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Network for Studies on Pensions, Aging and Retirement

Adequate decumulation of DC capital

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Adequate decumulation of pension capital

- How to determine the fraction of pension capital that can be consumed each year ?
- Should investment risk be taken during decumulation ?
- Should longevity risk be insured (money to the heirs or to others in the pool if one passes away) ?
- How important is flexibility to adjust withdrawal rates and investment strategies during decumulation ?
- How much freedom of choice within regulation ?

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Choice architecture

- Individual choice / Financial planners advice
  - Investment strategies, Assumed Interest Rates
  - Insurance of (micro) longevity risk
  - Long term contracts of flexible adaptable contracts
- Role for regulator / government ?
  - Restrict choice options ?
    - E.g. link AIR to adequate risk taking,
    - E.g. impose insurance of longevity risk
- Why role for regulator / government ?
  - Protect individuals against behavioral biases
  - Protect society (in case of means tested benefits)

Pan European Personal Pension plans

- EIOPA has proposed new regime for pension provision in all European countries: PEPPs (back to back with existing local regimes)
- Policy goal (a.o.): Stimulate consumer protection
- Products aim to provide 'stable retirement income'

- But requirements relate to accumulation phase only
  - Focus on pension capital rather than pension income.
    - Consumer protection linked to Key Information Document that is also used for pure investment products
    - Manage income risks: drawdown rate versus expected returns, impact of longevity risk / outliving your assets
    - Conversion risk to drawdown phase ignored (e.g. to nominal annuity)

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Current products

- Decumulation of DC capital is sometimes restricted to the use of nominal annuities:
  - Life long income, fixed in nominal terms
  - No investment risk in decumulation phase
  - Very low income levels with current interest rates
  - Examples: Netherlands (current DC regulation), Denmark (standard product design with profit contracts includes lot of guarantees)
- If investment risks allowed often little guidance or regulation on drawdown rates and no longevity insurance available (or used)
  - Examples: US, Australia, UK (after April 2015)
- But Denmark and new Dutch DC products impose longevity insurance and have maximum AIR
- Variable annuities inflexible products and tiny markets
- Challenge: adequate flexible choice options in three dimensions: investment risk, longevity insurance, draw down rates

Current Dutch policy discussions

- Restriction to decumulate DC capital using nominal annuities will be lifted (August 2016 ?)
  - Use variable annuities or (more flexible) PPR
  - Life long income; restrictions on AIR
- Ongoing discussion on future of Dutch “DB” schemes
  - Important policy option to switch to DC products with similar restrictions on capital decumulation
  - Another policy option to add an explicit (small) buffer for intergenerational risk sharing
- Dutch DB and DC will then share almost all important features (PPR)

