Seventeenth International Longevity Risk and Capital Markets Solutions Conference

Waterloo, Canada / Online

12 – 13 September 2022

A Sustainable, Variable Lifetime Retirement Income Solution for the Chilean Pension System

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Outline

Need for reform

Can tontine-like arrangements improve pension outcomes?

Analysis of various designs

Implications & next steps

Overview: Chile's pension system

	1st Pillar: Solidarity Pillar	2nd Pillar: Mandatory DC	3rd Pillar: Voluntary
Objective	To prevent poverty	To smooth consumption between the accumulation and decumulation phase	To complement mandatory savings, improving the final pension
Funding	General taxes	Individual savings with tax exemptions	Individual savings with tax incentives and state matching
Benefits	A basic means-tested pension and top-up	Contingent on individual total final savings	Contingent on individual total final savings

* Note: our paper has to do with reforms of the 2nd pillar

Pension product selection for the pay-out phase

Pay-out phase products	total	women	men
Inmediate annuity	6%	4%	9%
Temporal rent + Deferred annuity	11%	7%	16%
PW by choice	24%	16%	33%
PW by default	58%	73%	42%
	100%	100%	100%

- Pension product selection is allowed only for those individuals able to self-financed a pension above the basic pension (PBS)
- The default for those with low balances is Programmed Withdrawal (PW)
- Some qualify for the Solidarity Pillar, which provides a small amount of longevity risk coverage

Challenges for the pay-out phase

- Increased longevity
- Decreasing interest rates

For each peso saved…
someone retiring in 2020 received a 40% lower pension benefit than the same person retiring in 2000

- Annuitization rates have historically been high relative to other countries, although this rate has been declining in recent years

The Programmed Withdrawal (PW) is unattractive in many ways

- High level of income early in retirement, but this level is unsustainable
- Retirement income drops swiftly over time
- Retiree’s financial situation gets much worse at more advanced ages
    - Women especially affected as they are likely to live longer and end life alone
- Traditional investment withdrawal strategies are highly uncertain (longevity risk)

Our proposal: The tontine principle

- A longevity risk pooling arrangement, in which investors irrevocably:
    - Agree to pool their savings (or something of value)
    - Receive payouts while they are living
    - Forfeit their accounts upon death to the surviving members
- Two sources of returns:
    - Investment income
    - “Longevity credits” from the balances of members who have died
- Those who live longer receive greater cumulative payouts

