

**Biennial Convention 2009**

**Go for Gold**

**19–22 April 2009 • Sydney**



Institute of Actuaries of Australia



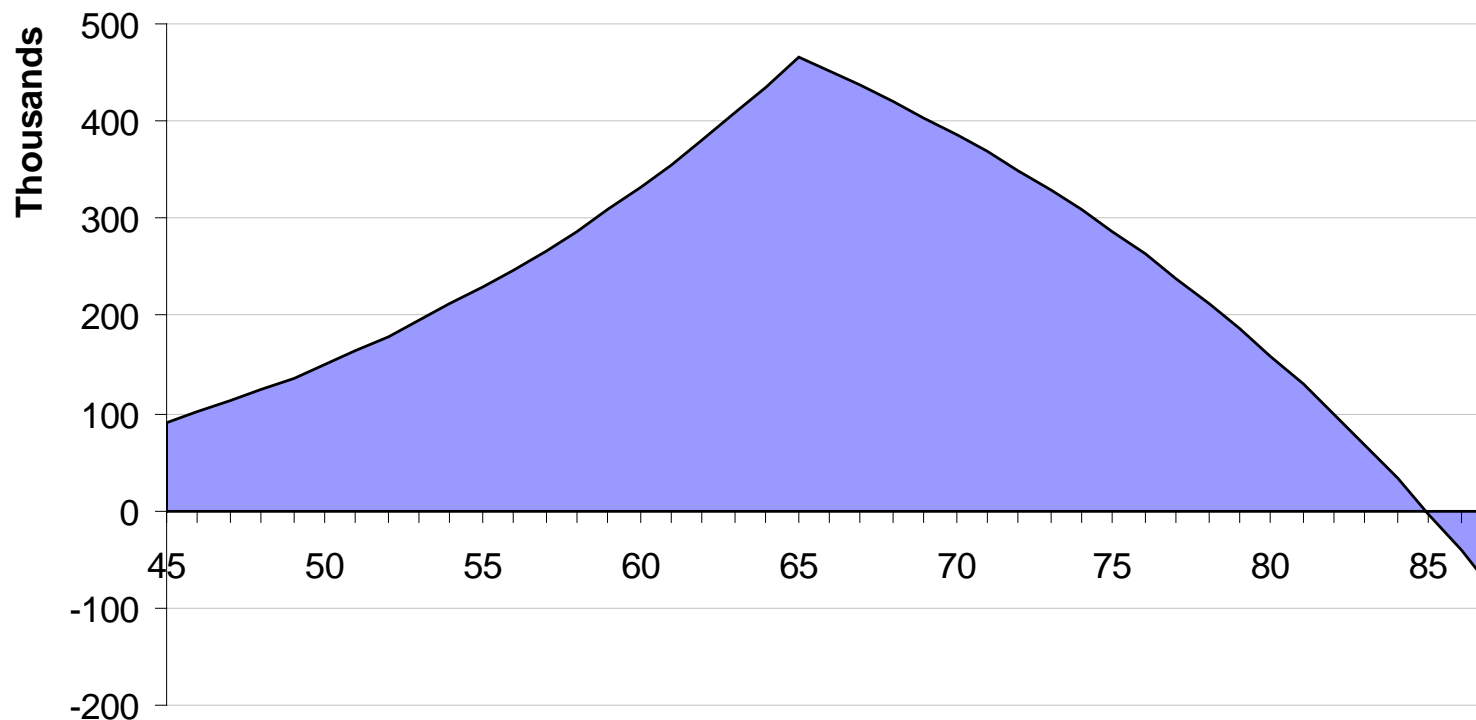
# **No-one is average – the presentation of retirement risks**