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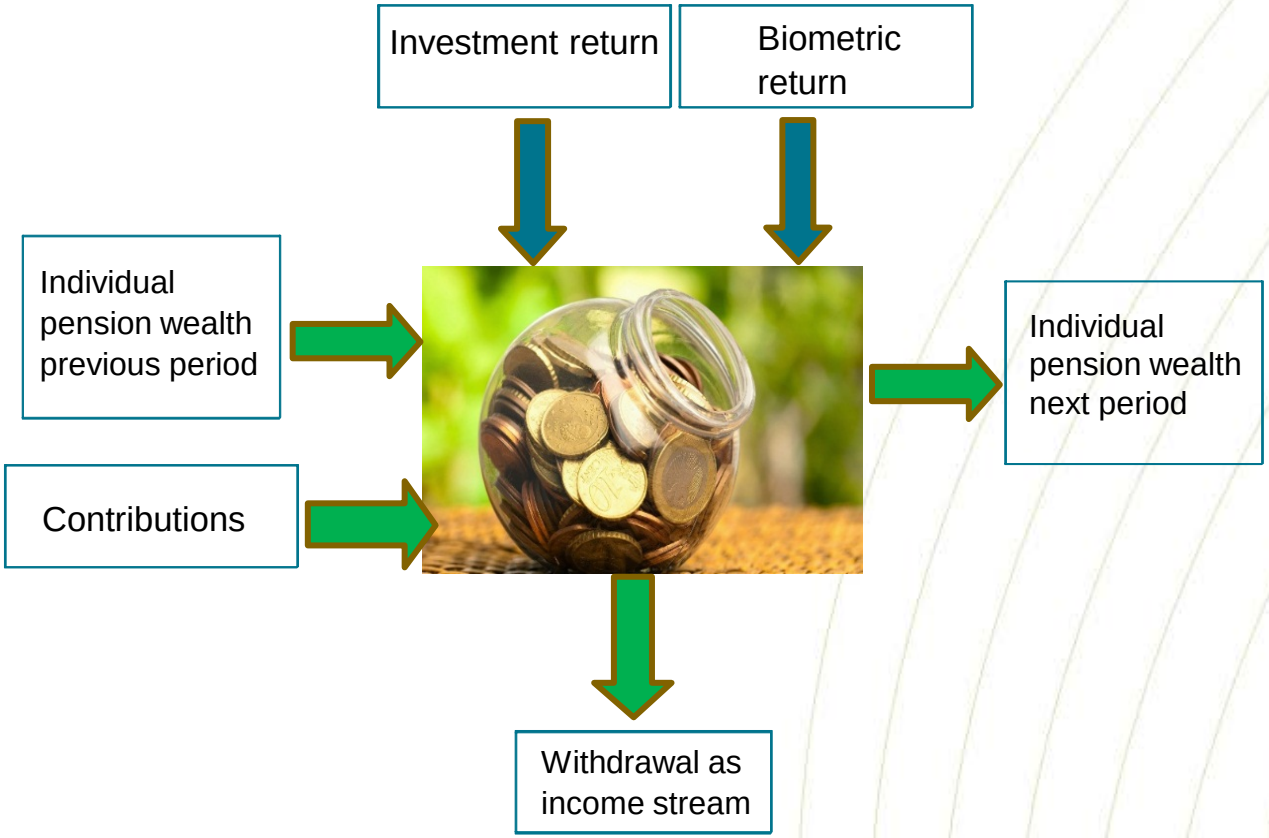
Personal Pensions with Risk sharing (PPR)



Impact of insuring micro longevity risk

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Impact of insuring micro longevity risk

Before passing someone passed away: 5 * 4 coins;
After person passed away: 4 * 5 coins;

Biometric return of 25% if survival rates is 80%.

Unbundling and flexibility

- In PPR capital not (yet) converted to income products

- PPR allows unbundling of different choice dimensions
  - Systematic risk (investments)
  - Idiosynchratic risk (e.g. longevity risk, disability risk)
  - (Dis)saving rates (contribution levels, draw down rates)

- In existing designs choice dimensions are often to be selected simultaneously
  - E.g. equity exposure during decumulation only if no micro longevity insurance
  - PPR allows unbundling of choice dimensions

- Trade-off flexibility versus long term contracts
  - Delaying conversion to long term contract provides more flexibility to adjust contract to new information and conditions (e.g. liquidity need)
  - More adverse selection issues at higher ages.
  - Convert later in retirement, or deferred contracts …

