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Welcome

How might CDC develop in the UK?

Wednesday 14 May 2025

www.pensionspolicyinstitute.org.uk

@PPI_Research

#PPILaunch

Chair's Welcome

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David Fairs

Partner (LCP)

PPI Governor

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An INDEPENDENT Briefing Note by the Pensions Policy Institute

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This project is a collaboration between The Pensions Policy Institute and King's College Mathematics Department and is kindly funded by the Nuffield Foundation.

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Our Vision

Better informed policies and decisions that improve later life outcomes

We believe that better information and understanding will lead to better policy framework and better provision of retirement for all

Our Mission

To promote, evidence-based policies and decisions for financial provision in later life through INDEPENDENT research and analysis.

We aim to be the authoritative voice on policy on pensions and the financial and economic provision in later life

Roundtable overview

The Roundtable is a discussion around the launch of the third Briefing Note in the series **CDC Design in the UK: Cross Subsidy, Shared Indexation and Alternatives to Longevity Pooling**.

This Briefing Note examines various issues that relate to the way that Collective Defined Contribution (CDC) schemes attempt to pool longevity risk.

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Key Findings

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John Upton

Policy Analyst

Pensions Policy Institute (PPI)

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Briefing note 3 – what are the findings?

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- Today we will explore cross subsidy issues in different CDC designs.
- We will also explore other more fundamental issues that arise from attempting to pool investment risk in CDC.
- Finally, we will examine a new alternative model developed by KCL.

Definitions

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- Flat-accrual CDC:
  - AKA single-employer CDC
  - Aims to replicate CARE DB

- Dynamic-accrual CDC:
  - AKA multi-employer CDC
  - Aims to be actuarially fair

Cross Subsidy in CDC

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- KCL research finds that there is an especially pronounced cross subsidy in flat-accrual CDC.
  - The aim is to give every member, regardless of age, the same retirement income for the same contribution.
  - This does not account for the fact that contributions are more valuable if they come from younger members.

Cross Subsidy in CDC

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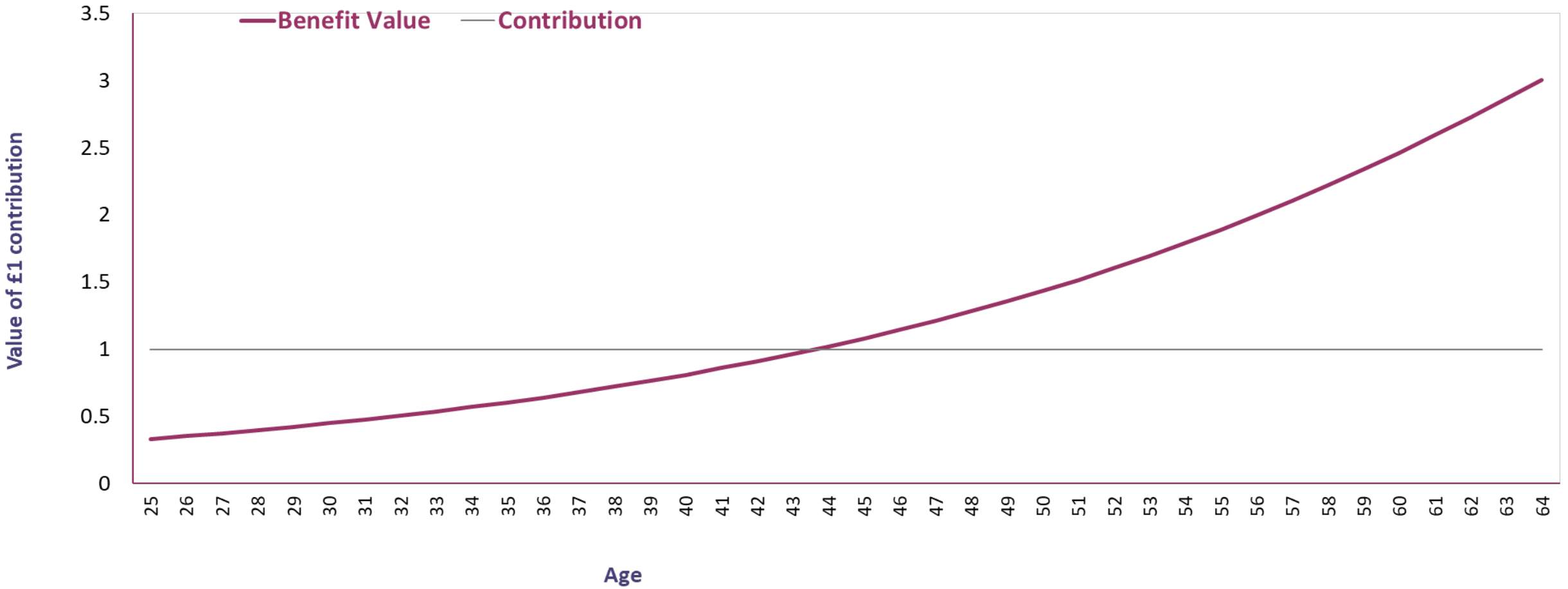

