Discussion
Misallocation due to Incomplete Markets

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This Paper

- Very important question

How large are the efficiency gains from completing financial markets?

e.g.: financial market liberalization, social insurance, etc.

- **This paper** $\rightarrow$ Two contributions
  1. Conceptual: misallocation measure + characterization
  2. Applied: incompleteness costs for

     US households (20% of aggregate c) $\gg$ across countries (5%)

Discussion Roadmap

1. Conceptual $\rightarrow$ Edgeworth Box $\rightarrow$ laboratory
   - Illustrate measure
   - Properties
   - Alternative approaches

2. Applied $\rightarrow$ Comments

Laboratory: Edgeworth Box

- Two agents $\rightarrow i \in \{A, B\}$ countries
- Two dates $\rightarrow t \in \{0, 1\} \rightarrow$ single good per date
- Preferences identical isoelastic ($\eta \equiv EIS$)

$$u\left(c_0^i\right) + u\left(c_1^i\right) \qquad \text{with} \qquad u\left(c_t^i\right) = \frac{\left(c_t^i\right)^{1-\frac{1}{\eta}}}{1-\frac{1}{\eta}}$$

- Status quo $\rightarrow$ Incomplete Markets $\rightarrow$ (unspecified) frictions

  aggregate consumption: $(c_0, c_1) = (7, 4)$

$$\left(c_0^A, c_1^A\right) = (6, 1) \quad \text{and} \quad \left(c_0^B, c_1^B\right) = (1, 3)$$

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What are the gains (or losses?) from completing markets?

- Welfare Assessment $\rightarrow$ *status quo* vs. *alternative(s)*

LINK to previous discussion

Completing Markets in a Box

$$u\left(c_0^i\right)+u\left(c_1^i\right),\ u\left(c\right)=\frac{c^{1-\frac{1}{\eta}}}{1-\frac{1}{\eta}},$$
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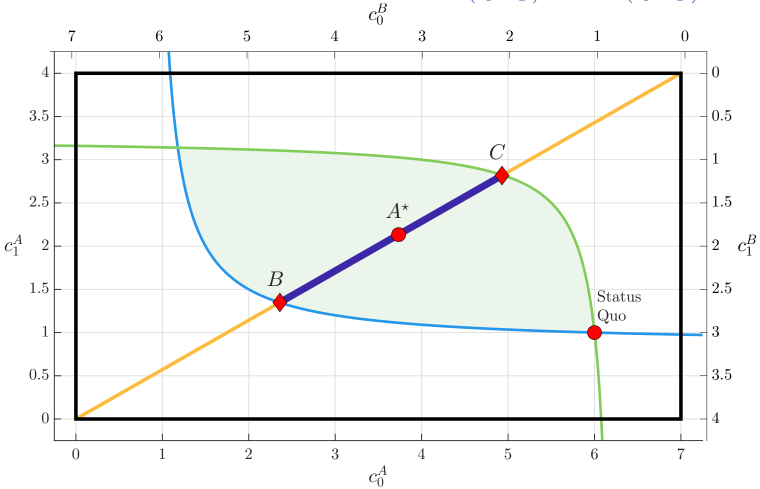

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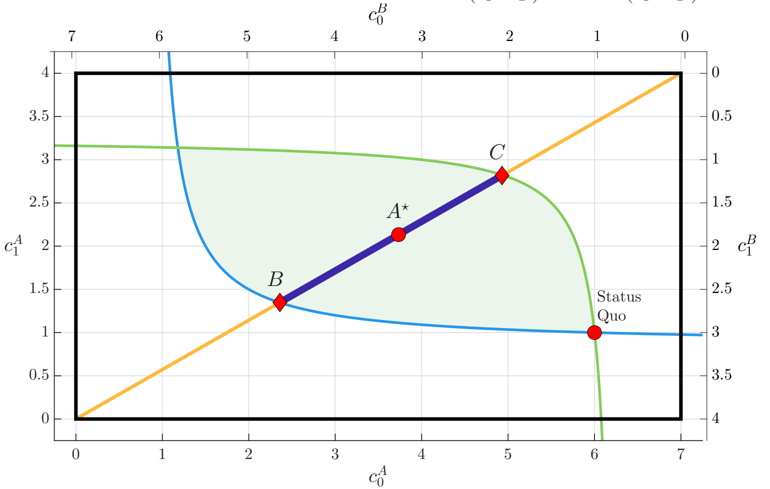

What are the gains (or losses?) from completing markets?