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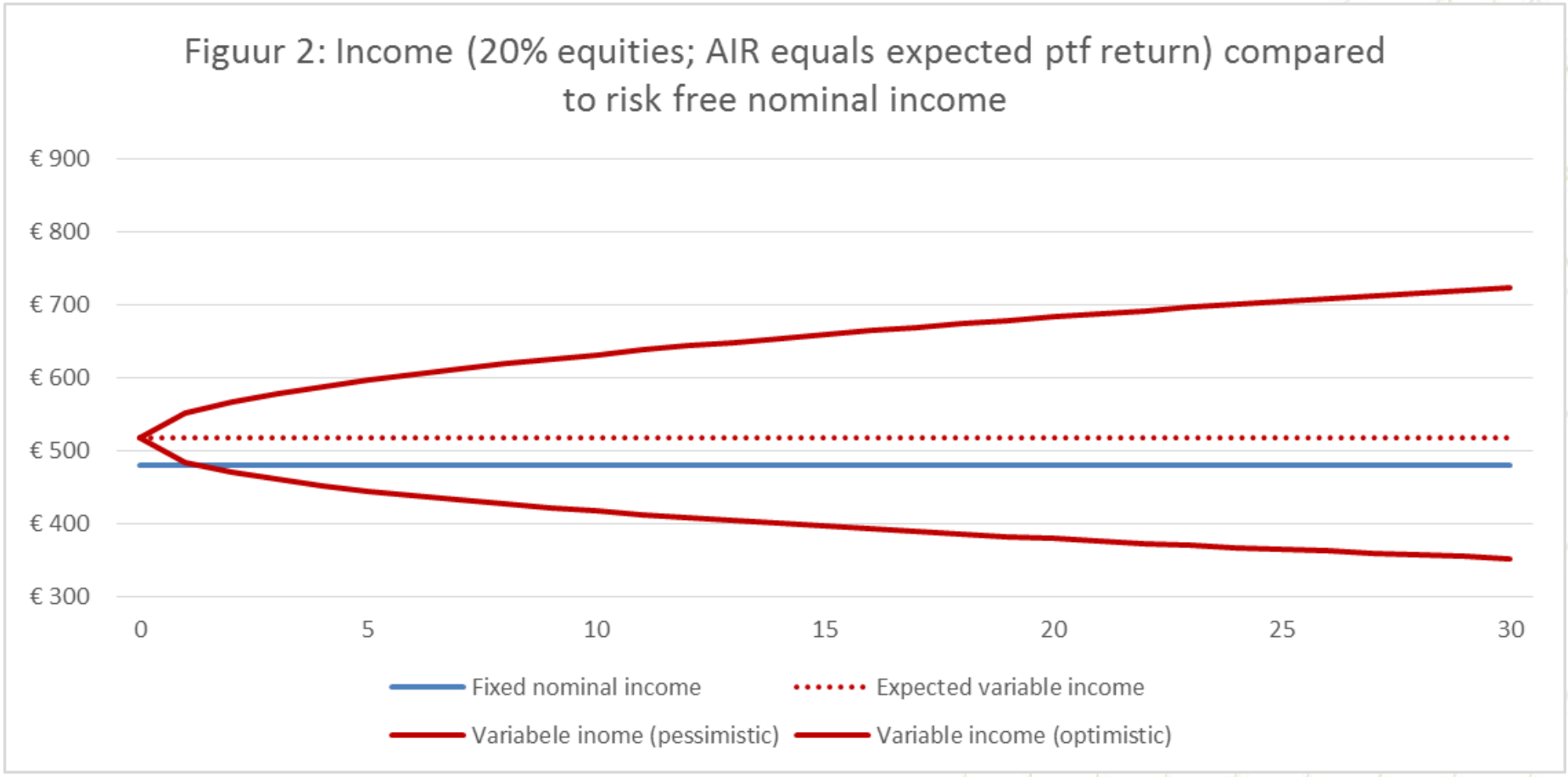
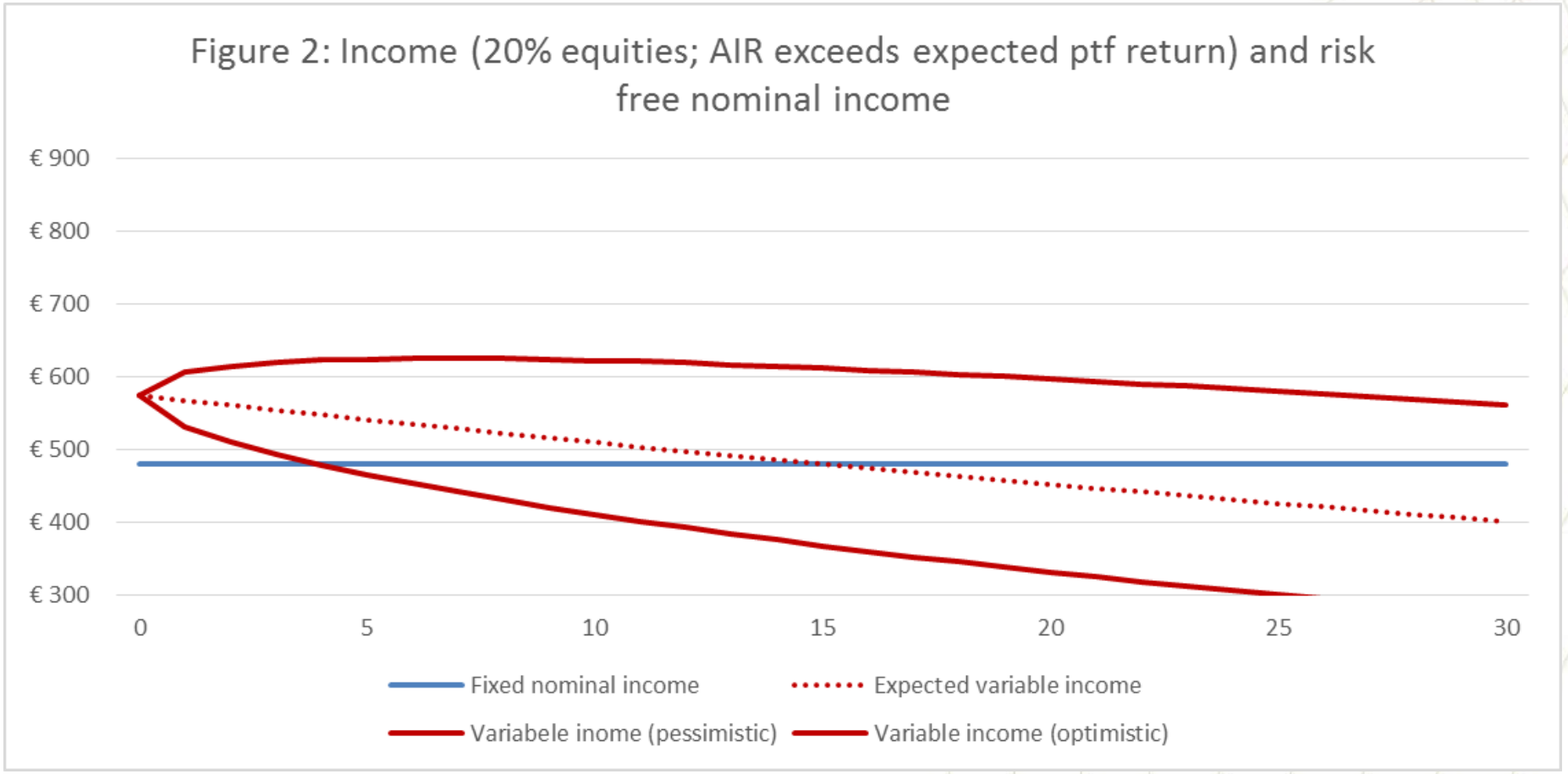
Sustainable stable income stream: AIR