**Richard Starkey**



## Averages are useless to individuals

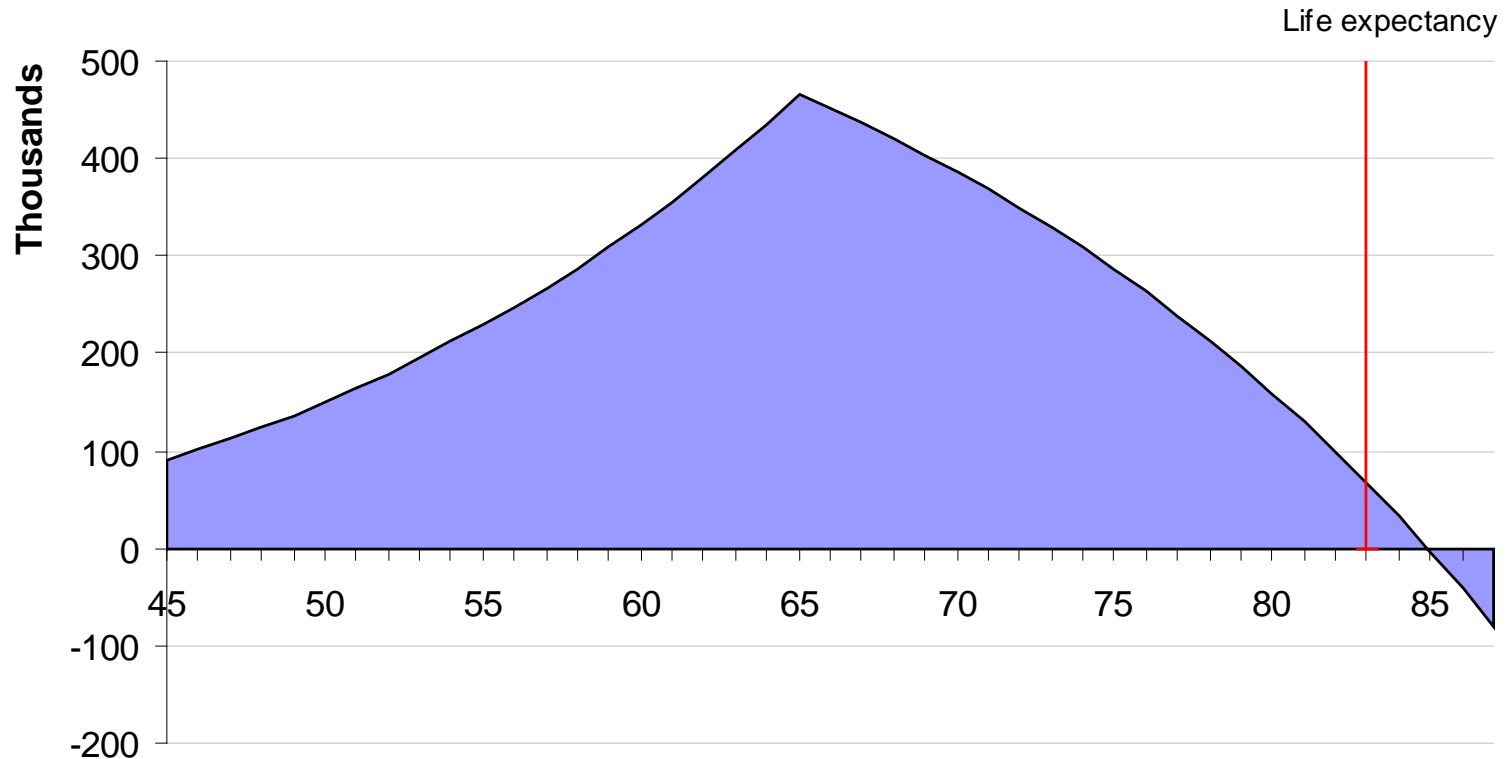
Mr Super Member  
Age 45





## Averages are useless to individuals

Mr Super Member  
Age 45





## A broader message

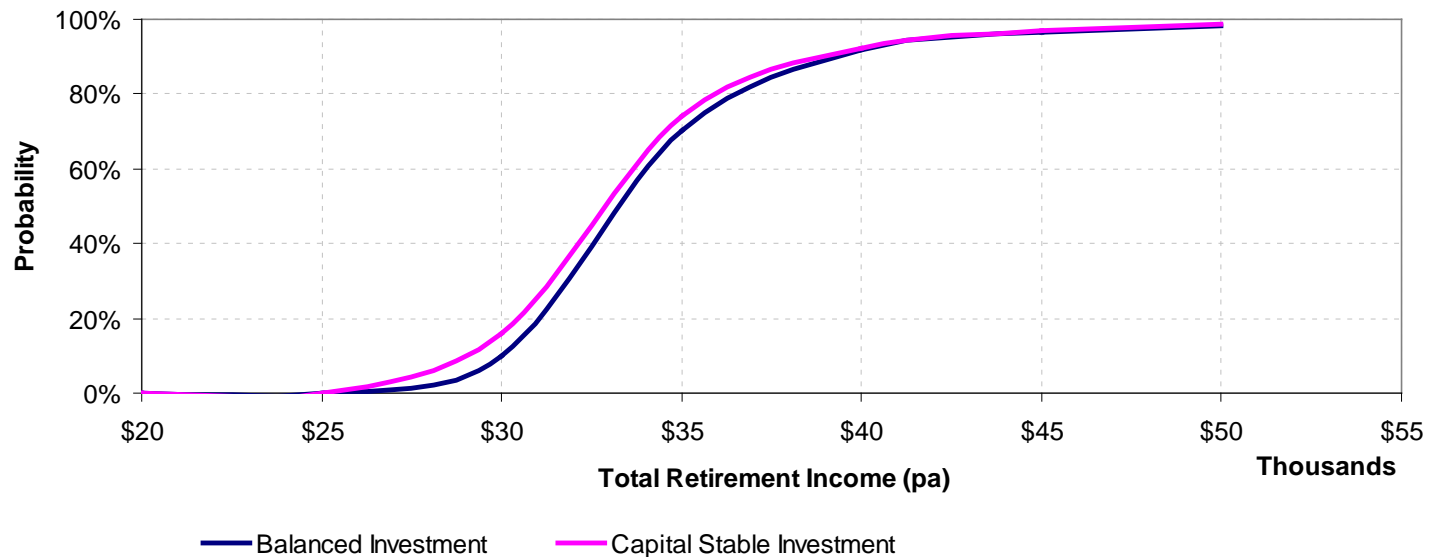
- Not just about maths
- Go beyond the first moment
- Communication → peace of mind / security



## Background

- Financial Services Forum 2008

Probability of running out of money  
(for \$200,000 combined initial ABP balance)





## Background

- There are many different aspects of personal retirement planning: adequacy, strategies, products, standards, assumptions, risks, benefit illustrations
- I want to look at the presentation of risks and variation, particularly in the web calculators medium



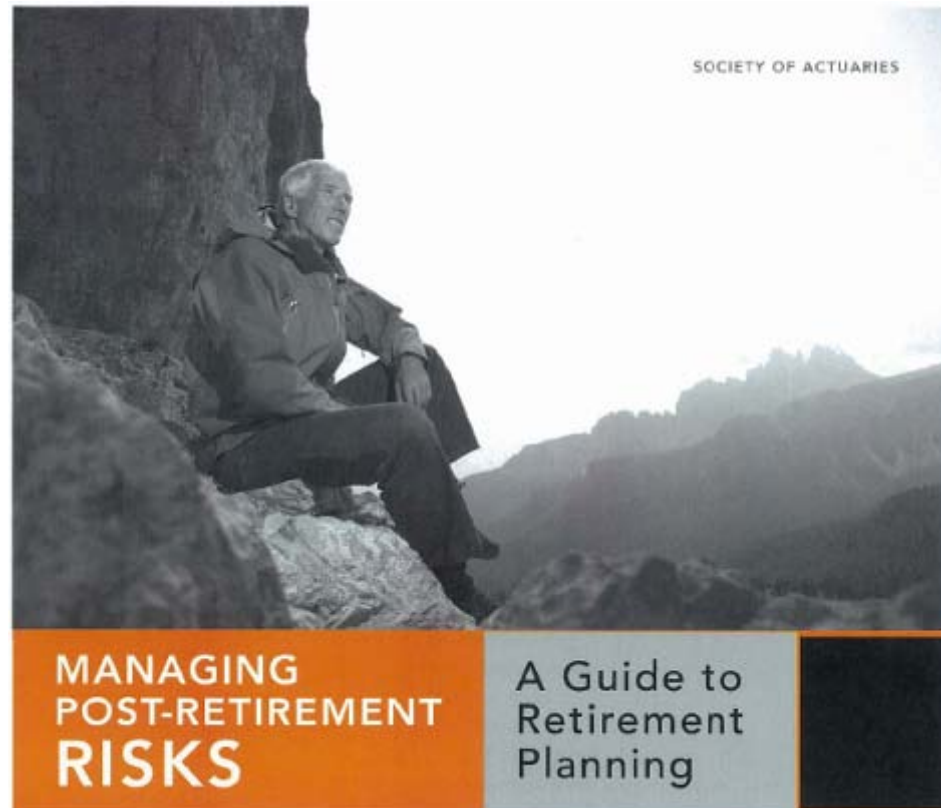
## Background

- Impact of DB → DC: more decisions
- Environment has changed significantly
  - ageing population and mortality improvement
  - decrease in super pensions and life annuity markets
  - the fall in retirement savings due to financial crisis
  - recognition of retirees inability to manage savings
- Super fund members should be aware of the variation in retirement outcomes
- Following on from Wickham 2001