- **Remark:** <u>many</u> complete markets *alternatives*
  - Any point in the Pareto set → B very different from C

Completing Markets in a Box

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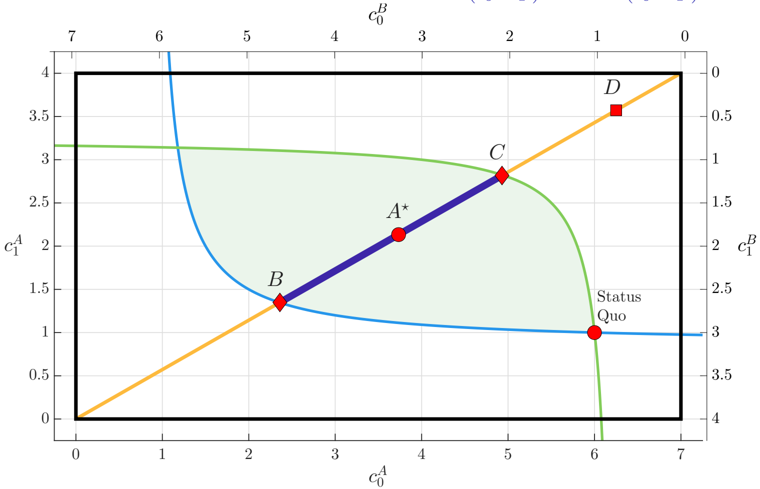

What are the gains (or losses?) from completing markets?

- **Remark:** many complete markets *alternatives*
  - Any point in the Pareto set → B very different from C or D!
  - What does "completing markets" mean? How to proceed?

Misallocation Measure

$$A \equiv \max \left\{ Z : \text{ exists } \boldsymbol{c} \in \underbrace{\mathcal{C}\left(\frac{1}{Z}\right)}_{\substack{\text{feasible} \\ \text{allocations}}} \text{ and } \underbrace{c_i}_{\text{alternative}} \succeq_i \underbrace{c_i(\underline{\theta})}_{\text{status quo}}, \forall i \right\}$$

- **This paper:** maximum uniform proportional contraction of consumption keeping <u>everyone</u> weakly indifferent to status quo

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- **This paper:** maximum uniform proportional contraction of consumption keeping everyone weakly indifferent to status quo
- *Proposition 1*: Equivalent to

$$A = \max_{\substack{\text{feasible}\\\text{allocations}}} \min_{\text{agents}} \left\{1 + \mathcal{E}^i\right\}$$

  - Lucas-style consumption-equivalent (isoelastic preferences)

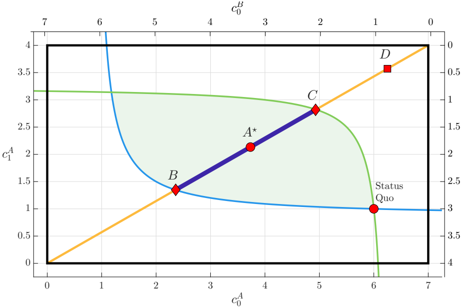
$$\mathcal{E}^i : \quad \underbrace{u\left(c_0^i\left(1+\mathcal{E}^i\right)\right) + u\left(c_1^i\left(1+\mathcal{E}^i\right)\right)}_{\text{compensated status quo}} = \underbrace{u\left(\tilde{c}_0^i\right) + u\left(\tilde{c}_1^i\right)}_{\text{alternative (complete markets)}}$$

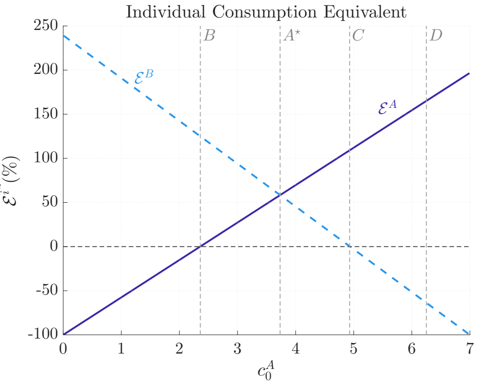
- **Remark:** Why is there a $\min_i \{\cdot\}$? Rawlsian in consumption-equivalents
  - Everyone weakly better off → Least favored