Cross Subsidy in CDC

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- How can this be mitigated?
  - High employer contributions could mean that it is still worth joining for a young member.
  - The design could be modified to introduce some kind of age-related accrual.

Cross Subsidy in CDC

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- How might this be communicated?
  - Communicating CDC is generally difficult, but cross subsidy adds a further level of complexity.
  - This requires more research as the challenges, and potential solutions, do not have historical precedents.

Cross Subsidy in CDC

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- What about dynamic-accrual (aka multi-employer) CDC?
  - The effect we have seen does not affect dynamic-accrual CDC in the same way.
  - However, UK dynamic-accrual designs may still have cross-subsidy for different reasons.
  - “Guard rails” mean that benefits will be priced inaccurately, which can lead to under/over charging of young members.

Shared Indexation

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- All CDC designs aim to pool investment risk, by indexing benefits equally across all generations.
- This aims to protect members from market shocks.
- KCL modelling demonstrates that there are misconceptions around what shared indexation achieves.

Shared Indexation

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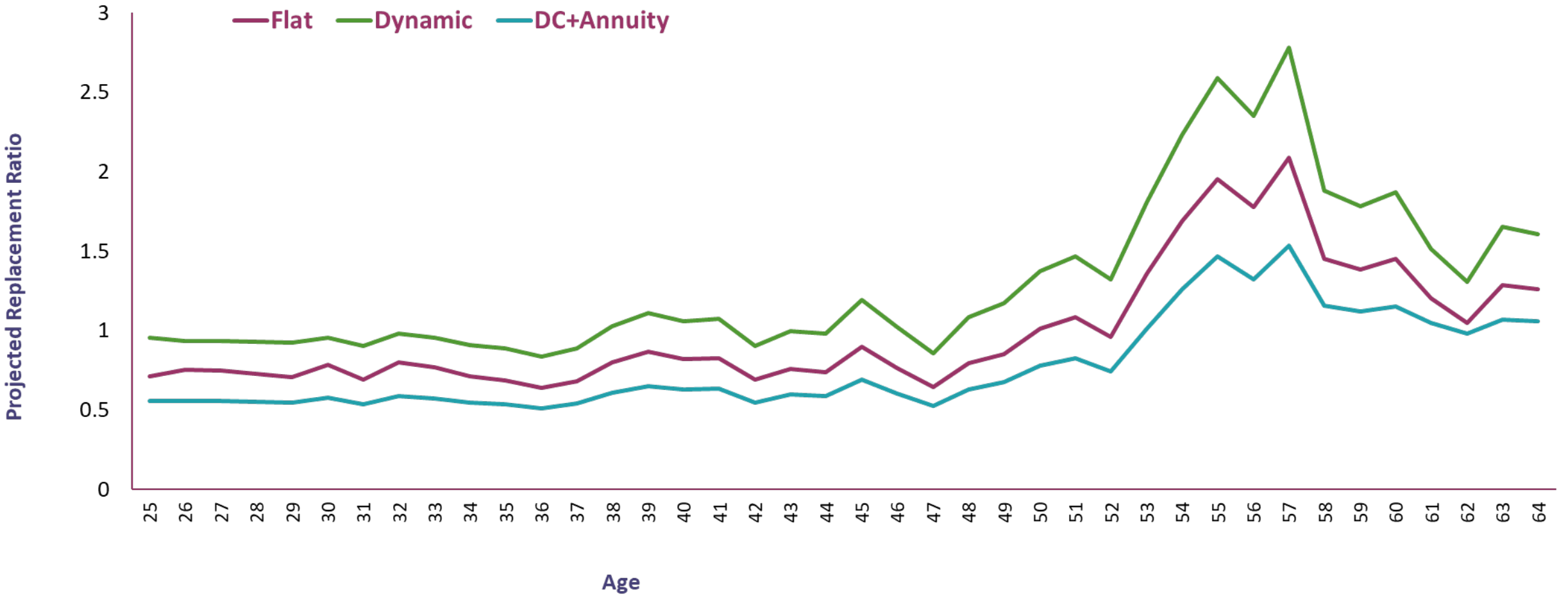