## Retirement risks

- Society of Actuaries(2008)







## Retirement risks

- Longevity
- Spouse death
- Inflation
- Interest rate
- Stock market
- Business
- Employment
- Public policy
- Health care/costs
- Independent living
- Housing availability
- Marital status
- Family needs
- Bad advice, fraud



## What can be measured/modelled?

- Longevity ✓ ✓
- Spouse death ✓ ✓
- Inflation ✓ ✓
- Interest rate ✓ ✓
- Stock market ✓ ✓
- Business ✗
- Employment ✓
- Public policy ✗
- Health care/costs ✓
- Independent living ✓
- Housing availability ✗
- Marital status ✓
- Family needs ✗
- Bad advice, fraud ✗



## What can be measured/modelled?

- We are experts at modelling longevity and economic risks
- But this is generally done from the **provider perspective** to a **professional audience**
- We can talk about life expectancy, risk margins, percentiles and standard deviations
- How do we communicate these concepts to lay people?



## Ins and outs

Which levers can super fund members pull?

- Contribution rate and timing
- Investment strategy
- Fund choice
- Retirement age (to some extent)
- Retirement income level
- Retirement product



## Ins and outs

And what outcomes are people trying to control?

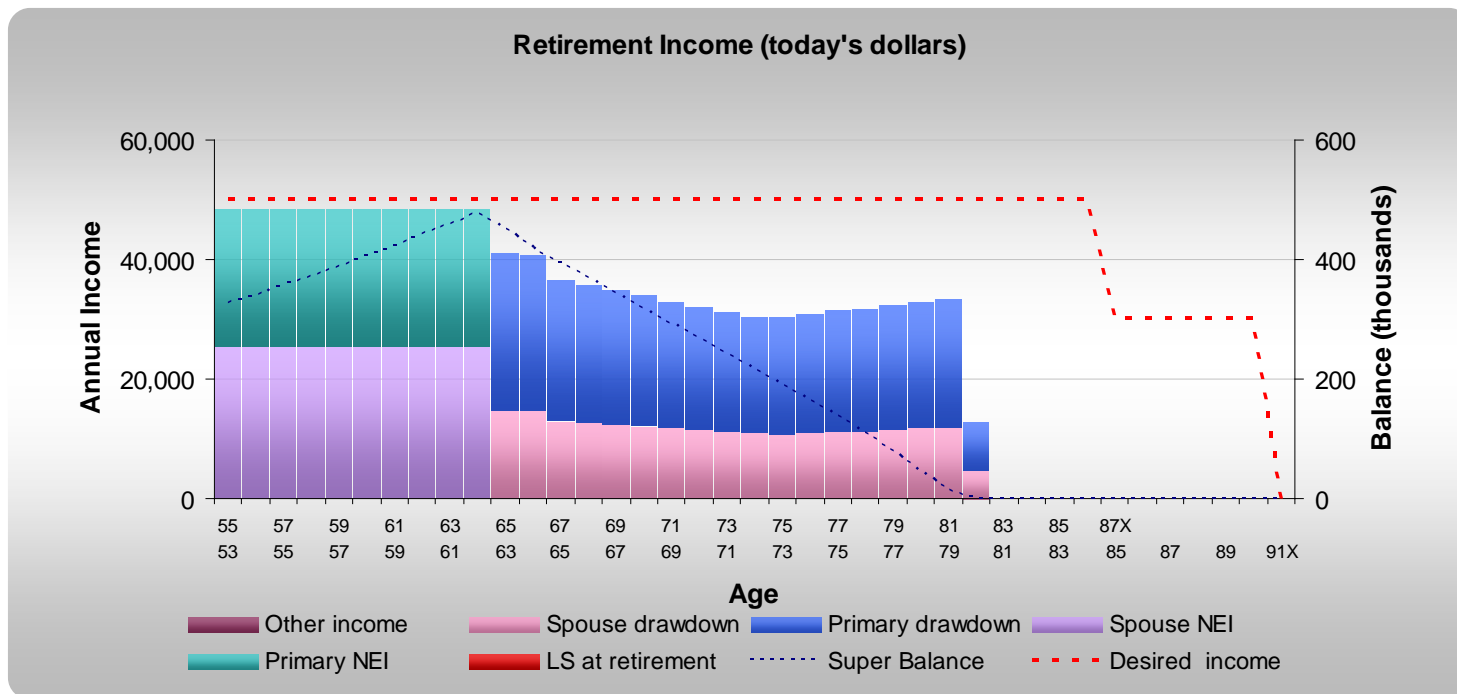
- Retirement income level
- Stability of income
- When the super runs out
- Mortality timing



## Retirement risks

What do people need to know?