Illustration

$A = \max_{\substack{\text{feasible} \\ \text{allocations}}} \min_{\text{agents}} \left\{ 1 + \mathcal{E}^i \right\}$

1. Compute Lucas-$\mathcal{E}^i$ at each allocation $\forall i$





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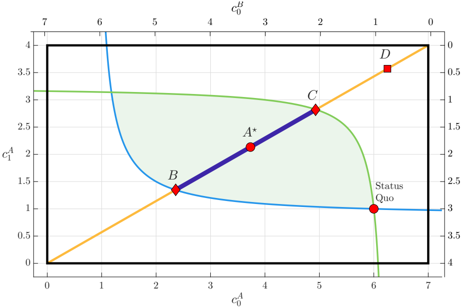

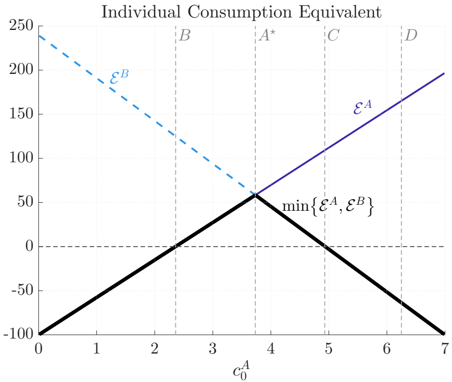

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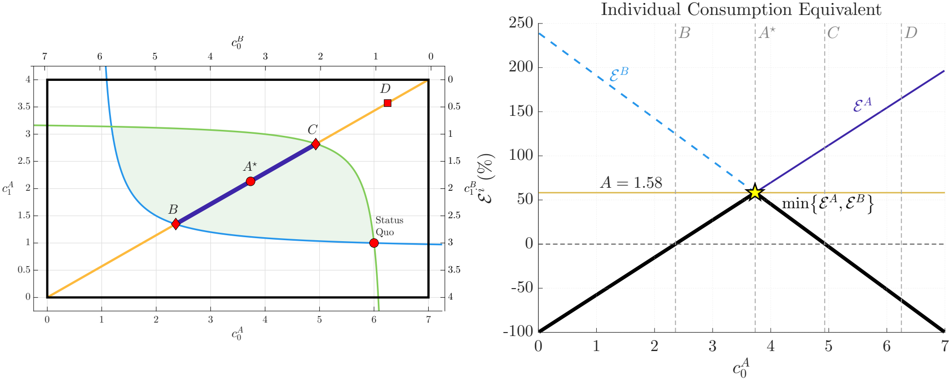
1. Compute Lucas-$\mathcal{E}^i$ at each allocation $\forall i \rightarrow \min_i \left\{\mathcal{E}^i\right\}$
2. Maximum over allocations: $\boxed{A = 1.58} \rightarrow (c_0^{A\star}, c_1^{A\star}) = (3.73, 2.13)$



- **Remark:** right panel → "Lucas-histogram"

Some Observations

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#1 Why not just report the distribution of $\mathcal{E}^i$ (Lucas-histogram)?

- Common and very informative

  "Completeness gains range from $\{110\%, 0\%\}$ to $\{0\%, 125\%\}$" vs. 58%

  - Invariant to preference-preserving transformations
  - Easy to identify Pareto improvements
- A only adds interpretation $\rightarrow \min_i \{\cdot\}$ drops information

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#2 Why insisting on a single number? To rank allocations?

"The allocation that supports A is not the optimal allocation. It is just an analytical device for measuring misallocation"

- But value comes from allocation $A^\star$
- *Suggestion*: report implicit allocation in applications

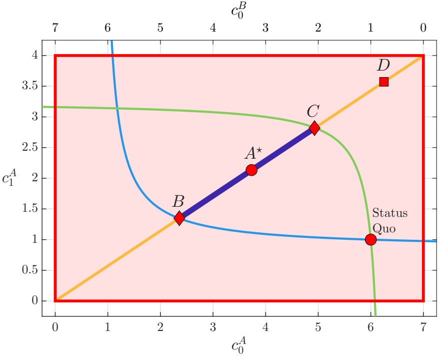
If eliminating frictions leads to allocation B (or C, or D) ...