Shared Indexation

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- Finally, KCL have proven mathematically that, in a Black Scholes model, it is not possible to pool investment risk in a mutually beneficial way.

- To further illustrate this, they have developed a model called “Collective Drawdown”, which replicates many aspects of CDC, but does not attempt to pool investment risk.

Collective Drawdown

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- In Collective Drawdown, members have an individual pot.

- When they die, their funds are distributed to other members.
  - Funds are distributed according to life expectancy and remaining funds.

Collective Drawdown

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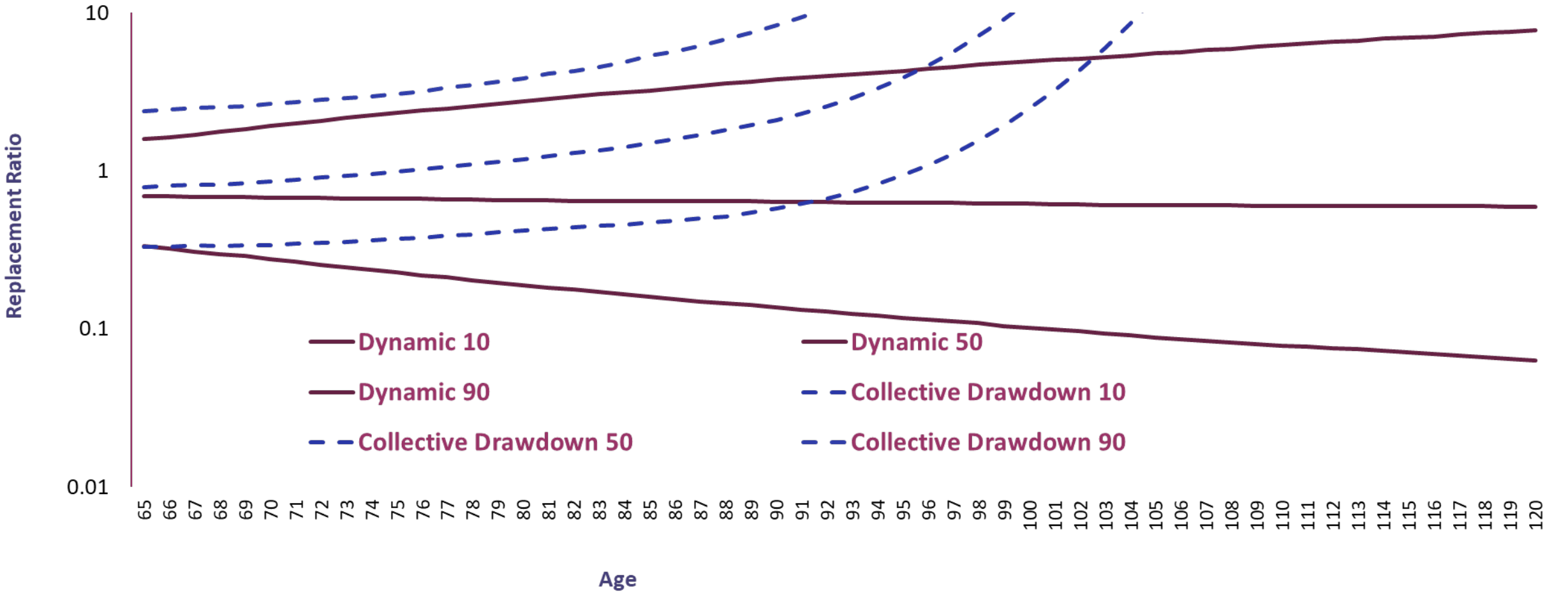

Collective Drawdown

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- Tontines in general do not have a precedent in recent UK history.
- Some Tontines might be illegal, and there is no precise legal definition.
- A model such as Collective Drawdown is not necessarily illegal, and avoids many of the issues that are present in historical Tontine designs.