- Not just a deterministic projection of their balance/income

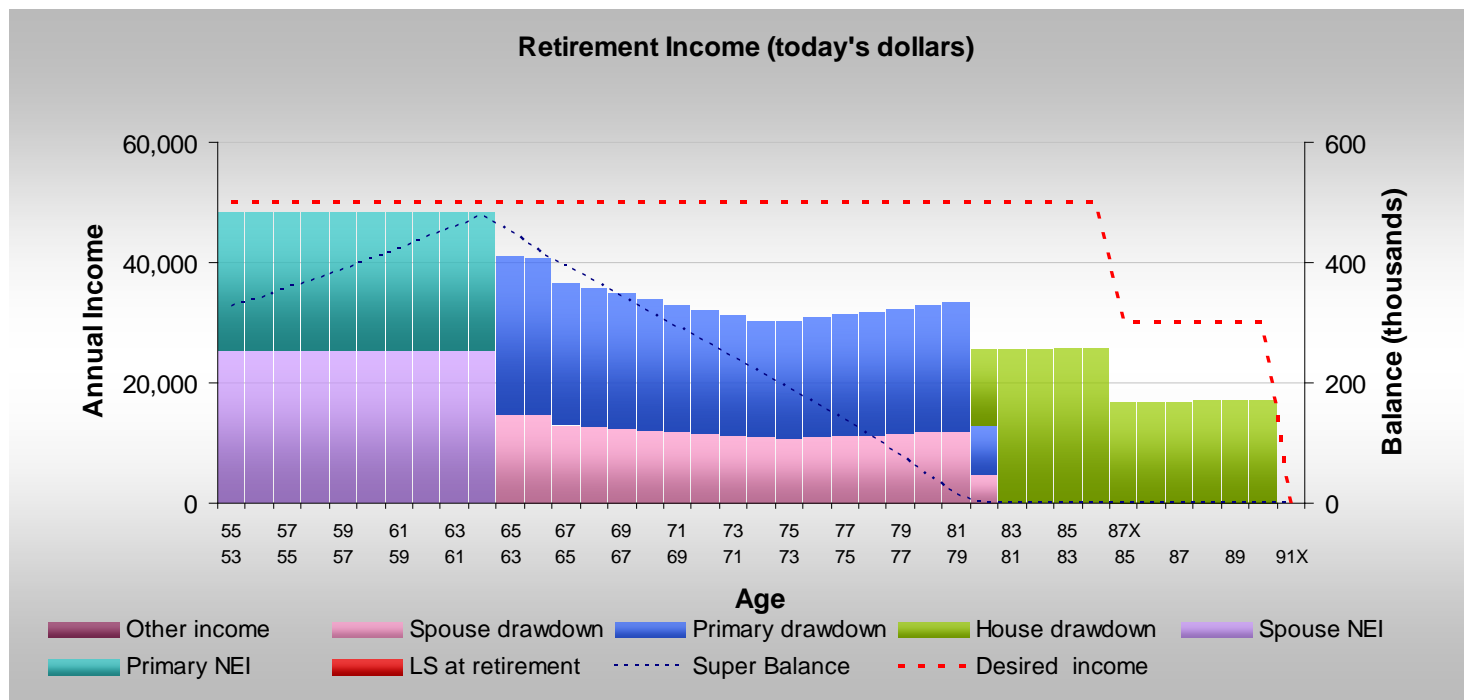




## Retirement risks

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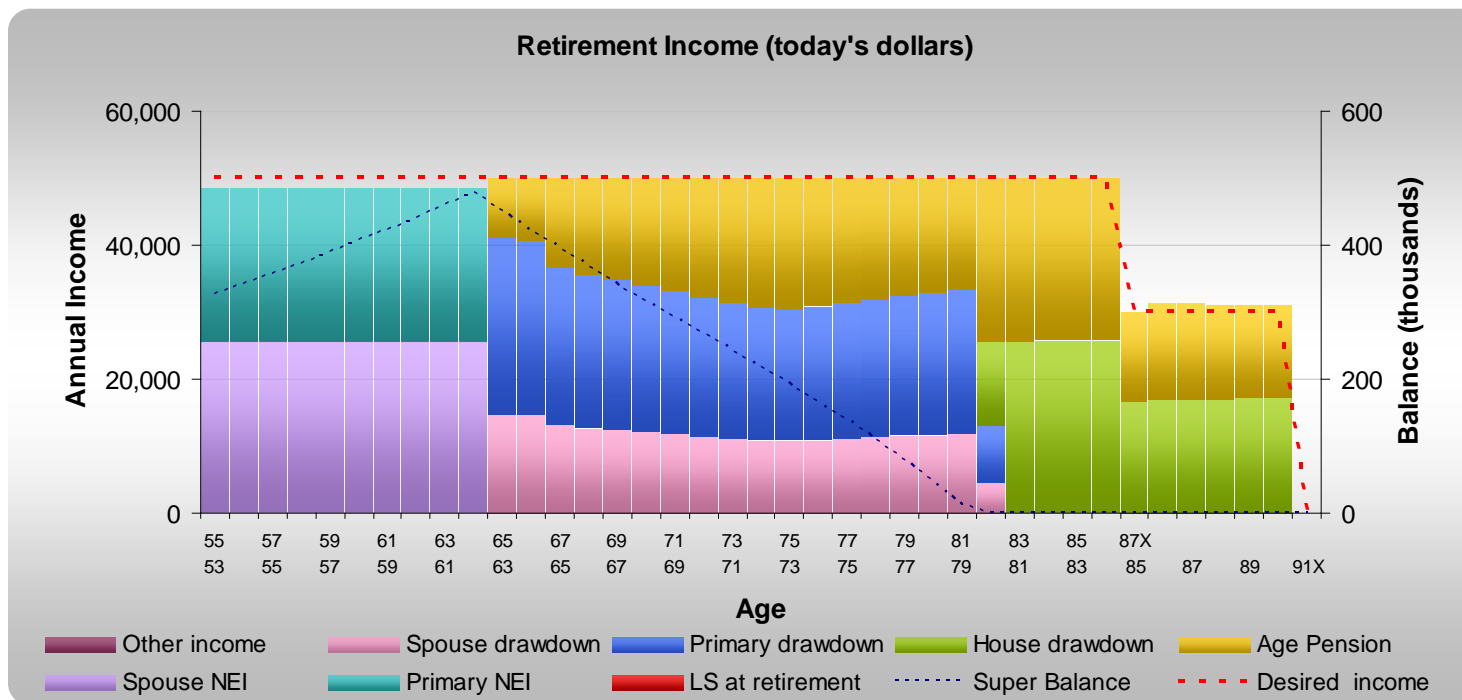




## Retirement risks

What do people need to know?