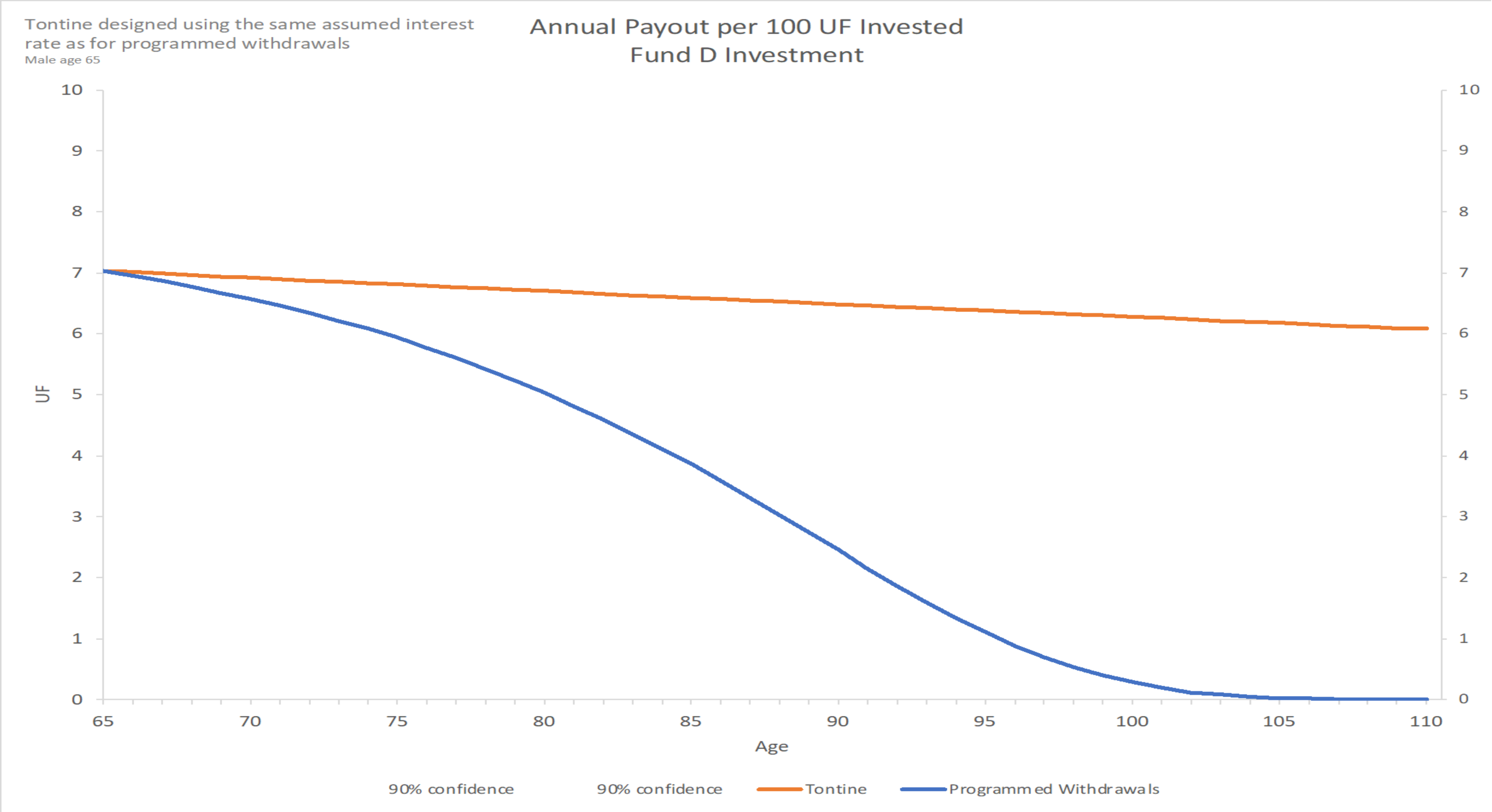
Our proposal: The tontine principle

- We can design tontines as a pension pay-out
  - Open-ended, continually accept new participants, running in perpetuity
  - Payouts designed to smooth consumption
- No explicit guarantees / actuarially fair / upside potential
- Offer choice: investment portfolio, payout features & combined with other options

