CPB Netherlands Bureau for Economic Policy Analysis

Risk sharing in funded pension systems

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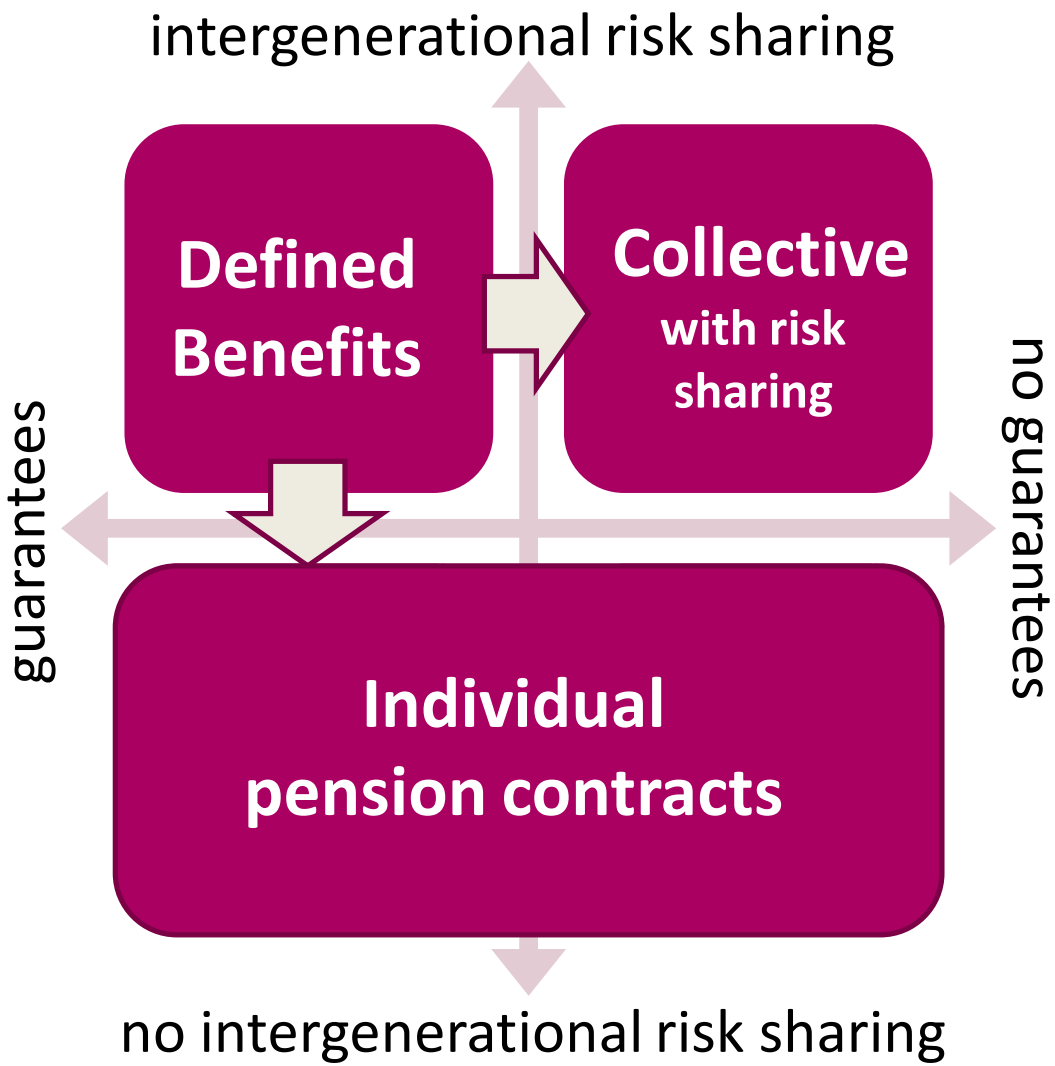
- Recent developments
- Research question
- Hypotheses risk sharing
- Impulse response analysis
- Conclusions