Conclusions

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- Cross subsidy is an issue in UK CDC designs, especially in flat-accrual CDC.
- Investment risk pooling through shared indexation is proven to not be mutually beneficial.
- Collective Drawdown models could provide many of the desirable aspects of CDC without pooling investment risk.

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Collective Drawdown CDC

John Armstrong

May 14, 2025

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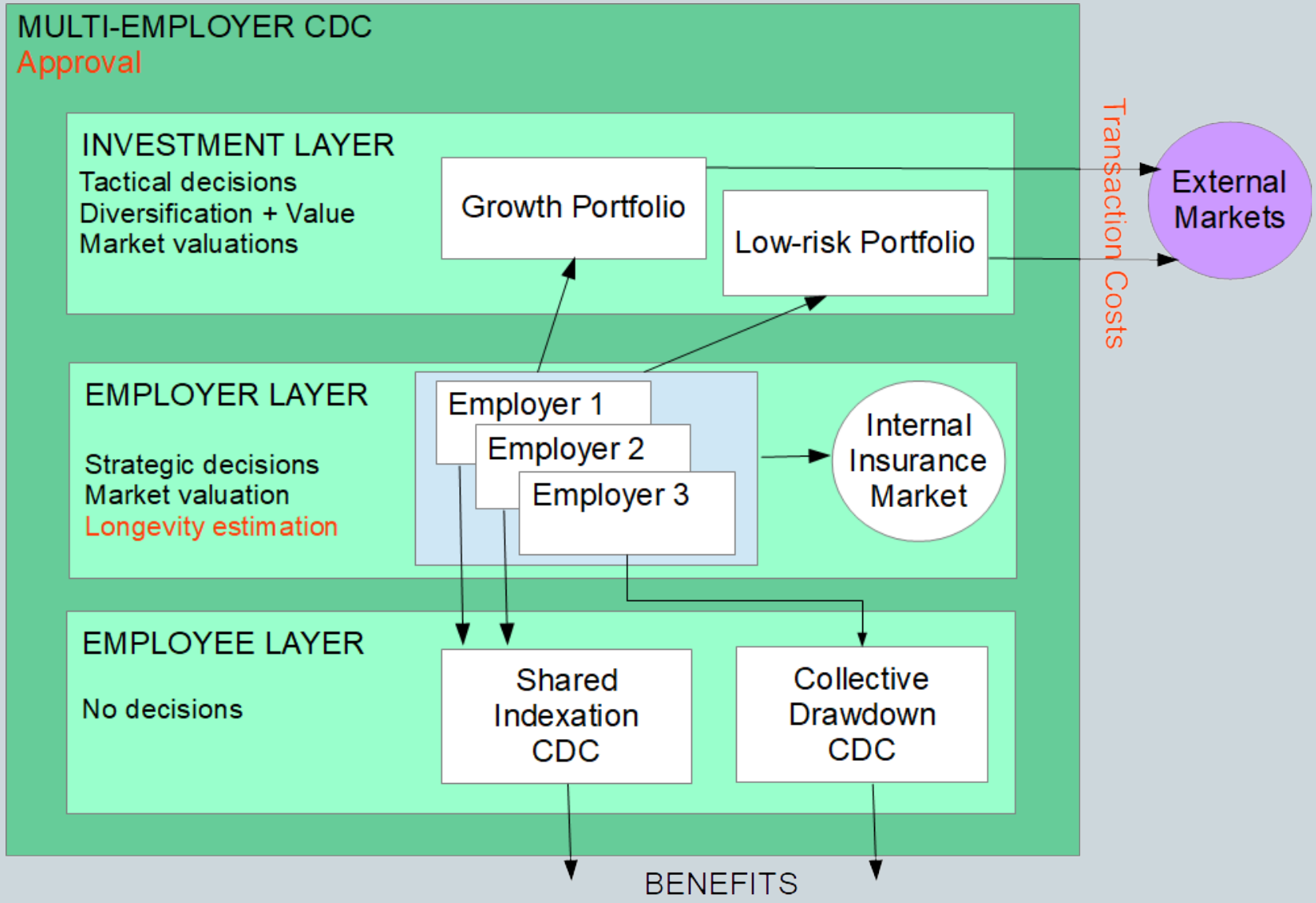
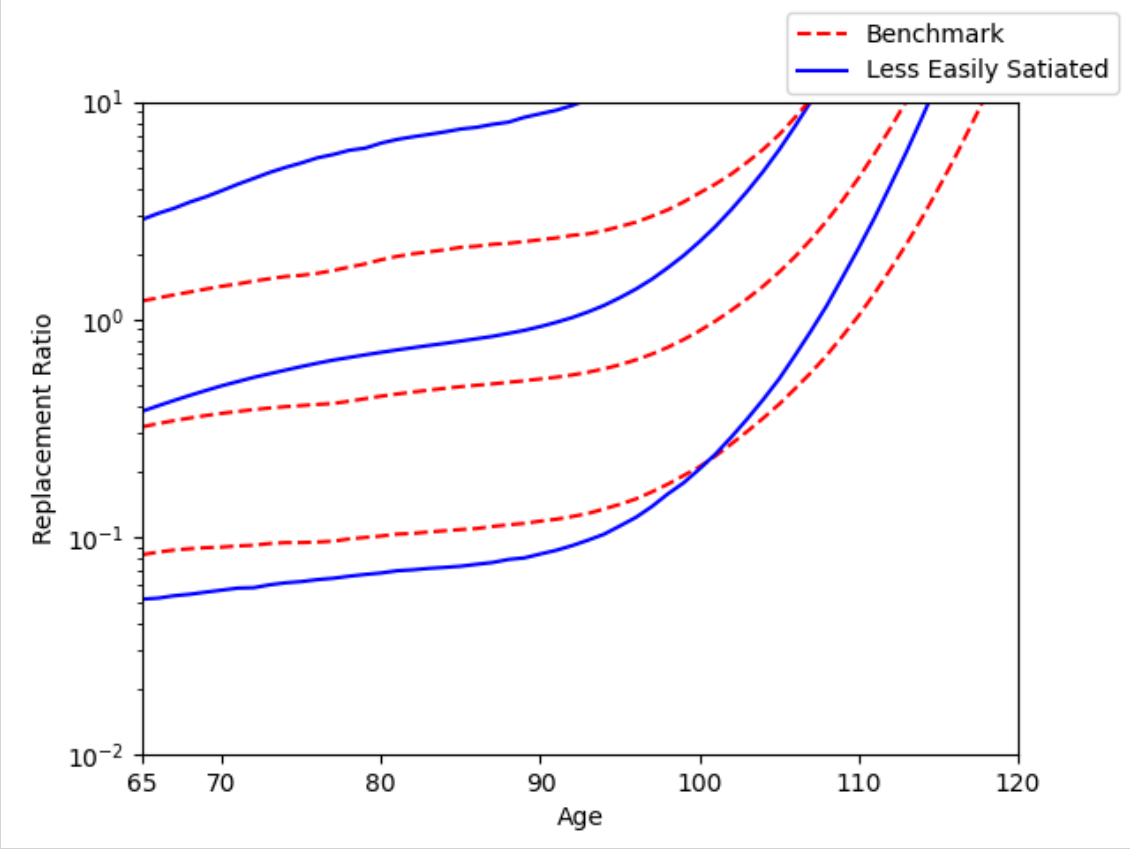
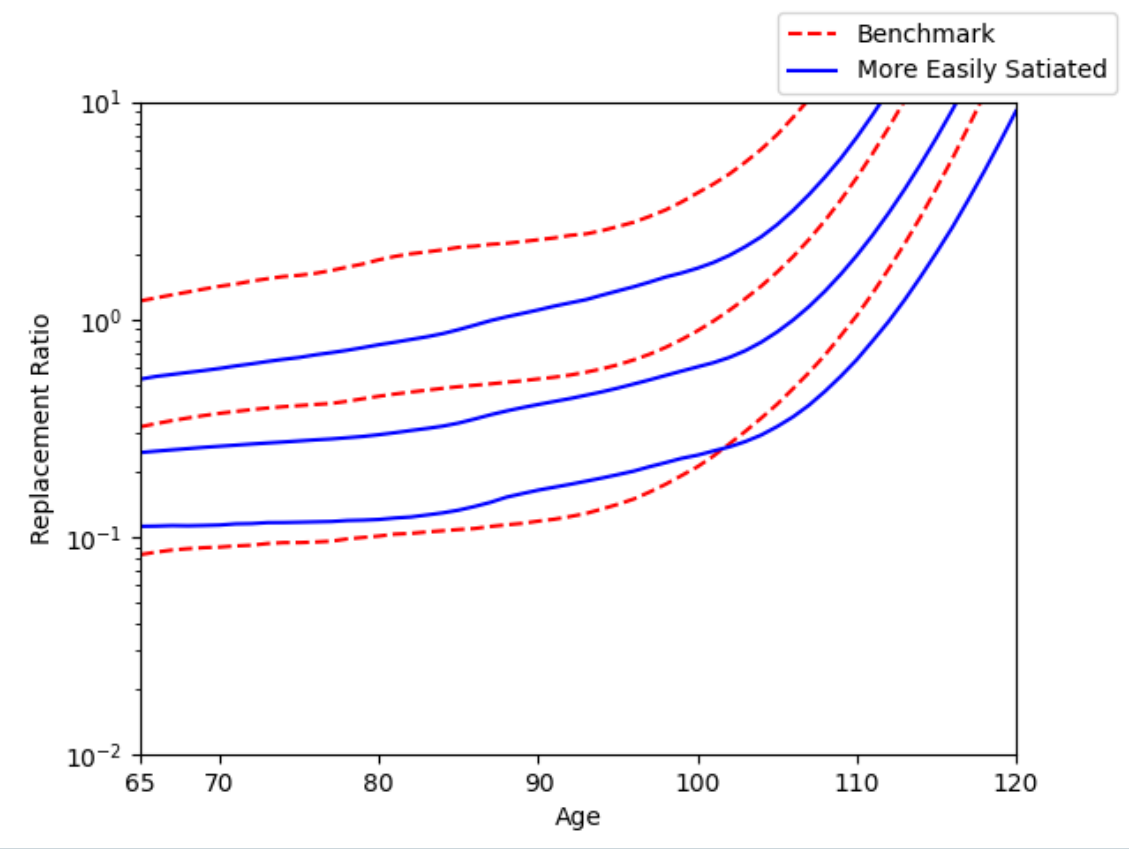
Pension Provider Architecture