Methodology

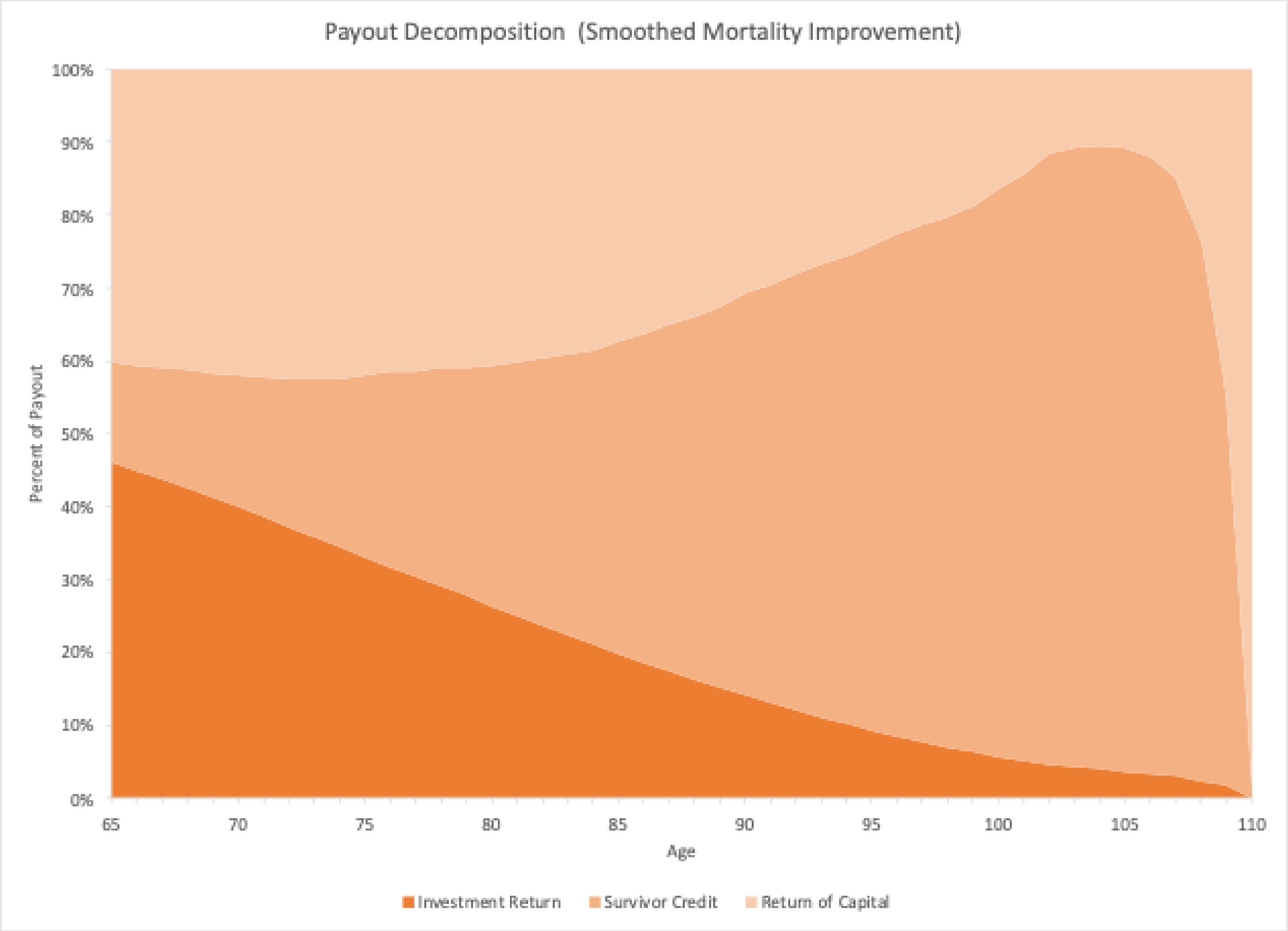
- We model an account-based, heterogeneous, open-ended tontine system:
  - Individual accounts in which investors can make their own investment decisions
  - Accepts members of different ages and genders
  - Continually accepts new members and runs in perpetuity
- Chilean mortality tables with improvement factors
- Membership size: 10,000 participants with random:
  - Gender
  - Age: women 60 to 65, men 65 to 70
  - Account balance at retirement: 1,000 UF to 10,000 UF (≅USD 38,000 to 380,000)
  - Investment options: Fund C, D and E
- 10,000 simulation runs, each spanning the 55 years from 2021 to 2075

Results: Programmed Withdrawal versus Tontine



Results expressed as annual payouts per 100 UF invested, for a male who is 65 years old at the beginning of the year 2021 and elects to invest in Fund D