Recent developments

- DB no longer feasible
  - Ageing
  - New accountancy rules
- Collective contracts (Defined ambition)
  - The Netherlands, UK?
- Individual contracts
  - Australia, Canada, UK, Denmark, Sweden, US


intergenerational risk sharing
Defined Benefits
Collective with risk sharing
guarantees
no guarantees
Individual pension contracts
no intergenerational risk sharing

Research question

- What is impact of financial shocks in real-world funded pension systems?
  - Equity market risk, inflation risk, interest rate risk
  - Impulse-response analysis

- Theoretical literature
  - Optimal allocation of shocks if consumption effect is spread evenly over all current and future generations

- In practice
  - Discontinuity risk if fund's deficit or surplus for future generations is large

Hypotheses

1. Collective contracts provide risk sharing with future generations and lift borrowing constraint of younger generations

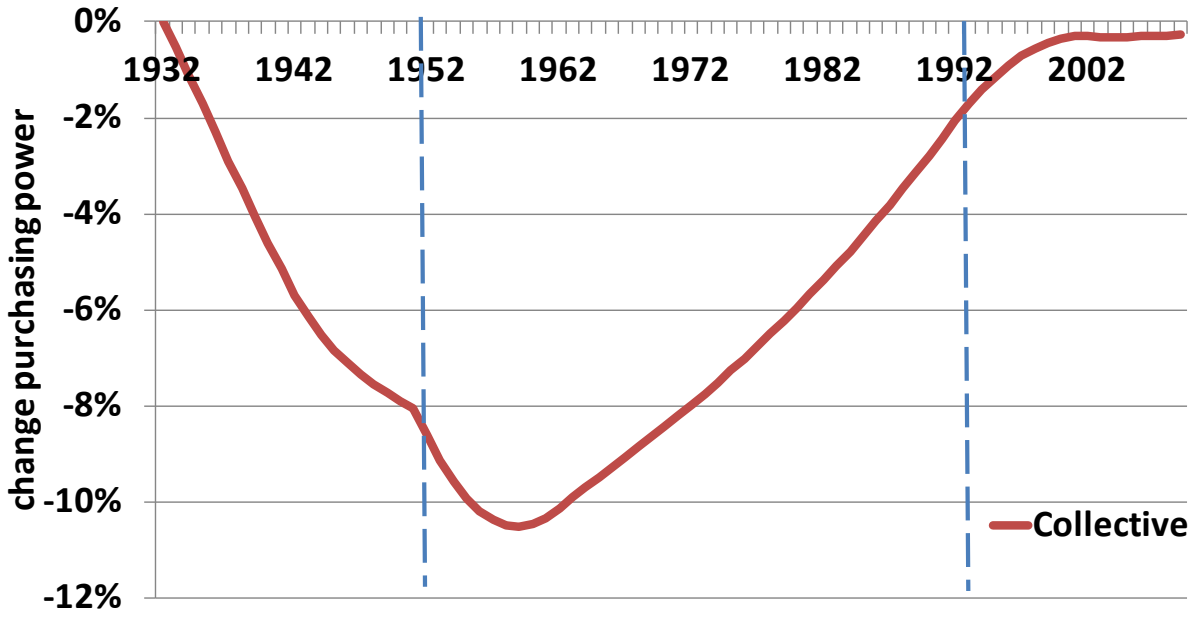
2. Collective contracts provide more efficient allocation of non-tradable risk, such as inflation risk, than individual contracts

Simulation model

- Collective pension contract
  - returns on investment are smoothed over 10 years
  - investment mix is constant
  - contributions are fixed