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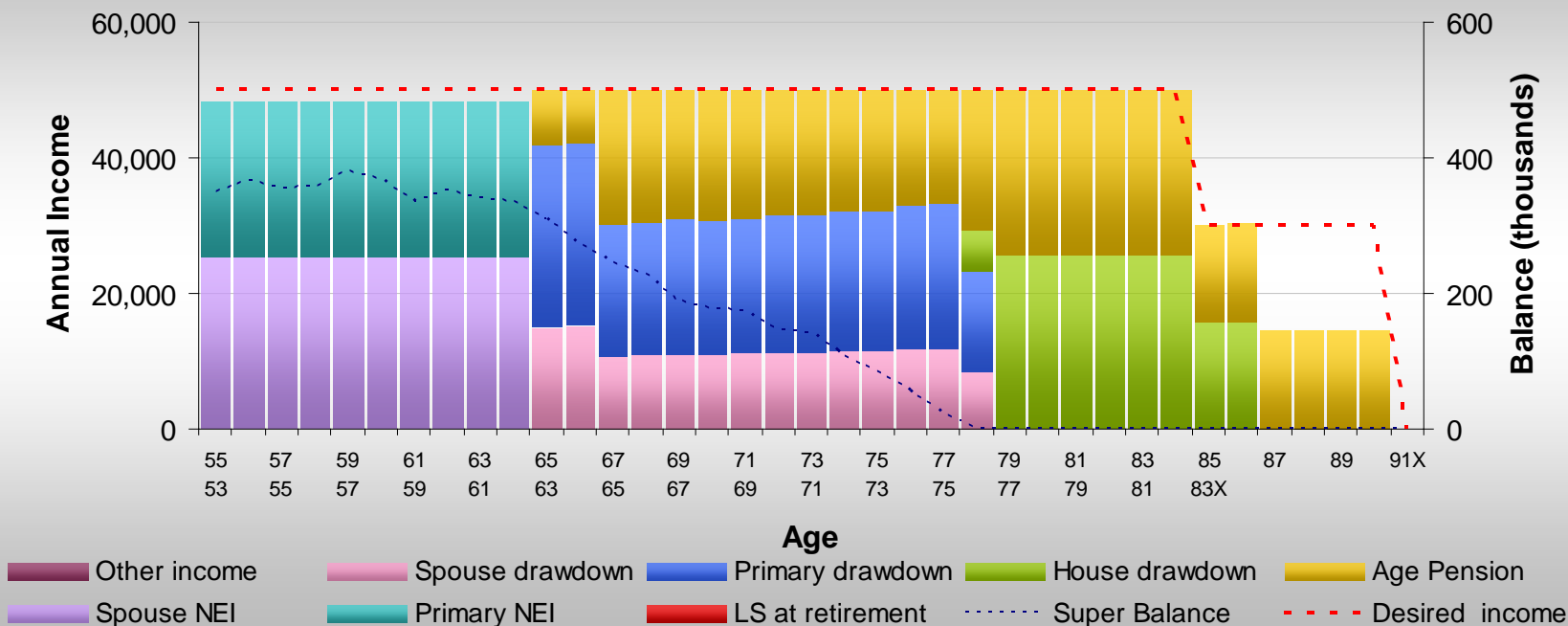




## Retirement risks

- Could just as easily be this

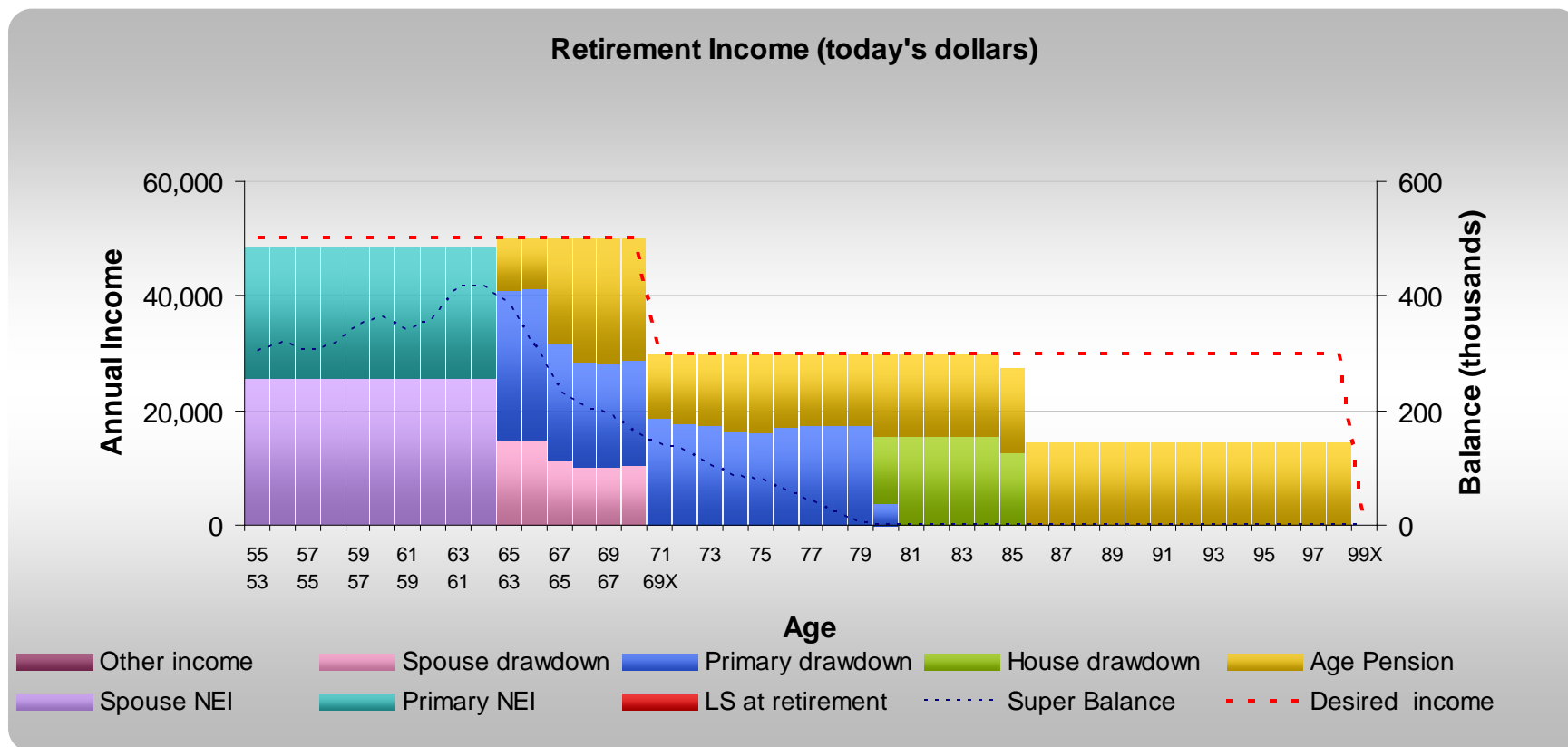
Retirement Income (today's dollars)





## Retirement risks

- or this





## Retirement risks

What do people need to know?

- Likelihood of a particular outcome and the possible variation in these amounts
- How much margin they have for variation
- Their risk appetite



## Retirement risks

What can people understand?

- Income levels and sources
- A deterministic projection
- A high and low scenario
- Ideas about chance and odds
- Inflation
- Lifestyle constraints

Comments?



