07905, retired

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My view

- Income drawdown is too complicated for most people.
  - They are being asked to become financial and life expectancy experts.
  - For how long will you live?
  - How much investment risk are you willing to bear?

- Risk is framed in terms of investment risk, in drawdown products.
- Why not the risk of failing to get a stable, lifetime income?

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Focus on longevity risk-sharing

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What is a pooled annuity fund?

- Structure to pool longevity risk.

- Everyone becomes the beneficiary of each other.

- Why?
  - To get a higher and life-long income, compared to income drawdown.
  - To get a higher expected income, compared to a life annuity.

A very simple pooled annuity fund

- At time 0,
  - Fixed number of participants,
  - Future lifetimes are i.i.d. random variables,
  - Everyone brings the same amount of money to the fund.
- Closed fund.
- No-one leaves except through death.

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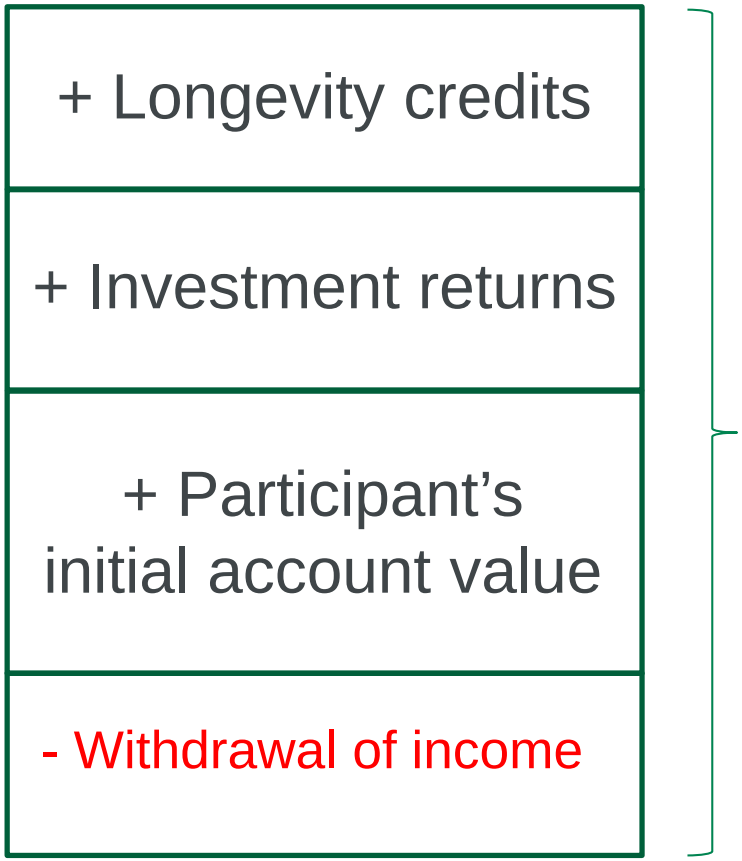
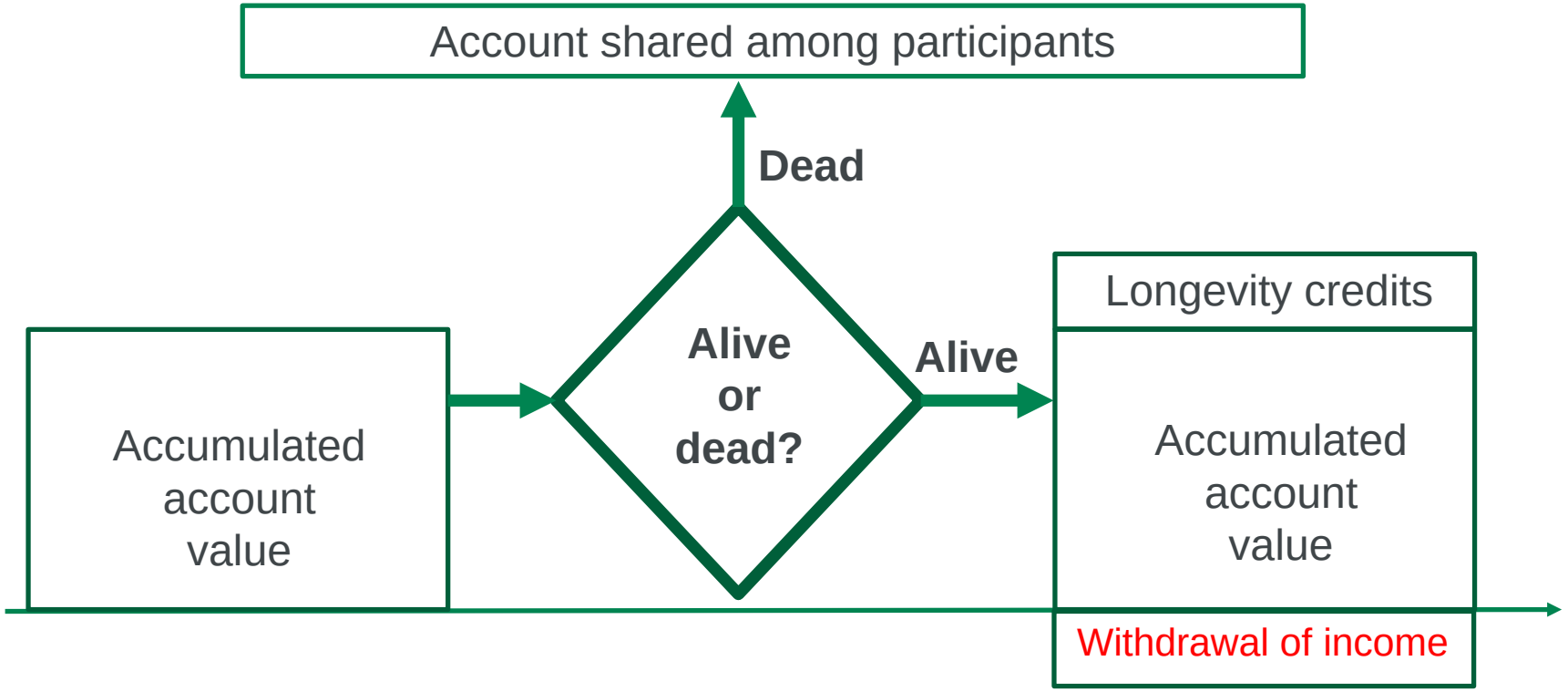
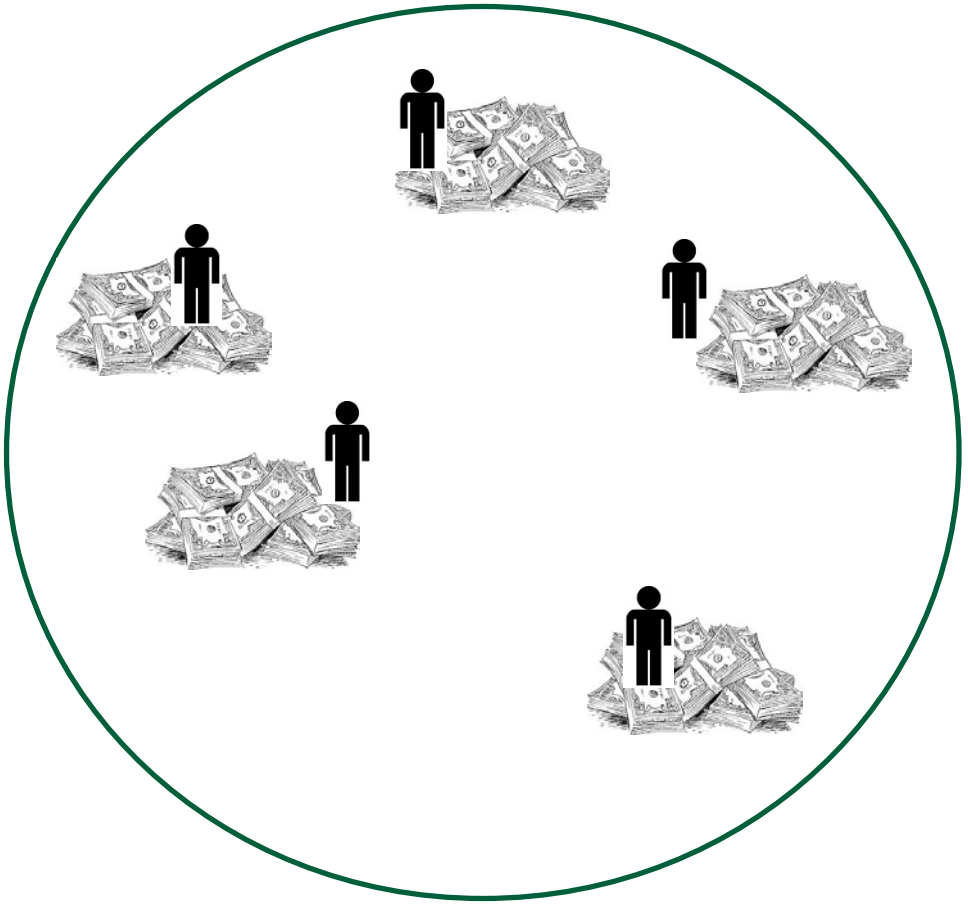
Individual account structure