Payout decomposition

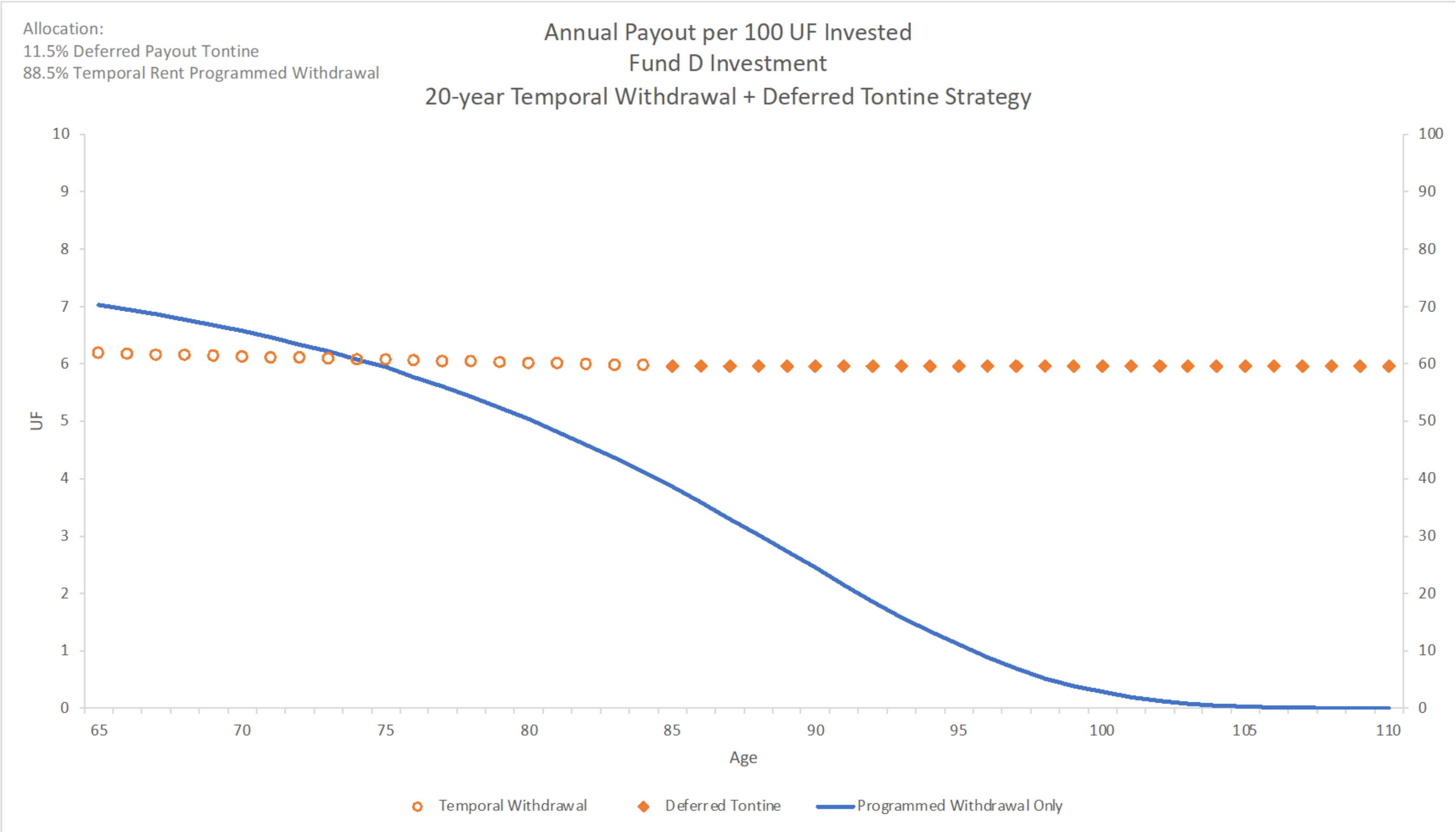


Longevity credits grow over time.

They represent 14% of the payout at age 65 and rise to more than 80% of the payout by age 100.

These credits are what provide the power to sustain the payouts into advanced ages.