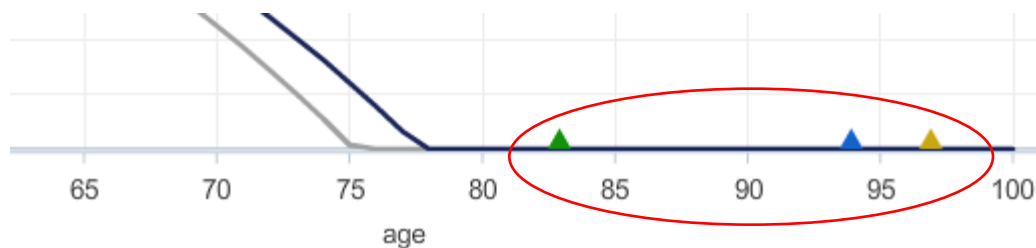
## Issues/problems to be resolved

- Advice constraints
- Attention span
- Financial literacy
- IT familiarity/capacity
- Parameter choice vs random variation
- How to represent probability, variation
- Assessing risk aversion
- Incorporating social security
- Explaining the current financial crisis



## Current presentations of risk

- 5% of people live to this age (Asset Super)



- ▲ 50% of people aged 65 will survive beyond this age.
- ▲ 10% of people aged 65 will survive beyond this age.
- ▲ 5% of people aged 65 will survive beyond this age.

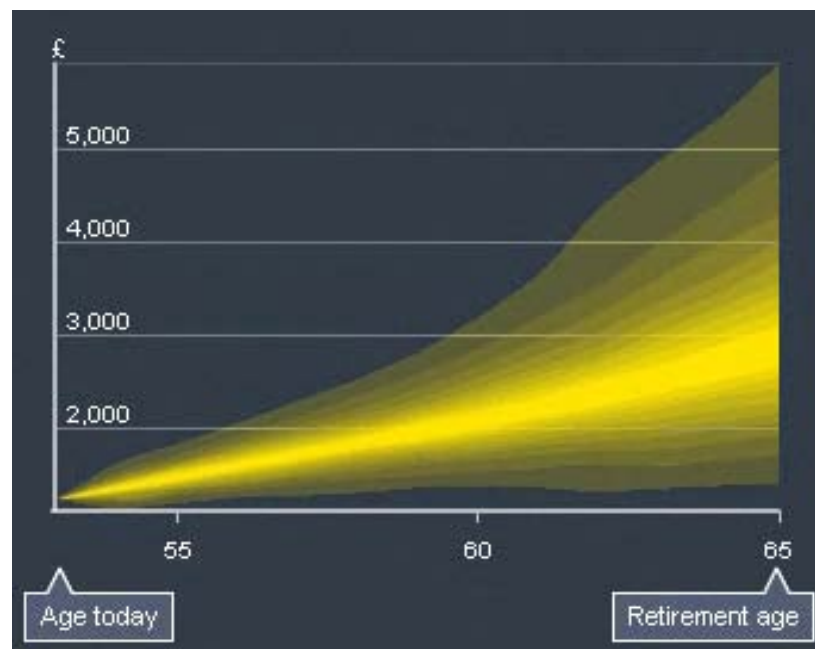


## Current presentations of risk

- There is only a small chance your pension will be below this (Norwich)



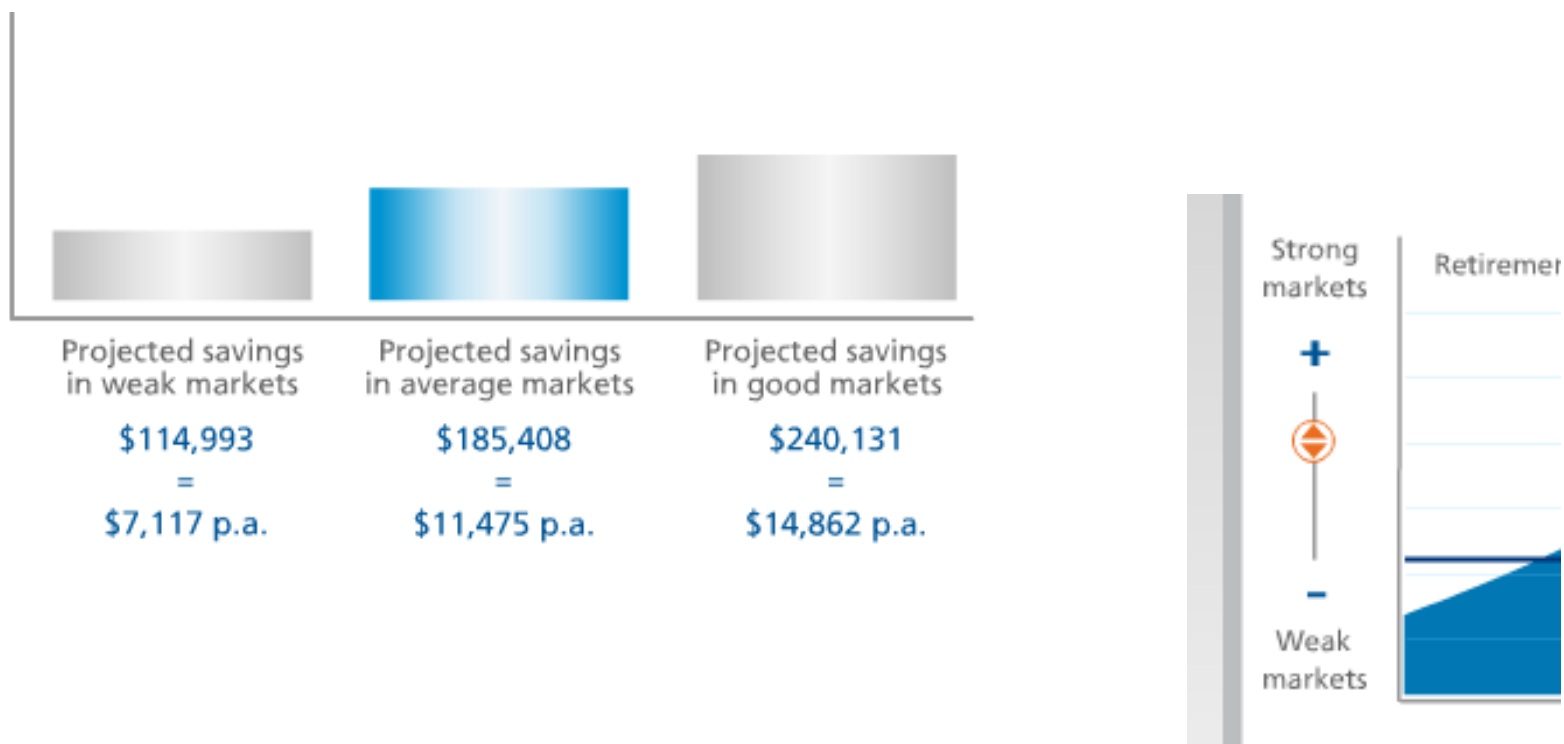
- Beam of light graph





## Current presentations of risk

- Good/weak market outcomes (AMP)