Individual account structure



Longevity credit calculation



Participants are i.i.d. copies.

Pool longevity risk monthly.

Income paid out monthly.

When someone dies during T^{th} month…

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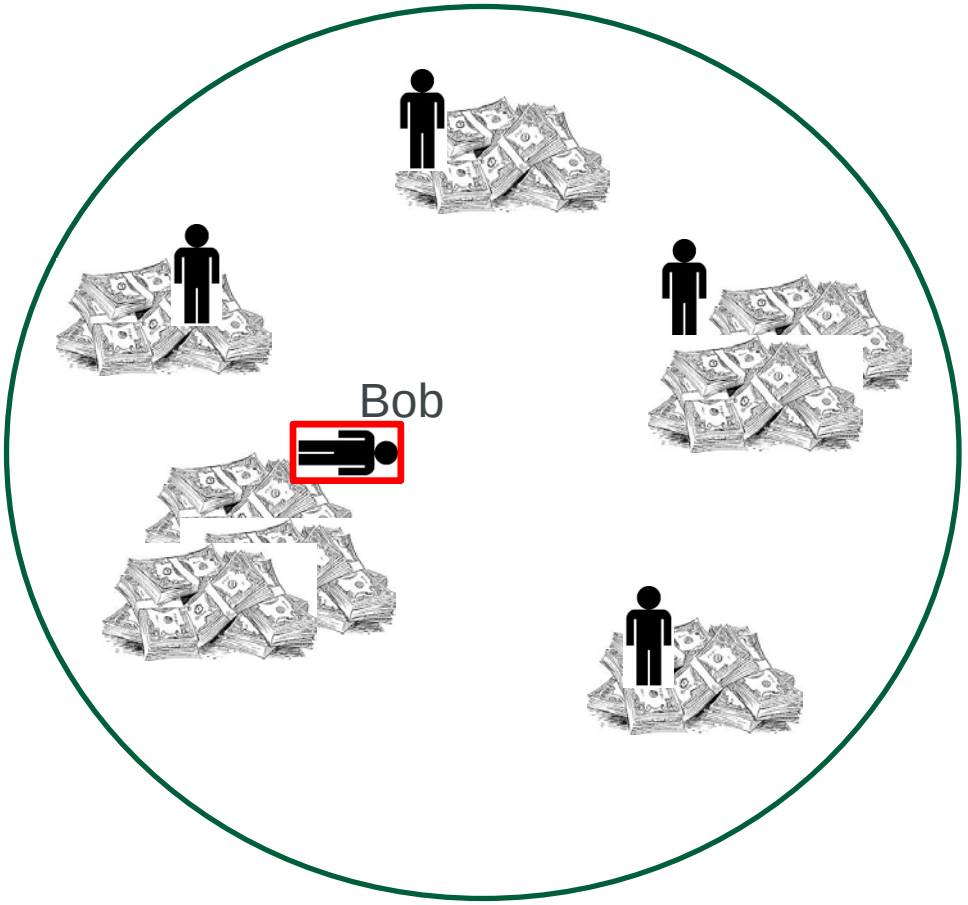
Longevity credit calculation



Longevity credit to each survivor is

$$\frac{Bob's\ account\ value}{Number\ of\ survivors}.$$

Longevity credit calculation is different for heterogeneous membership.