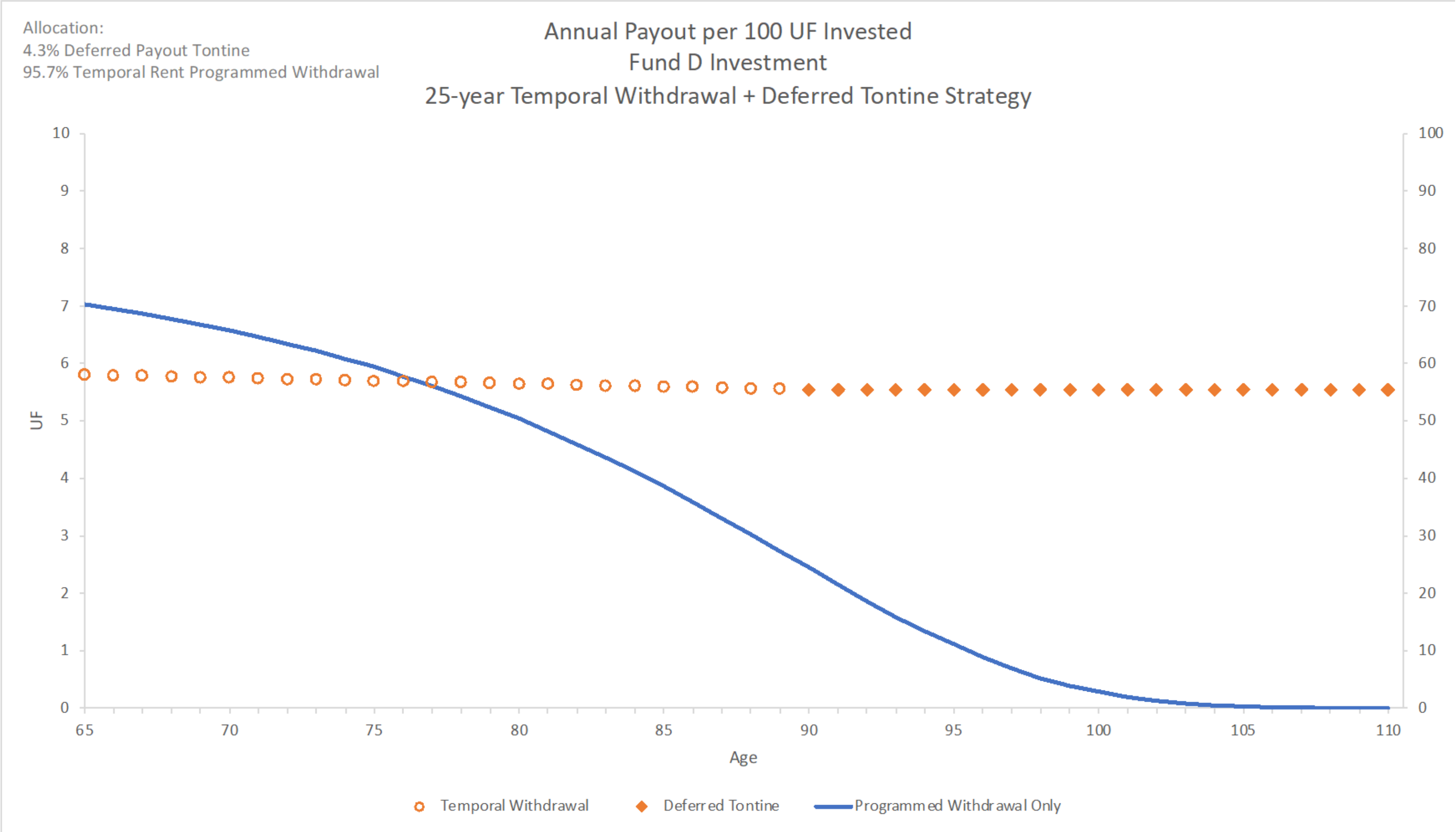
Combined strategy: 20-year Temporal Withdrawals + Deferred Tontine



Investors sacrifice some of their retirement income in the first few years for the benefit of higher income later in retirement.