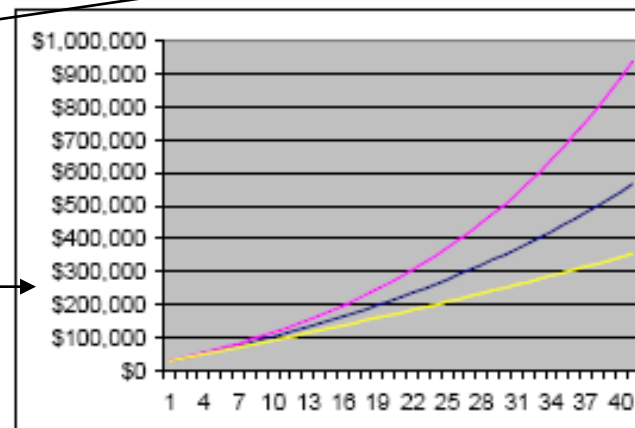
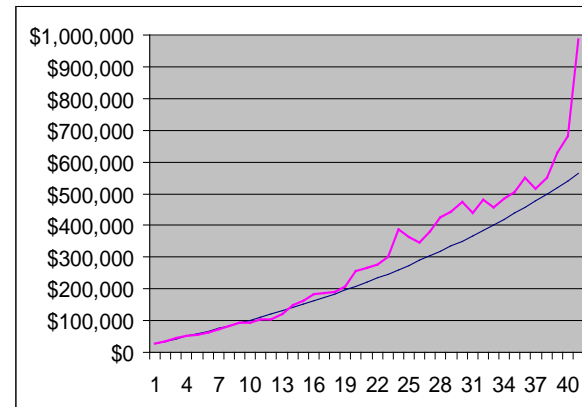
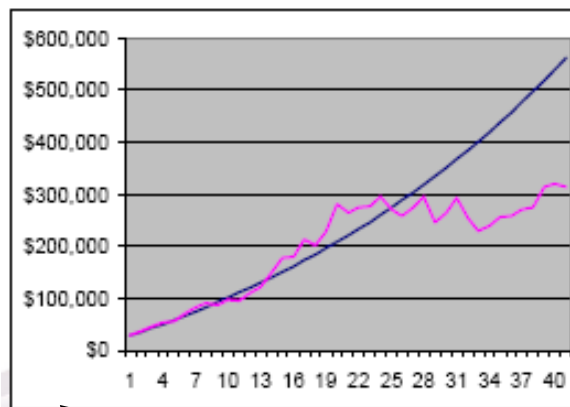






## Current presentations of risk

- A single simulated scenario (IAAust benefit projections working group)
- This, or this, instead of, or as well as, that





## Current presentations of risk

- Warnings when marginal parameter choices are made
- Such as “This option is expected to produce a negative return once every 5-7 years”
- Graph of historical data
- Sliders that update graphs in real time



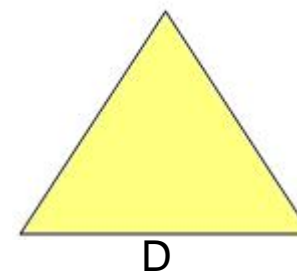
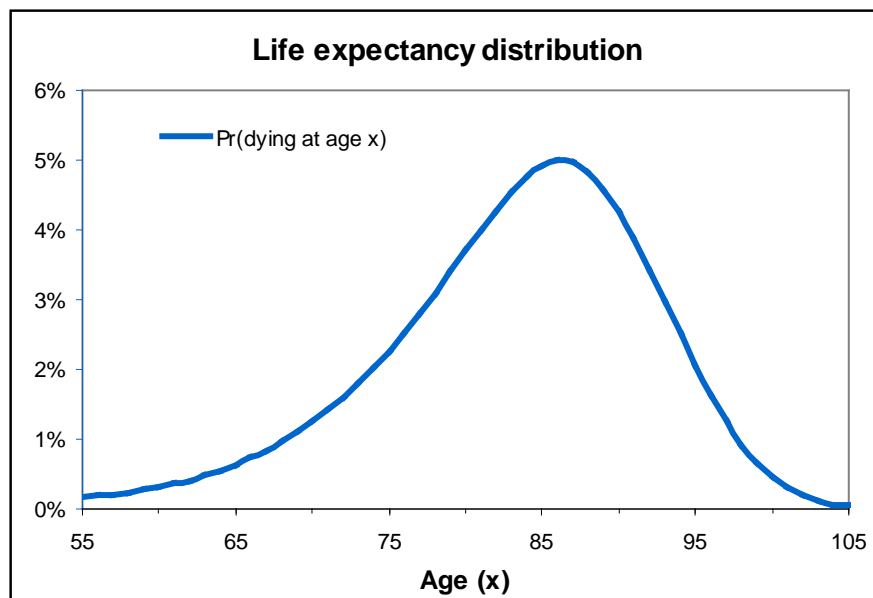
## Some newer ideas

- Probability of money running out by age  $X$
- Probability of money running out before you (and your partner) die
- Probability of lower than expected income
- “the chance I will not have enough money in retirement”



## Some newer ideas

- A probability distribution of age at death

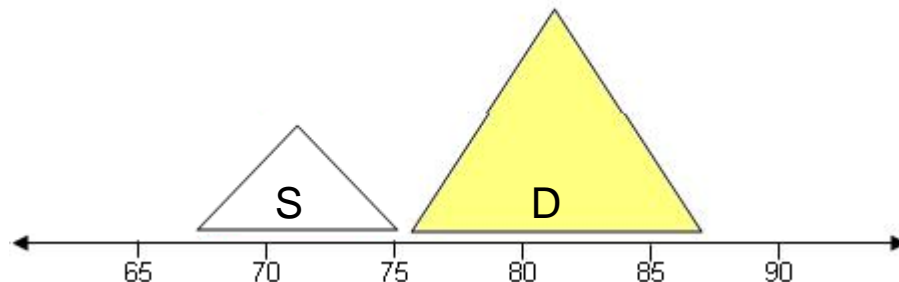


could be represented simply as a triangle



## The retirement triangles

- A probability distribution of how long your super lasts could also be represented as a triangle