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Paying an income

- The monthly income paid to each surviving participant is

$$Income(n) = \frac{Their\ account\ value\ at\ time\ n}{a(n)},$$

where $a(n)$ is the expected present value of a single life annuity paid monthly, starting at time n.

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Withdrawals

- Then under constant investment returns

$$\frac{Income(n)}{Income(n-1)} = \frac{true\ p_{n-1}}{empirical\ \hat{p}_{n-1}}$$

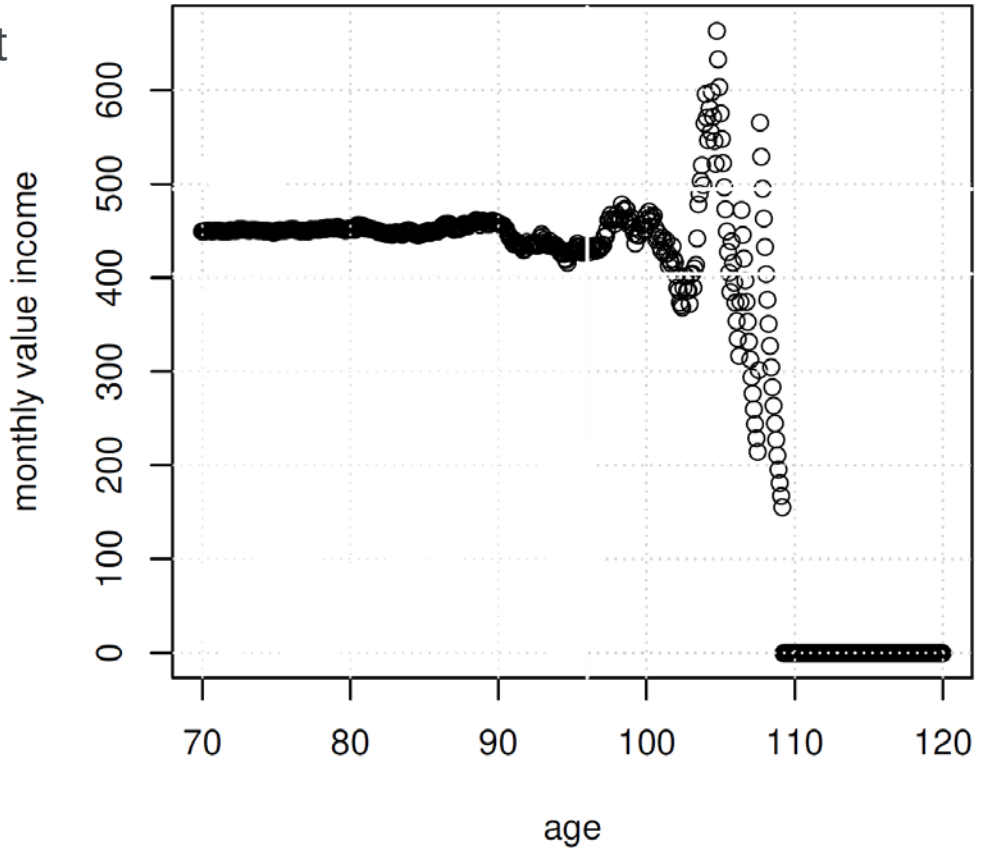
- Study changes in income: focus on idiosyncratic longevity risk.
- There is no systematic longevity risk in our model.

Sample income path from a pooled annuity fund (one possible future realisation)

Closed, single-cohort pooled annuity fund.

Members are independent and identical copies.

Focus on the income volatility caused by random fluctuations in deaths.



