Cross-Dynastic Intergenerational Altruism:

Revisiting the Isolation Paradox

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Introduction

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- ... leads to a preference externality.

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- ... leads to a preference externality.
- Capital investments might lead to a technological externality.
- Research questions:
  - Implications of altruism for the future of other households?
  - Implications altered if households bargain?

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- Hyperbolic discount functions (Laibson; Phelps and Pollak; Strotz).
- Preference satisfaction (Hausman, Milgrom).

Model: AK with 2 households

- Well-being recursively defined:

$$W_t^1 = (1 - \alpha_D - \alpha_{CD}) \ln(c_t^1) + \alpha_D W_{t+1}^1 + \underbrace{\alpha_{CD} W_{t+1}^2}_{\text{: New component}},$$

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- Per-period budget constraint:

$$c_t^1 = \underbrace{A(k_{t-1}^{11} + k_{t-1}^{21})}_{= y_t^1} - k_t^{11} - k_t^{12},$$

with $A > 1$, $k_t^{11}, k_t^{12} \geq 0$.

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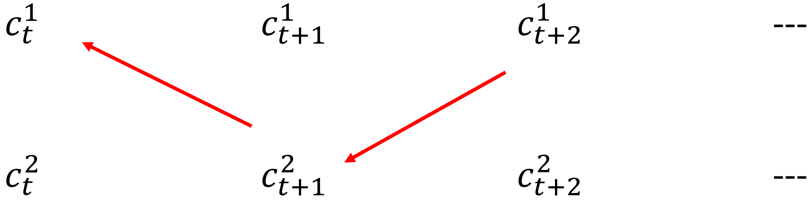
- Consider Markov Perfect Equilibria.

Model: Implications

c_t^1	c_{t+1}^1	c_{t+2}^1	---
c_t^2	c_{t+1}^2	c_{t+2}^2	---

Case $\alpha_D > 0$, $\alpha_{CD} = 0$

Model: Implications



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Results: Equilibrium

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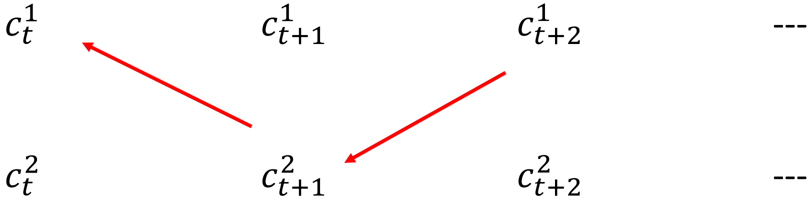
- Assume full symmetry: $\alpha_D = \alpha_{CD} > 0$ and $y_t^1 = y_t^2 > 0$.
- Define by $k_t^{11} = k_t^{12} = \frac{1}{2} s y_t^1$ the household 1 transfer to the next generation of each household.
- The residual is consumed: $c_t^1 = (1 - s) y_t^1$.

Results: Equilibrium



Case $\alpha_D = \alpha_{CD} > 0$

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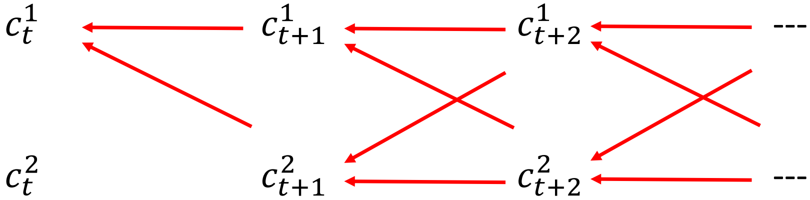

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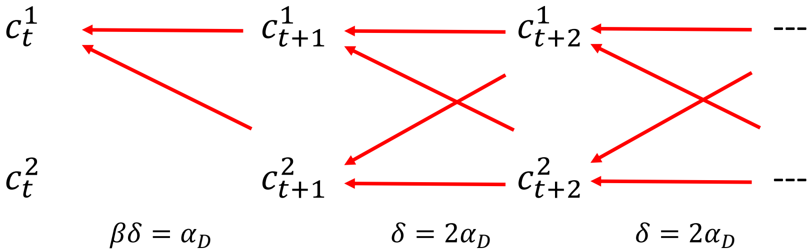

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- Since $c_t = (1-s)y_t$ and $c_{t+1} = (1-s)\underbrace{Asy_t}_{=\ y_{t+1}}$:

$$\frac{1}{(1-s)y_t} = \Big(\alpha_D(1-s) + 2\alpha_D s\Big) A \frac{1}{(1-s)Asy_t}.$$

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- This give

$$s \;=\; \frac{\alpha_D}{1-\alpha_D} > \alpha_D,$$

satisfying the one-stage deviation principle, provided $1 > 2\alpha_D$.