- Analytics:
  - W_t denotes pension capital
  - Y_t denotes pension income
  - p_i denotes AIR ("projected return") at horizon i
  - Projected returns determine annuity factor and fraction of capital that is decumulated
    - $A = 1 + (1+p_1)^{-1} + (1+p_2)^{-2} + \cdots + (1+p_K)^{-K}$
    - $Y_t = W_t / A$
- AIR equal to expected portfolio return ($p_i = r + w\lambda$) implies that expected income pattern will be flat (e.g. 4% discussion in Australia)
- Higher projected return (with fixed investment risk) implies higher income today and less in future
- Risk taking in decumulation phase enables expected stable income stream at higher level than risk free decumulation phase

Impact of risk taking and increased AIR



AIR exceeds expected portfolio return



AIR here 4%; expected portfolio return 2.8%. Maximum to AIR protects life long income characteristic

Regulatory choices

- Consumer protection and information also in decumulation phase
  - Also on income levels in pessimistic scenarios
- Maximum AIR (4.66% in DK; nominal interest rate NL now)
  - Protects individuals against short term biases (protects life long characteristic)
  - Protects society in case of means tested benefits
  - Restricts choice options, e. g. to consume lump sum
  - Maximum AIR can be linked to level of risk investment risk
    - Lower AIR will have increasing expected income
    - Maximum AIR equal to expected return on portfolio yields at least flat expected income pattern
    - Incentive for risk taking to maximize first payment
  - Maximum AIR often not legal maximum but implemented through tax system (Denmark, UK Lamborghini)