Collective Drawdown Enables Pension Choice

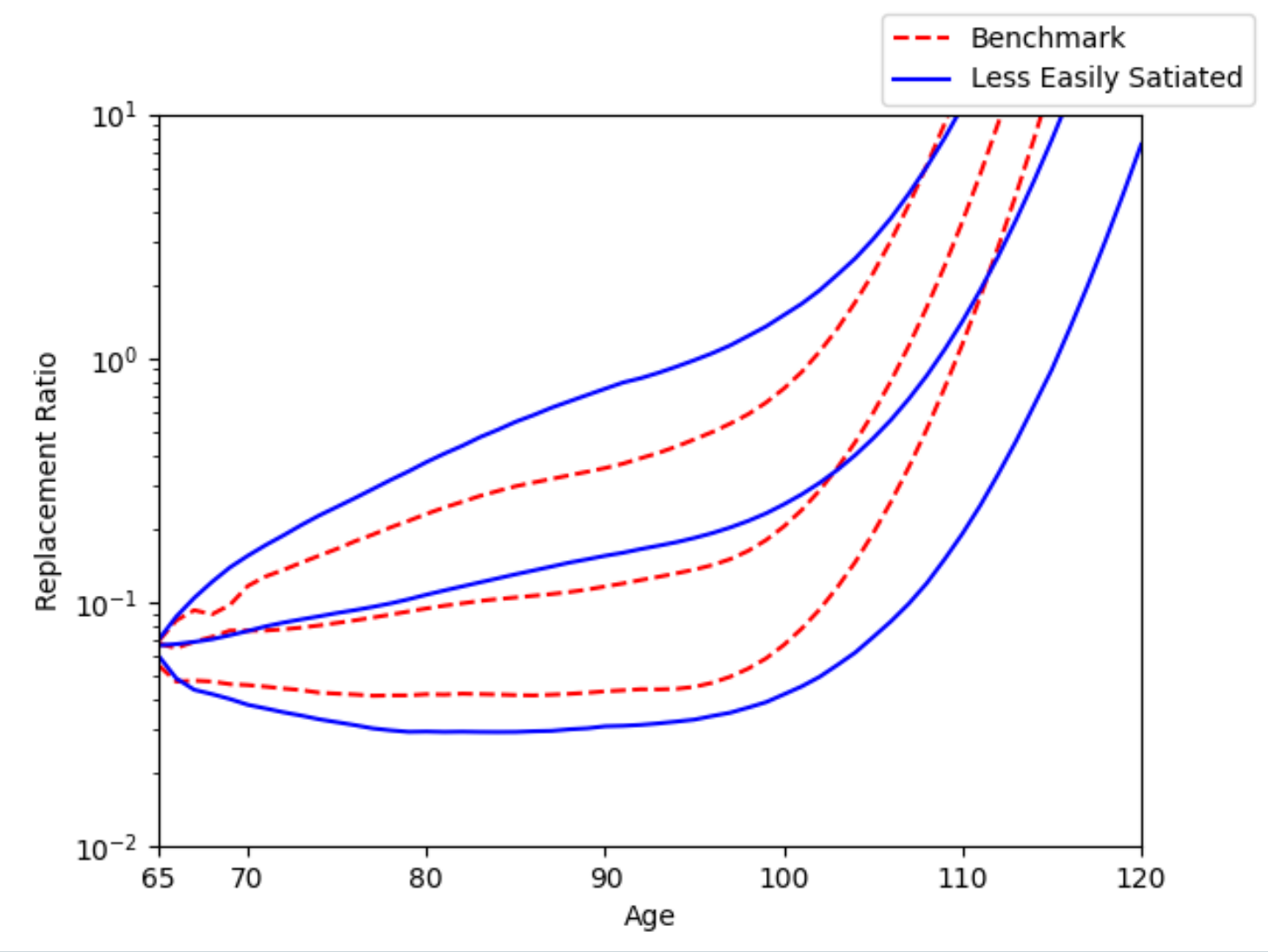
Alternative pension outcomes against common benchmark