See: Bernhardt & Donnelly (2021)

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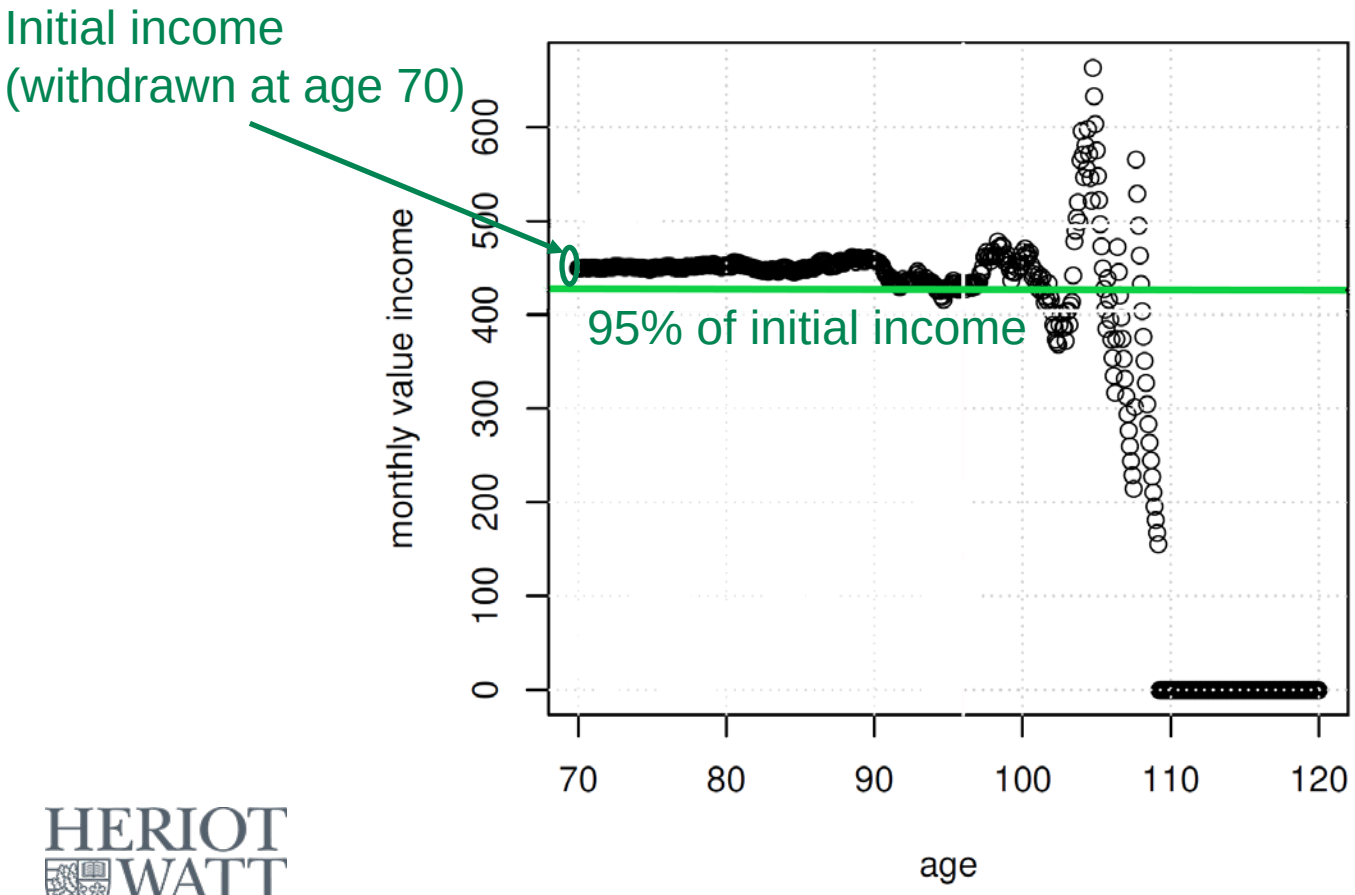
Sample income path from a pooled annuity fund (one possible future realisation)



Project future income paths, allowing for random fluctuations in deaths.