Smoothing income fluctuations

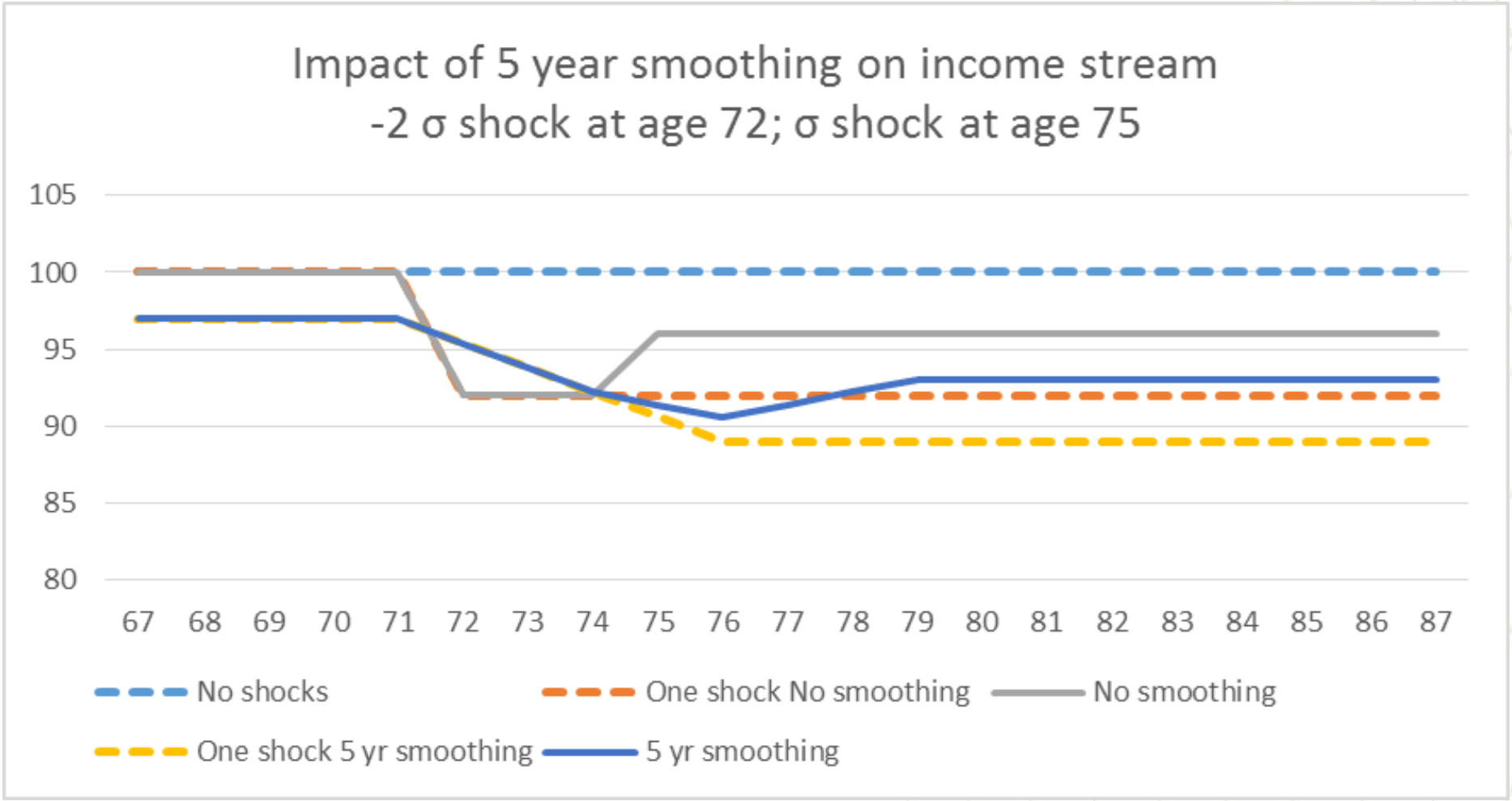
- Without smoothing, meaningful risk taking during decumulation will generate sizable year to year fluctuations in pension income (see graph).
- Shocks in investment returns can be smoothed to generate more stable income patterns; fraction q_i of shock absorbed after i periods
- This is related to assumptions on habit formation and a preference to prevent drops in income
- In the new Dutch DC contracts smoothing over a 10 year period will be allowed (as in current “DB” contracts).
- Projected return that generates flat income pattern will be lower $p_i = r + w\lambda (q_1 + .. + q_i)/i$.
- Smoothing is equivalent to allocating wealth to single horizon pots that take more investment risk at longer horizons. This implies life cycle investment strategies during decumulation phase and less risk taking at short horizons.