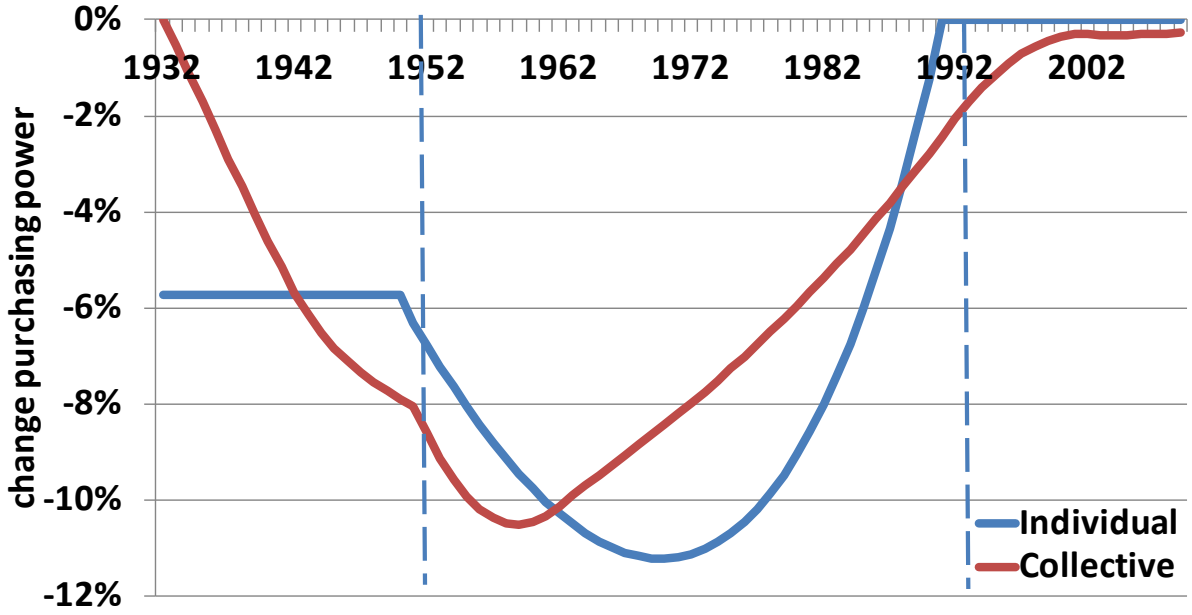
- Individual pension contract
  - investment mix follows life cycle
    - share of equity declines from 100%, but remains positive
  - individual longevity risk is insured
  - inflation risk is not insured

1a. Impact of equity shock on purchasing power



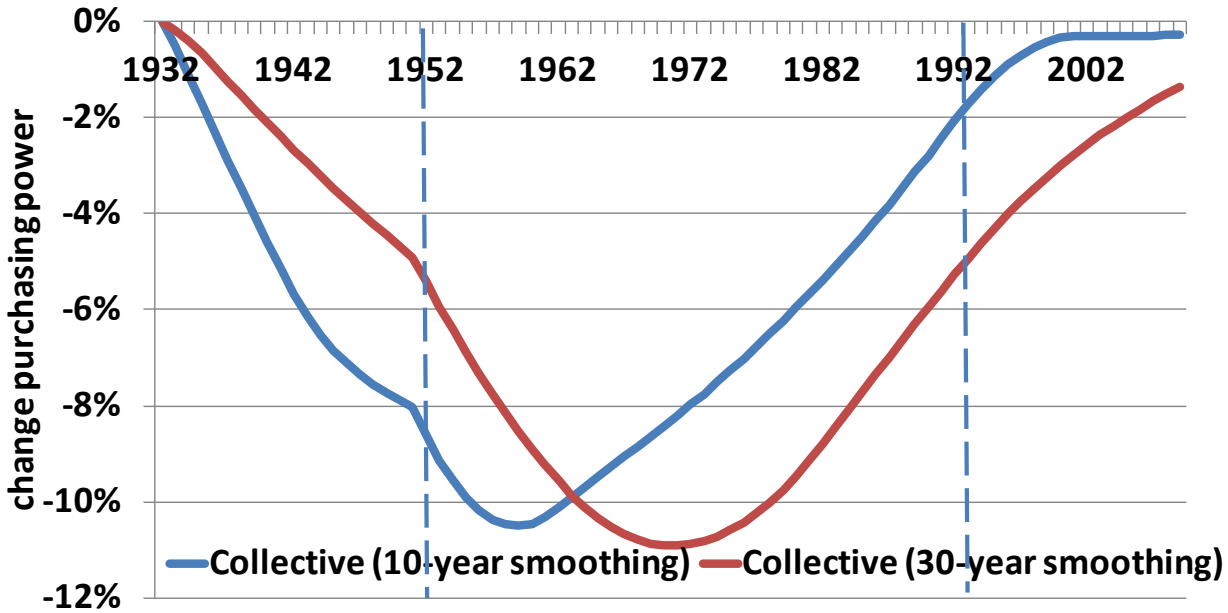
➢Generations just before retirement are hit most, small part of risk absorbed by future participants