Calculate for how long the income is above the lower bound in each future path.

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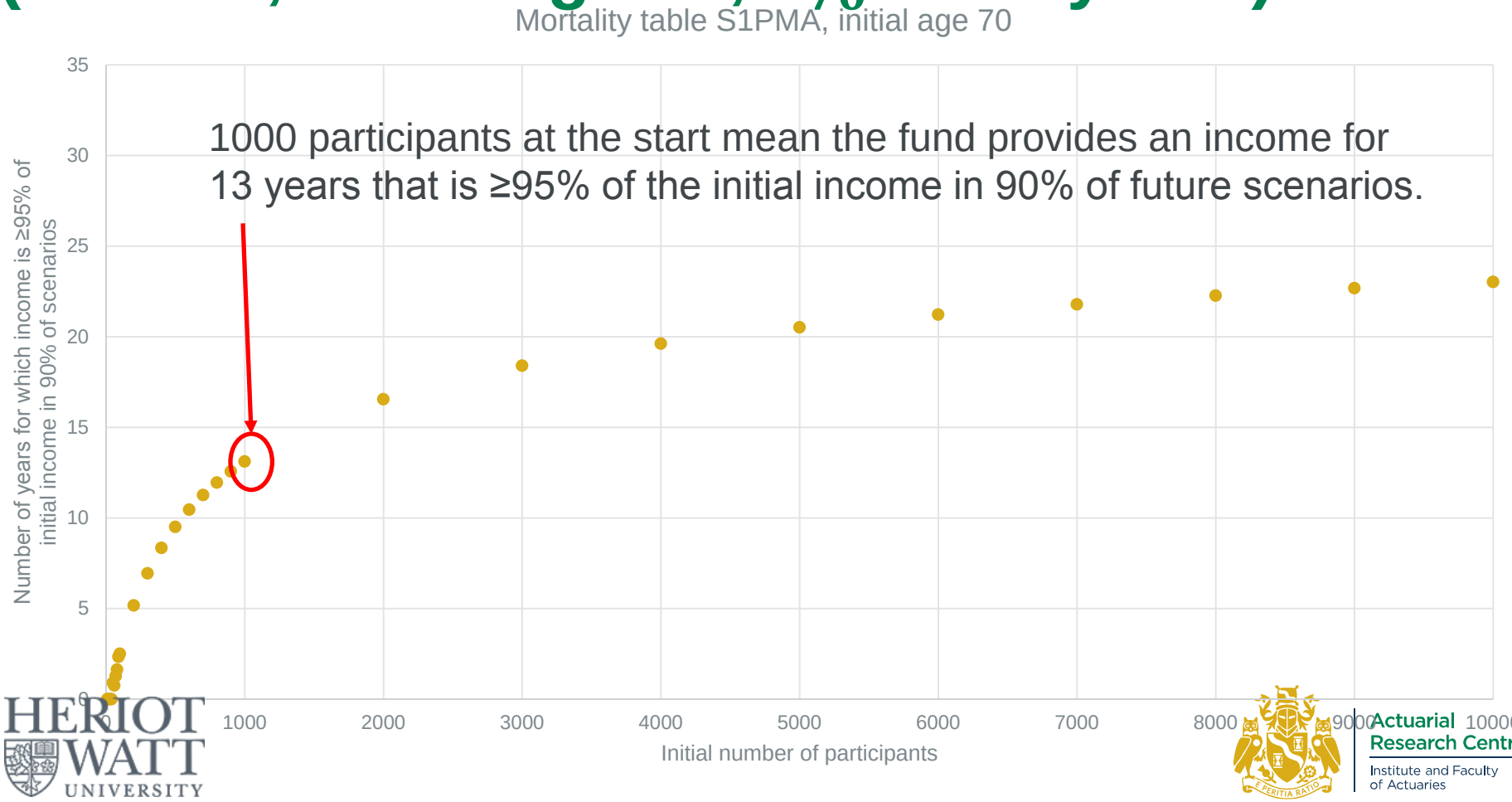
Number of years for which income is ≥95% of the initial income in 90% of scenarios (S1PMA, initial age 70, $e_{70} = 14$ years)