Example of smoothing income

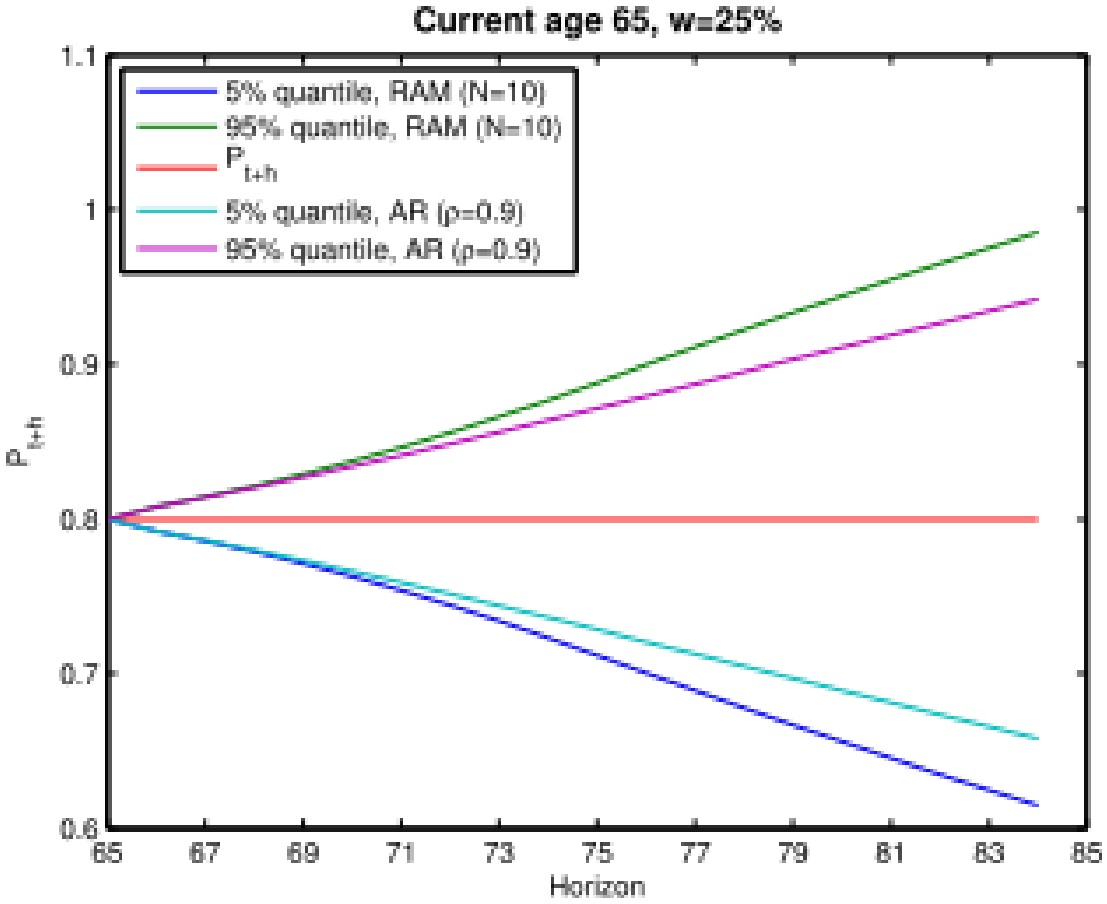
- Graph shows impact of smoothing on income fluctuations
- Assumption 20% initial equity exposure
- Stock volatility 20%
- Negative “two sigma event” age 72: -8% return on capital
- No smoothing: -8% shock in income
- Five year smoothing: -1.6% shock in income 5 years in a row
- Second positive “one sigma event” at age 75.

- Take-aways:
  - Smoothing provides more stable income pattern with same initial equity exposure
  - Smoothing is nog for free: less income per year if no shocks occur (because of life cycle investing during decumulation phase)