1b. Equity shock in individual and collective contracts



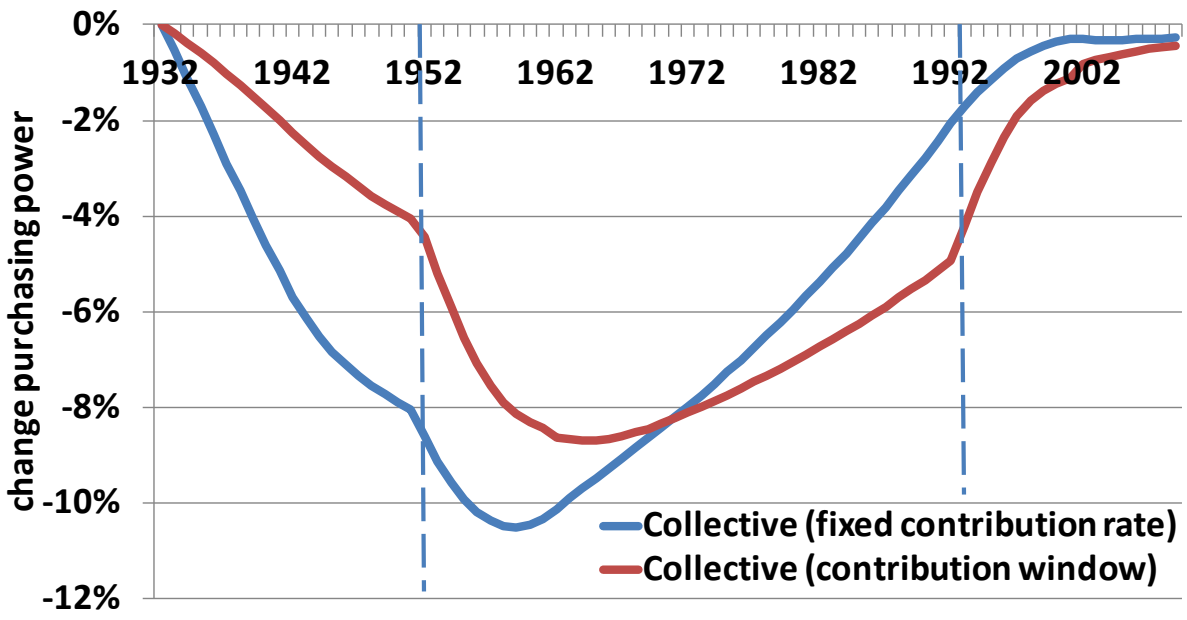
- Collective contract shifts some risk from old to young