Results: Equilibrium

- For general N, with $k_t^{11} = k_t^{12} = ... = \frac{1}{N} s y_t^1$:

$$1 \;=\; \left(\alpha_D(1-s) \;+\; N\alpha_D s\right)\frac{1}{s},$$

which gives

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- For $\alpha_D > \alpha_{CD}$, with $k_t^{11} = s y_t^1$ and $k_t^{12} = \ldots = 0$:

$$1 = \left(\alpha_D(1-s) + (\alpha_D + (N-1)\alpha_{CD})s\right)\frac{1}{s},$$

which gives

$$s = \frac{\alpha_D}{1-(N-1)\alpha_{CD}} > \alpha_D.$$

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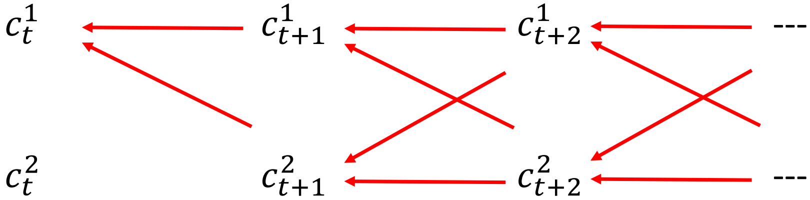
Result 2: Crowding out

In equilibrium, household 1's intergenerational transfer to household 2 crowds out household 2's internal transfer.

Results: Bargaining



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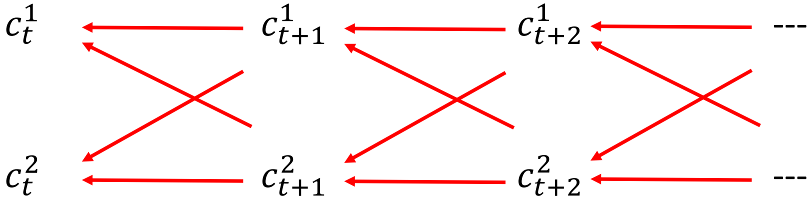

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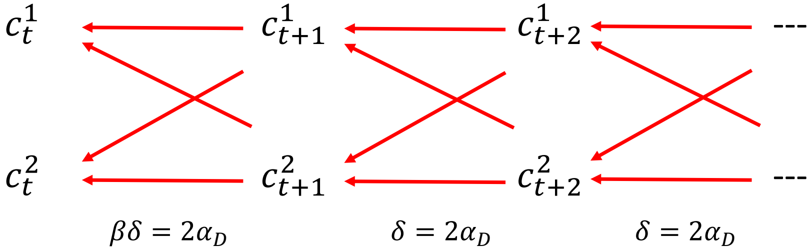

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- For general N:

$$s = N\alpha_D > \frac{\alpha_D}{1 - (N-1)\alpha_D}.$$

- For $\alpha_D > \alpha_{CD}$:

$$s = \alpha_D + (N-1)\alpha_{CD} > \frac{\alpha_D}{1 - (N-1)\alpha_{CD}}.$$

Results: Bargaining

Result 3: Bargaining

Assume $y_t^1 = y_t^2$ and bargaining in expectation of future cooperation.

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Observation: Bargaining with few instruments

A public transfer to the future crowds out private transfers (relates to Bergstrom et al, Newbery, Warr and Wright).

$\Rightarrow$ Trade-off: Freedom of the present versus survival of the future.

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- Next steps:
  - Microfound political economy part.
  - Climate in production economy:
    - $\Rightarrow$ Normative status of climate agreements.
    - $\Rightarrow$ Principles of Negishi weighting and discounting.