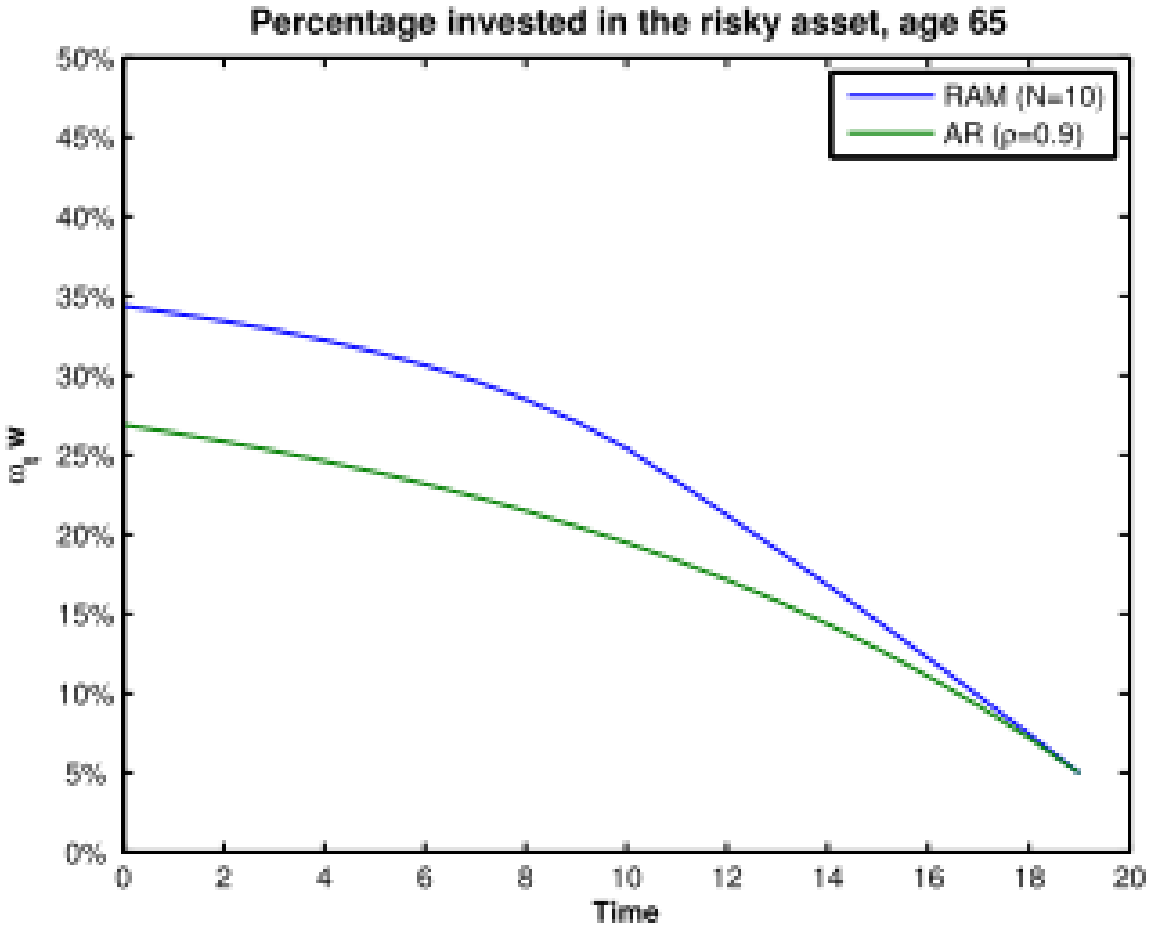
Empirical example of smoothing



Impact of smoothing on income quantiles



Life cycle investing during decumulation generated by smoothing



Literature on optimal decumulation

- Extensive literature on the benefits and disadvantages of sharing (part of the) longevity risk
- Main benefit: Mortality credit. Same income stream requires less capital if life contingent.

  - If $d_i = 1$ if income in i periods life contingent (and zero otherwise), the annuity factor decreases to

    $$A = 1 + \Sigma_i \ (1+d_i(q_i-1)) \ (1+p_i)^{-i}$$

    where q_i denotes the probability to survive for i periods.
  - Life contingent income streams allow larger income levels for the survivors
  - Examples:
    - Full annuity ($d_i = 1$ all i)
    - Deferred annuity as of certain age ($d_i = 1$ if $i > M$)

Literature on optimal decumulation

Reasons not to prefer long term annuity contracts:

- Bequest motives
- Inadequate investment options in annuity contract
- Possible liquidity needs (e.g. health care costs)
- Cost of annuities
- Credit risk on issuer

Not easy to rationalize observed behavior (“annuity puzzle”).

The policy choice whether or not to mandate insurance of longevity (tail) risk is requires a trade-off between paternalism and protecting society in case of means tested benefits versus the benefits of tailoring contracts to individual preferences and circumstances

Concluding remarks

- Planners advice as well as regulatory rules on decumulation of DC capital differ substantially across the world
- Consumer protection and information important also in decumulation phase (also on pessimistic scenarios and on impact of not insuring longevity risk)
- Smoothing of shocks allows more substantial risk taking during decumulation while limiting income fluctuations
- Dutch PPR model provides flexible and attractive framework that is relevant fro other countries as well
- Need for more (research input and) attention for decumulation of DC capital

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