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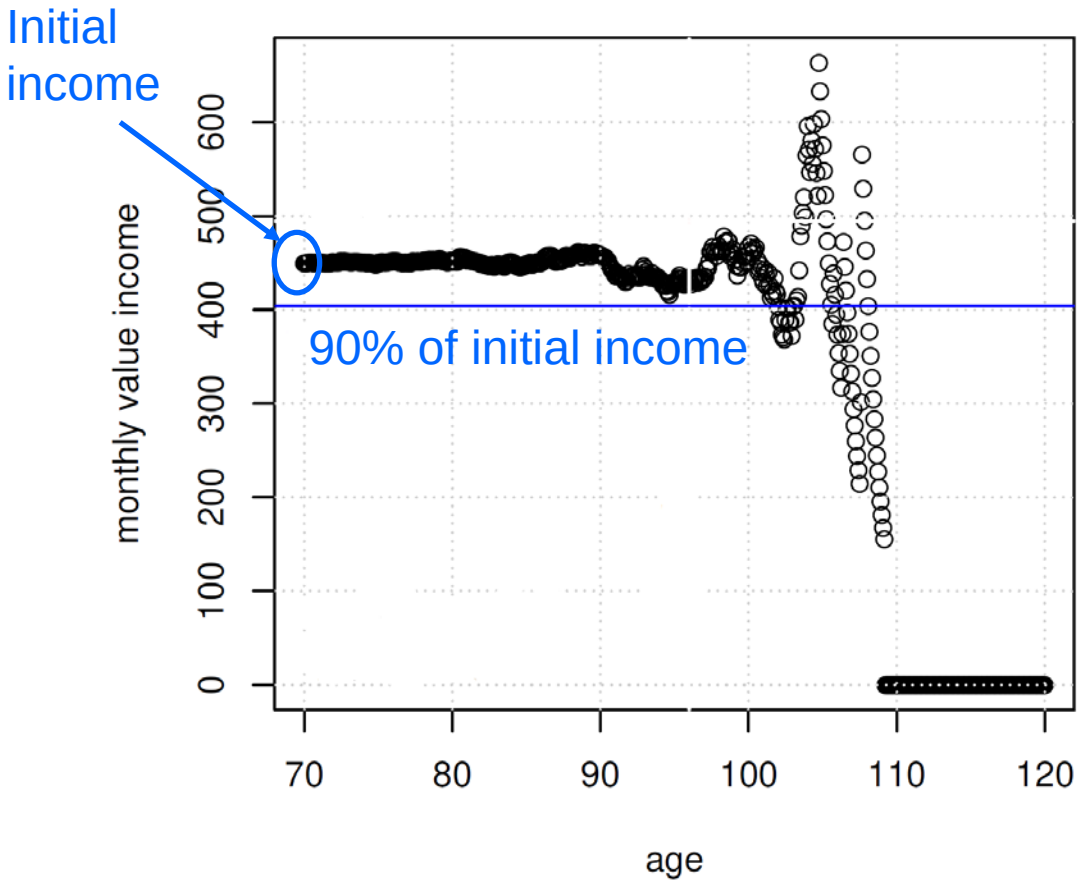
Sample income path from a pooled annuity fund – reduce lower bound to 90%