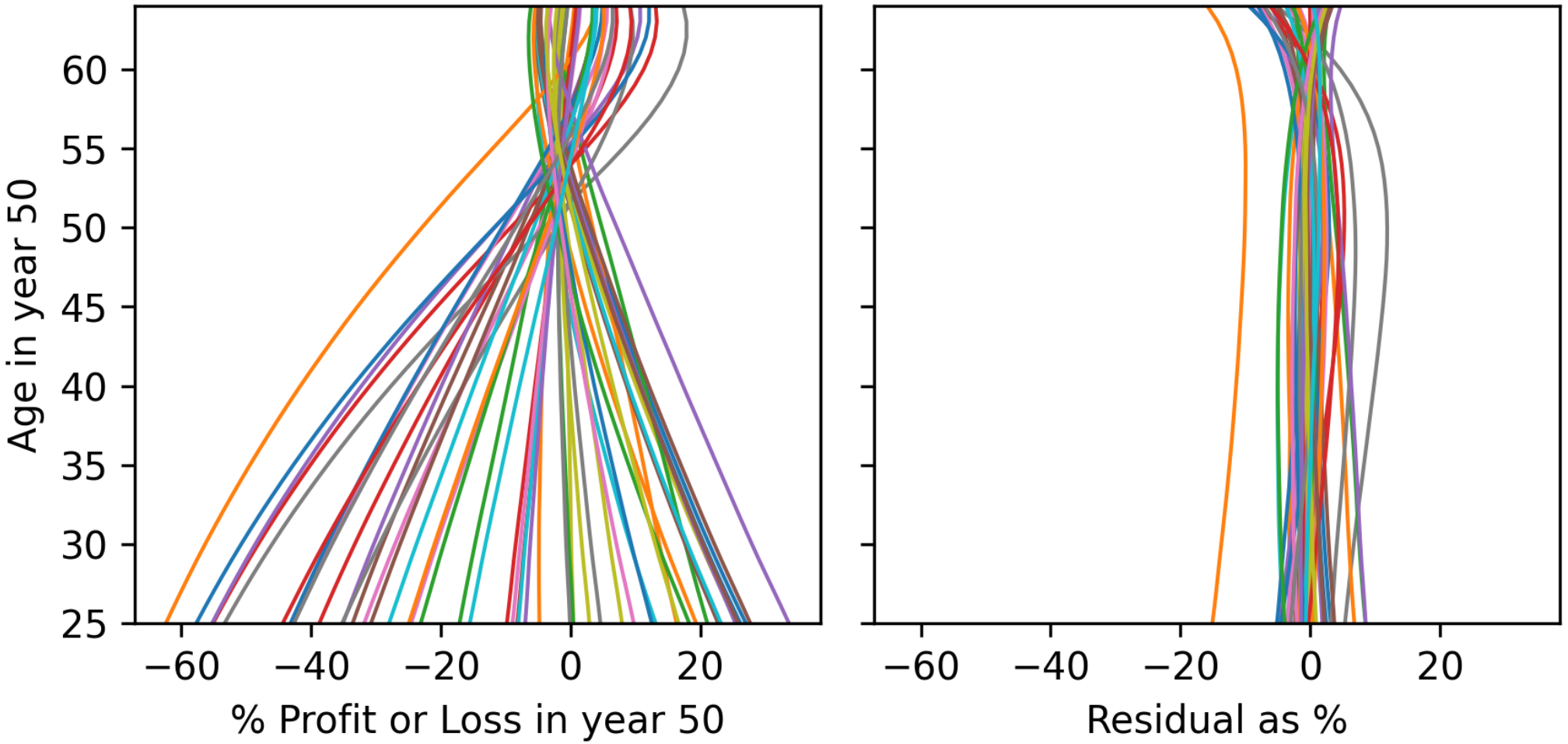
Collective Drawdown as a decumulation only solution

Two possible decumulation strategies



Inefficiencies in dynamic accrual shared-indexation

Where does the money go?



No-mutual-benefit theorem

- A *complete market* is a financial market where every risk can be perfectly hedged, so any derivative can be unambiguously priced
- In a complete market there are no mutually beneficial contracts (easy to prove)
- The simplest stochastic model for stocks and bonds gives a complete market (classical)

Significance

- The theorem gives a sense check on collective pension designs.
- Any claim to “diversify risk across generations” is implausible.
- Any collective scheme should explain how mutual insurance is priced.

Key Assumptions

- No satiation: having more money is always better
- No one loses
- No compulsion: when you sign up to the scheme, you could choose to use the market instead
- Preferences depend only on income

What if there are unhedgeable risk factors?

- Systematic longevity risk
- Wage risk

How it works

- Allow scheme members to trade insurance contracts
- Choose the price of these contracts such that the market clears when everyone trades optimally

Preliminary Results

- It is theoretically possible to trade systematic longevity risk within a single generation to obtain approximately 5% better retirement outcomes

To do

- Calibrate this more realistically
- Allow trades between different generations
- Consider wage risk

References

- **Intergenerational cross-subsidies in UK Collective Defined Contribution (CDC) funds** https://arxiv.org/abs/2411.13565
- **Collective Defined Contribution Schemes Without Intergenerational Cross-Subsidies** https://arxiv.org/abs/2504.16892
- **Optimal mutual insurance against systematic longevity risk** https://arxiv.org/abs/2410.07749

The remainder of the event will take place under

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THE CHATHAM HOUSE RULE

THE CHATHAM HOUSE RULE helps create a trusted environment.

Its guiding spirit is:
“Share the information you receive, but do not reveal the identity of who said it.”

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Chatham House

Roundtable Discussion

To ask questions:

Please use the raise your hand function
Please type you comment/question into the chat section
Or text your question to Danielle on 07714 250910

Please respect The Chatham House Rule

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CLOSING REMARKS

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Thank you for attending today