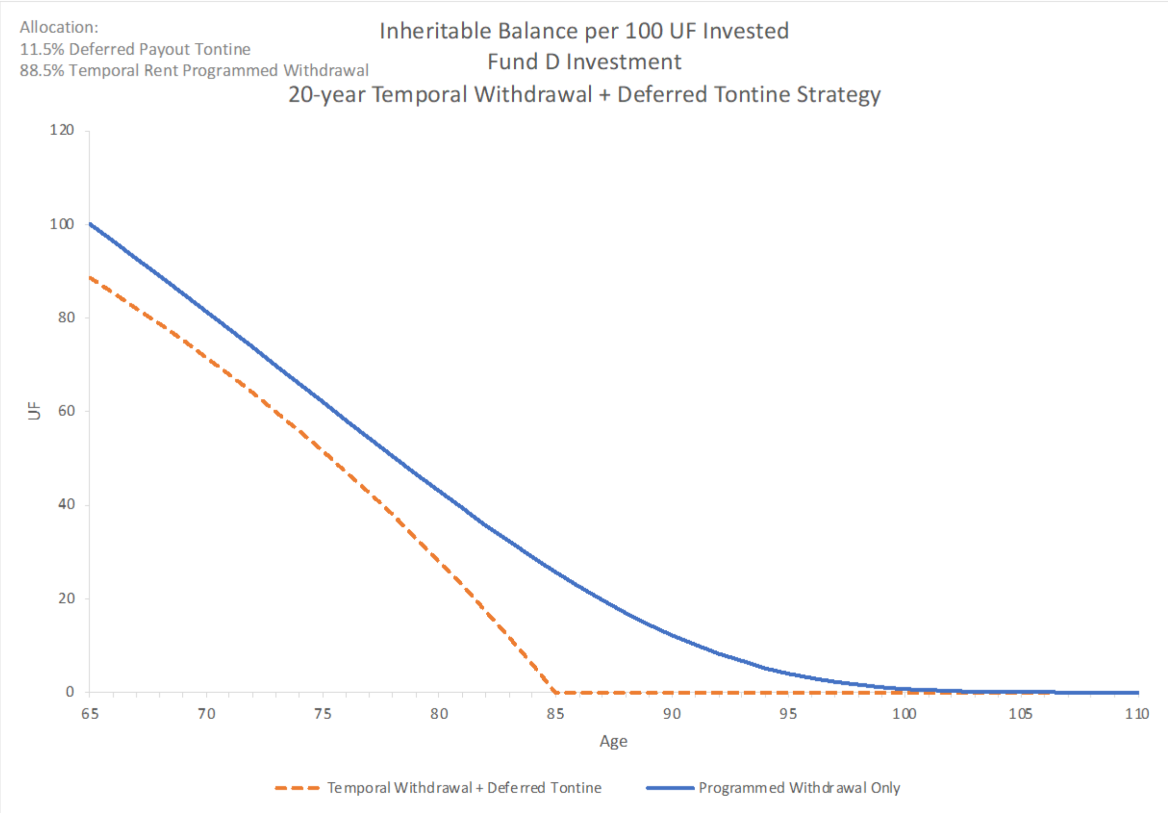
Only a small deferred tontine allocation (11.5%) is needed for longevity protection.