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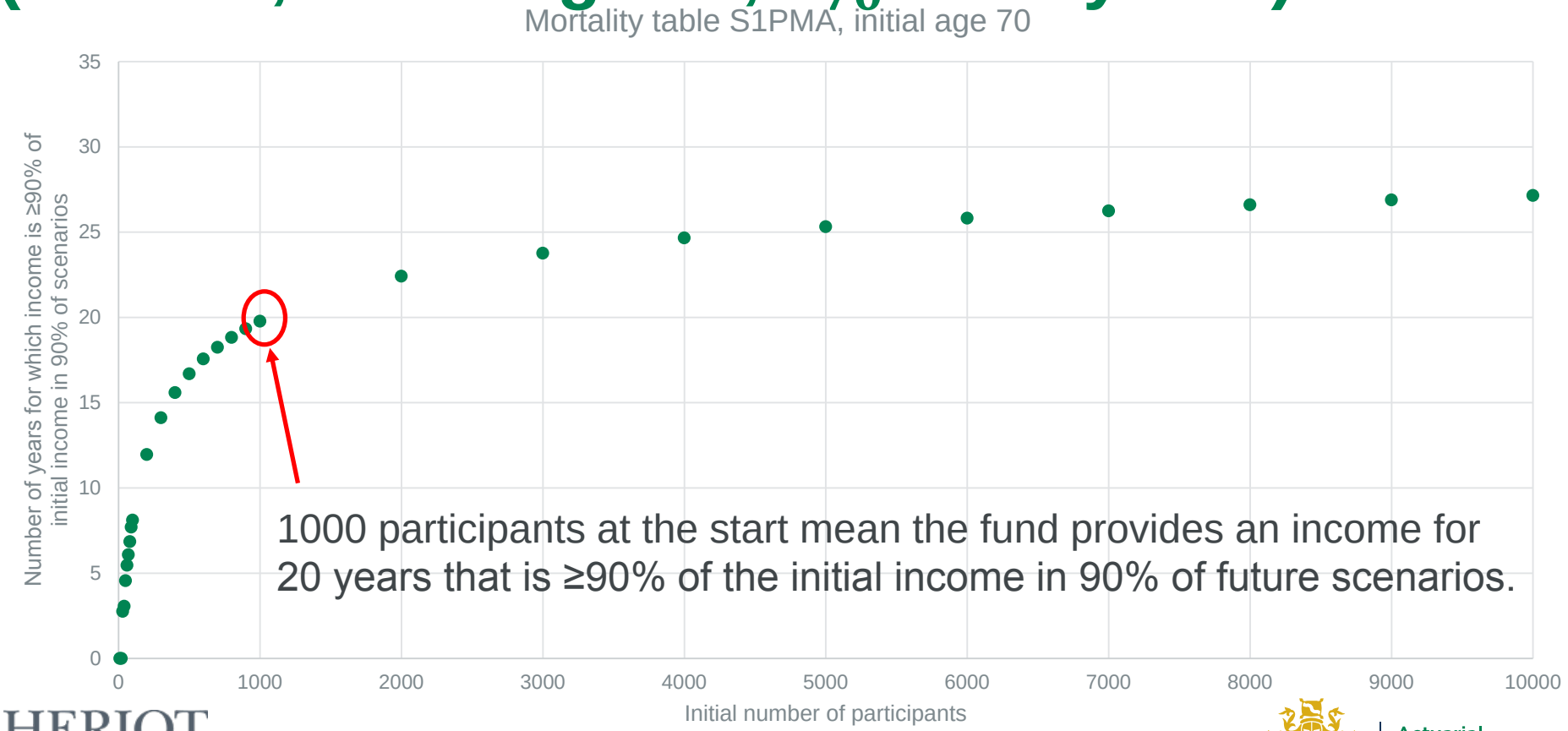
Number of years for which income is ≥90% of the initial income in 90% of scenarios (S1PMA, initial age 70, $e_{70} = 14$ years)



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Summary

- Compared to income drawdown, pooled annuities give:
  - A higher income, all else equal,
  - A significantly reduced chance of running out of money in retirement,
  - No bequest.
- Unlike life annuities,
  - Pooled annuities are not risk-free,
  - Although income is stable for many years.
- Can be offered as a post-retirement CDC plan or as a fund.

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Future research and implementation

- 2-year IFoA ARC-funded research programme to investigate:
  - Pooled annuity funds and
  - CDCs.
- Collective Annuity Interest Group to go through the steps needed to set up a pooled annuity fund

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Questions

Comments

The views expressed in this presentation are those of the presenter.

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The '**Minimising Longevity and Investment Risk while Optimising Future Pension Plans**' research programme is being funded by the ARC.

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