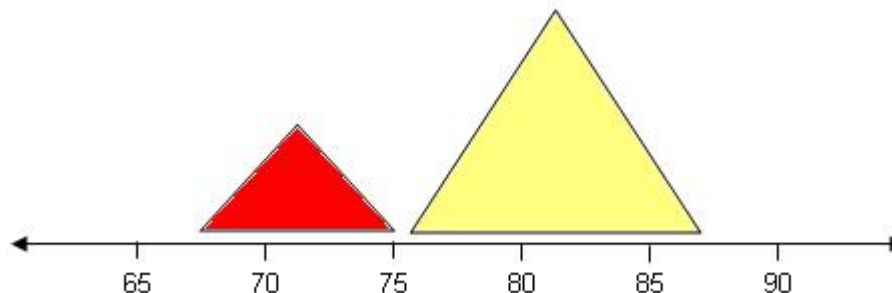


And they might be placed on the same age scale



## The retirement triangles

- This person should be very concerned

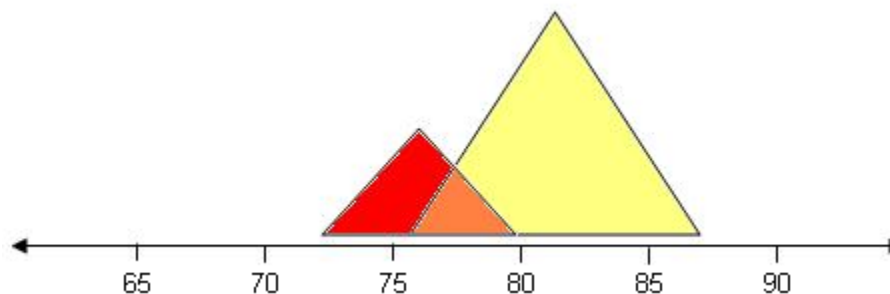


Their super is unlikely to last beyond 75, but they're pretty certain to be alive, and might live until 87



## The retirement triangles

- This person should also be concerned

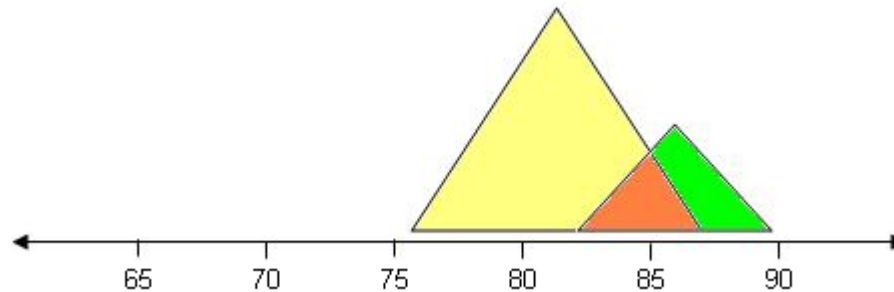


Their super might last until 80, and they might die before then, but they're pretty certain to outlive their money.



## The retirement triangles

- This person should be a little concerned



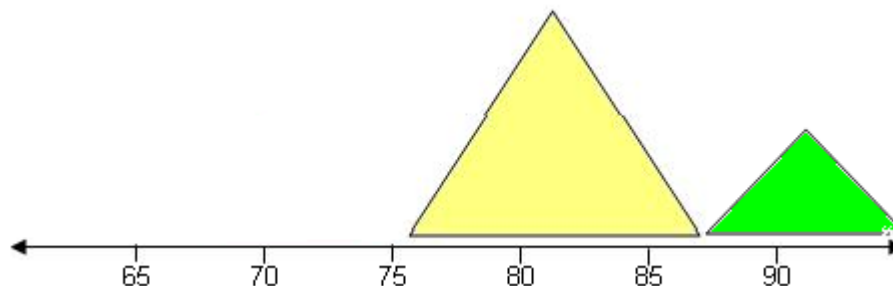
They are more than likely to die before their money runs out.





## The retirement triangles

- This person need not be concerned

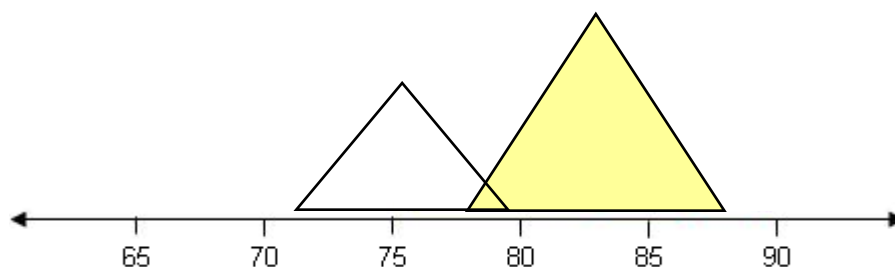


They are almost certain to die before their money runs out.



## The retirement triangles

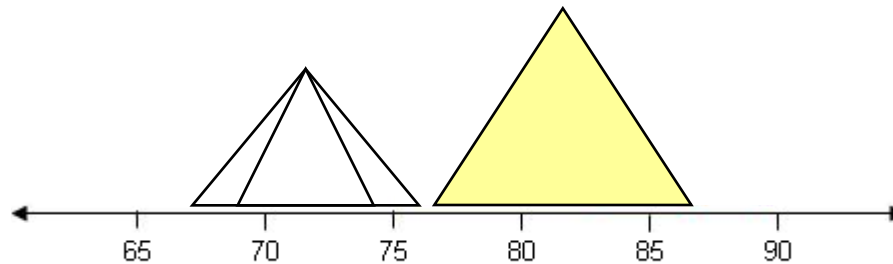
- As the user plays with the inputs the small triangle moves along the scale.
- As they make more contributions or delay retirement, the triangle moves right





## The retirement triangles

- As the drawdown amount increases the base of the triangle shrinks (less investment risk)



- Same for a more conservative option (less investment risk)



## The retirement triangles

- There are a couple of outcomes missing from this analysis
  - The level of retirement income drawn down is not represented directly
    - Could show as height or just a number on the triangle
  - Many retirees will be receiving age pension as well, making their savings last longer



## The presentation of retirement risks

- Questions
- Alternatives/suggestions