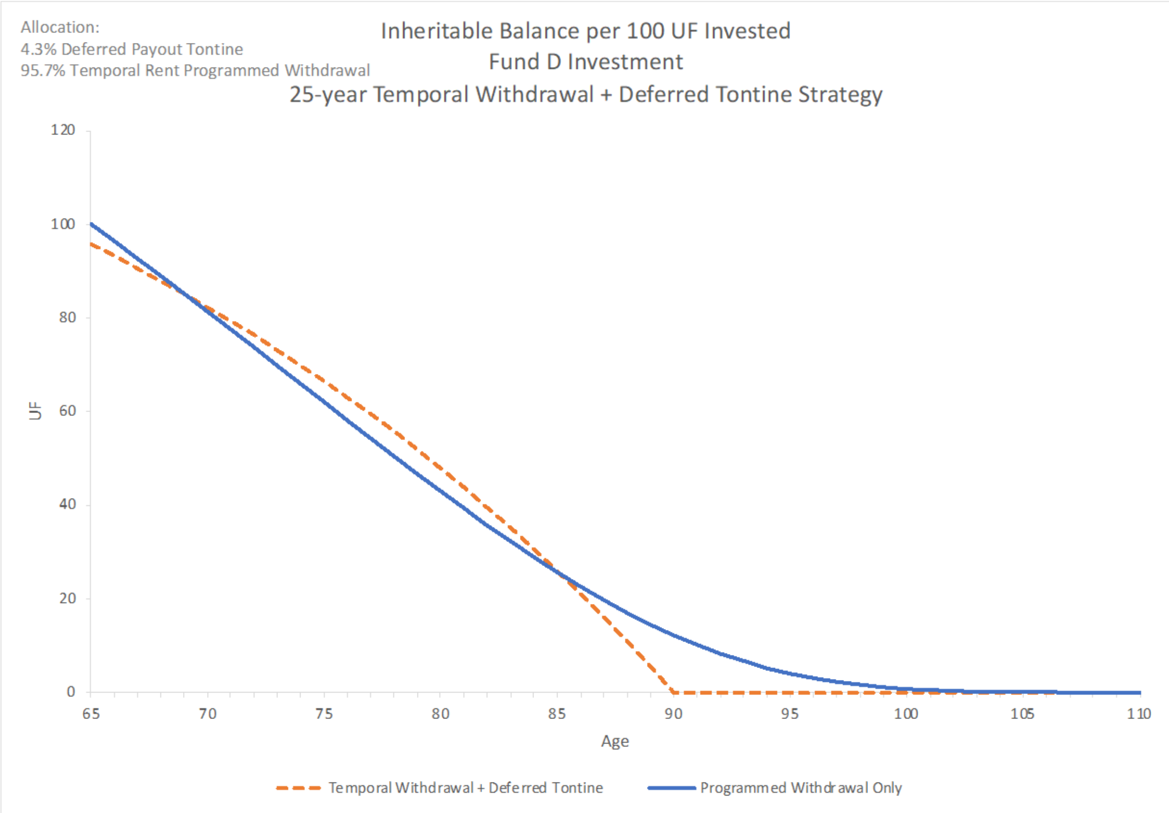
Combined strategy: 25-year Temporal Withdrawals + Deferred Tontine



Extending the deferral period an extra 5 years reduces the needed allocation (4.3% of the investor's balance compared to 11.5%)

Combined strategy: Temporal Withdrawals + Deferred Tontine





The more that is allocated to risk sharing, the less that will be available for bequest.

Another way to alter the income/bequest trade-off is to use a longer or shorter temporal withdrawal horizon.

Lessons & Implications

- There is a need for pension systems such as in Chile to significantly improve the level, stability, and sustainability of pension payments as pensioners age
- The solution need not be limited to increasing the take-up rate of annuities
- Key results:
  - Compared to PW, our proposal boosts income levels dramatically, even with small allocations to it
  - These solutions may be combined with existing options to produce individually tailored income streams and to satisfy bequest goals

Lessons & Implications

- Our proposal offers a way to make a market for pension solutions that insurance companies might not be willing to offer (deferred products)
- Possible to create a national longevity risk pool – lower costs, create economies of scale, increase the level of risk diversification
- Potential areas of innovation:
    - Investment strategy (e.g., to minimize payout variability)
    - Factor in life-expectancy differences among socioeconomic groups

THANK YOU

A SUSTAINABLE, VARIABLE LIFETIME RETIREMENT INCOME SOLUTION FOR THE CHILEAN PENSION SYSTEM

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