

CDC Design in the UK: Cross Subsidy, Shared Indexation and Alternatives to Longevity Pooling

Chair: David Fairs, Partner (LCP) and PPI Governor

Speakers: John Upton, Policy Analyst (PPI); John Armstrong, Reader in Financial Mathematics (KCL) **Venue:** Online (Microsoft Teams)

Chair's Welcome & Housekeeping



David Fairs opened the third roundtable in the CDC series, welcoming all participants and introducing the two presenters, John Upton from the PPI and John Armstrong from King's College London. He noted the timeliness of the event, given the recent announcement by the UK government to proceed with multiemployer CDC regulation. He reminded participants that the discussion would be held under the Chatham House Rule and emphasised respectful, open exchange.

Presentation: Overview of Research Findings to Date

Speaker: John Upton, Policy Analyst (PPI)

John Upton introduced Briefing Note 141: CDC Design in the UK: Cross Subsidy, Shared Indexation and Alternatives to Longevity Pooling, setting the stage by highlighting three key themes in CDC design: cross-subsidy, the challenge of pooling investment risk, and collective drawdown as a novel alternative model.

This work is part of an ongoing project sponsored by the Nuffield Foundation, and carried out by King's College London (KCL) and the PPI. Two previous Briefing Notes have been published as part of the same project.

Focusing first on cross-subsidy, John explained that classical CDC schemes—particularly those mimicking DB flat accrual designs—result in redistribution of value across age cohorts. A key illustration showed that for a flat accrual CDC, a 25-year-old's contribution might be worth just 33p in benefit, whereas a 64-year-old's could exceed £3.

He outlined the drivers behind this disparity, including the differing investment horizons for contributions and the lack of age-weighting in accrual. While similar effects exist in DB schemes, the use of return-seeking assets in CDC can intensify them.

John also discussed guard rails in dynamic CDC schemes, which are caps and floors on indexation. These introduce another form of redistribution, depending on how benefits are priced.

He noted the challenge that cross subsidy presents in member communication.

On shared indexation, John explained that there are misconceptions around the predictability of retirement income during working life, and the ability to pool investment risk across generations.



As a potential solution, John introduced the collective drawdown model, developed by KCL. In this design, investment risk remains individually borne, but longevity risk is pooled via a tontine-style structure. Longevity credits are shared based on remaining pot size and expected lifespan. Simulations showed this model to be more resilient and efficient than shared indexation CDC across multiple scenarios.

Legal uncertainties around tontine structures were discussed, but John noted that their proposed model differs from 19th-century versions, offering safeguards and regulatory adaptability.

Presentation: Mathematical Underpinnings and Strategic Design

Speaker: John Armstrong, Reader in Financial Mathematics (KCL)

John Armstrong expanded on the technical and mathematical rationale behind CDC scheme structures. He began by clarifying that CDC is a family of designs. Shared indexation and flat accrual, currently most prevalent in the UK, represent only one variant.

He provided a theoretical analysis of cross-subsidy dynamics, reinforcing John Upton's empirical findings. Flat accrual designs create an implicit deficit that later cohorts must cover, reducing their lifetime returns. In contrast, dynamic accrual schemes can significantly reduce these inefficiencies, though they are more complex to implement.

John then explored investment strategy. Using machine learning, he presented a framework for tailoring investment strategies to varying risk appetites—high, medium, and low. These could be offered as selectable options within a CDC scheme, aligning member preferences with scheme-level operations.

A key mathematical result was introduced: in complete markets, no contract allows mutually beneficial pooling of investment risk. This finding supports the collective drawdown approach, which isolates investment risk at the individual level while pooling only longevity risk. This structure is more workable under market conditions.

He described how the model yields near-deterministic income drawdown patterns, with limited flexibility required from members. Although the current design omits survivor benefits and guarantee periods, these could be incorporated with relative ease.

He concluded by noting that collective drawdown can operate alongside traditional schemes, sharing investment infrastructure while maintaining separate longevity pools. This flexibility allows schemes to scale and adapt to different employer or member profiles.

Roundtable Discussion Highlights (Chatham House Rule Applies)

David Fairs opened up the event to the attendees to ask questions and have a discussion. The following points were made and discussed during the event:

- Participants explored the tension between simplicity and accuracy in member communications. Some emphasised the need for clearer framing of shared indexation, as the presentation of stability may not match underlying volatility.
- Several comments highlighted the need for transparent articulation of cross-subsidy effects and the trade-offs they introduce, particularly for younger cohorts.



- Questions were raised about the implications of permitting members to switch between schemes or products post-retirement, and how this might influence selection risk or longevity pooling dynamics.
- A participant suggested that it would be acceptable to present members nominal benefits even if these do not perfectly accurately reflect projected benefits on the grounds that it might make members feel happier to contribute.
- The portability of collective drawdown schemes into personal pensions or master trusts generated interest, with suggestions that operational simplicity and member choice would be key to wider adoption.
- Some participants asked about the regulatory treatment of tontine-like features in collective drawdown, and what policy or legal developments might be required to support implementation.
- A participant made the point that the employer is responsible for paying for the scheme rather than the member, so if the scheme gives better value to the member than returning their own contributions then member preferences are less of a concern.
- The practical implementation of dynamic accrual models prompted discussion around computational feasibility, member understanding, and trustee governance.

Final Reflections

John Upton and John Armstrong thanked attendees for their engagement and questions. John Armstrong reiterated that current shared indexation CDC schemes face structural inefficiencies and that collective drawdown offers a flexible alternative grounded in sound mathematical principles. David Fairs closed the session by highlighting the importance of evidence-based approaches in the next phase of CDC development and encouraged continued dialogue around Briefing Note 141.