2. Impact of longer recovery period in collective contracts



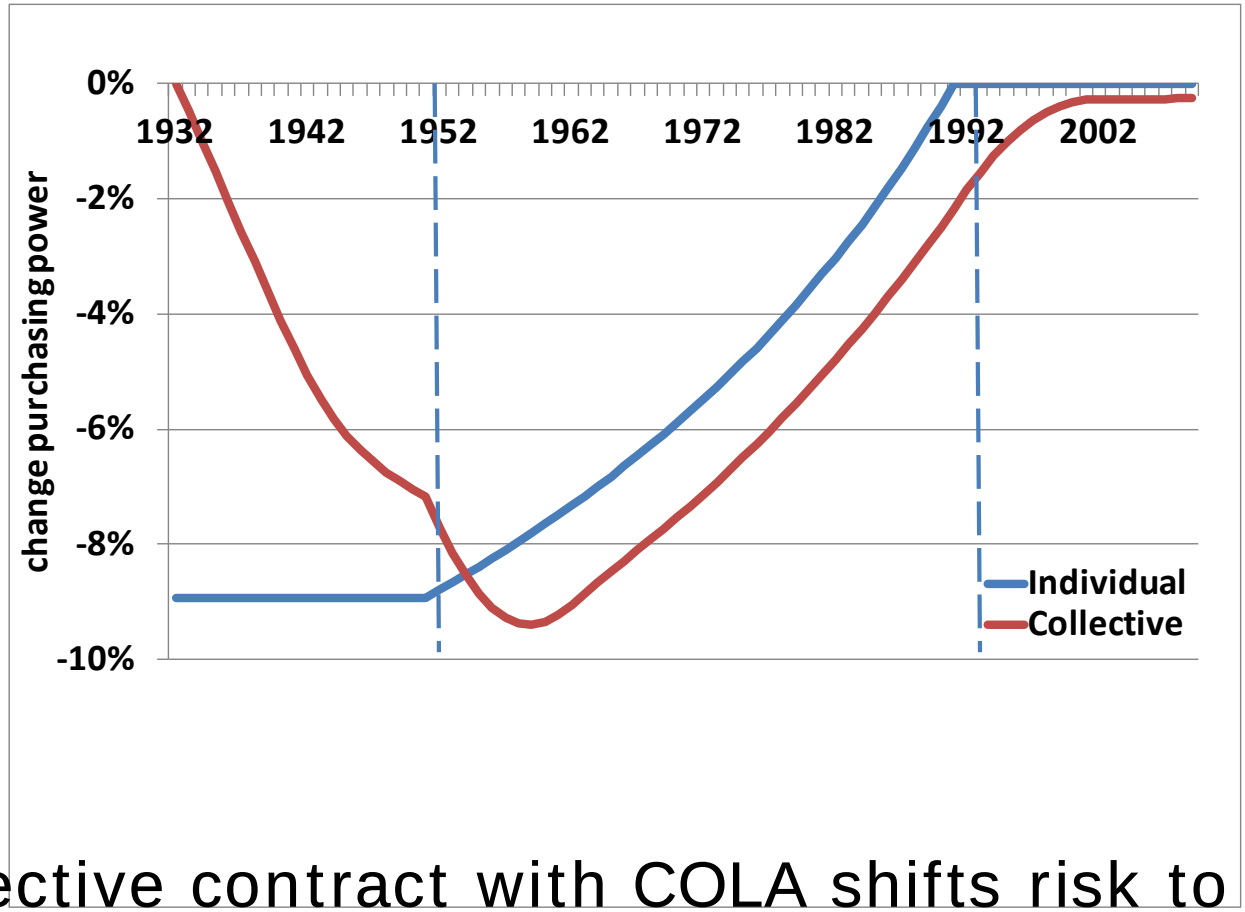
- A longer recovery period shifts more equity risk to young

3. Variable contributions in collective contract



- Variable contributions shift equity risk to young

4. Inflation risk in individual and collective contracts



- Collective contract with COLA shifts risk to young

Conclusions

Equity market risk

- Collective contract shifts some equity risk from old to young
- Risk sharing is limited with 10 year smoothing and fixed contributions

Inflation risk

- If non-tradable risk, collective contract with COLA provides some protection
- If tradable risk, collective contracts add little value