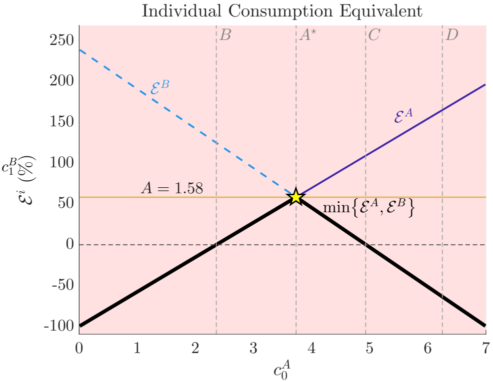
why should the value originate from $A^\star$?

Restrictions in Alternative Set

Remark #1: How about partially completing markets?

1. What if alternative set does not include the entire Pareto set?
   - What if only alternative allocation is $C \rightarrow$ then $A = 1 \rightarrow$ no gains





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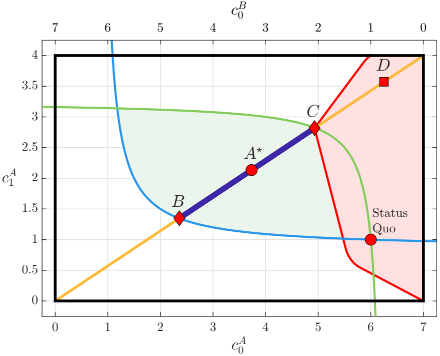

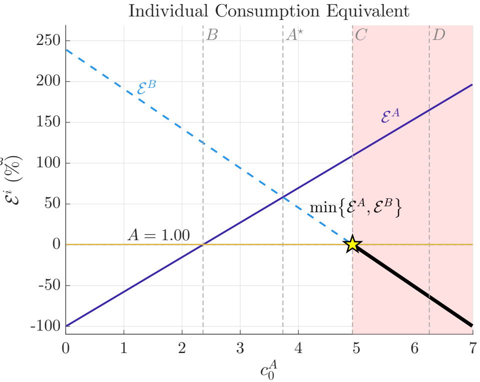

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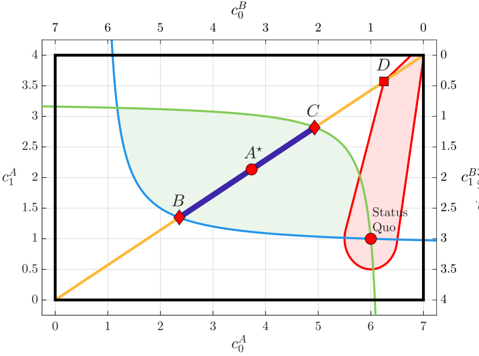
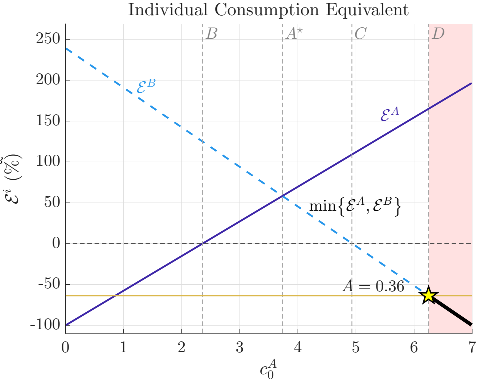
     - What if $D \rightarrow$ then $A = 36\% < 1$ (!) $\rightarrow$ losses





Measure solely driven by least-favored $\rightarrow$ it's the $\min_i \{\cdot\}$ (!)

Restrictions in Alternative Set

2. What if the alternative set does not include the Pareto set at all?
   - Answer hinges on available transfers across agents LINK
   - International transfers $\rightarrow$ impossible or very hard

Remark #2: What if there are other frictions (e.g. production)?

- Similar considerations
  No production distortions in this paper

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   SWF $\rightarrow$ global ranking invariant to status quo
   - Challenge: utility units + interpersonal comparisons
   - Solution: individual weights +

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Davila/Schaab JPE 2025

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Davila/Schaab JPE 2025

   - Bonus: decomposition $\rightarrow$ origins of welfare/efficiency gains
     - Risk-Sharing + Intertemporal-Sharing
     - Production Efficiency + Exchange Efficiency
   - Explaining assessments $\rightarrow$ particularly valuable in rich models

     Edgeworth Box $\rightarrow$ gains are 100% from intertemporal-sharing

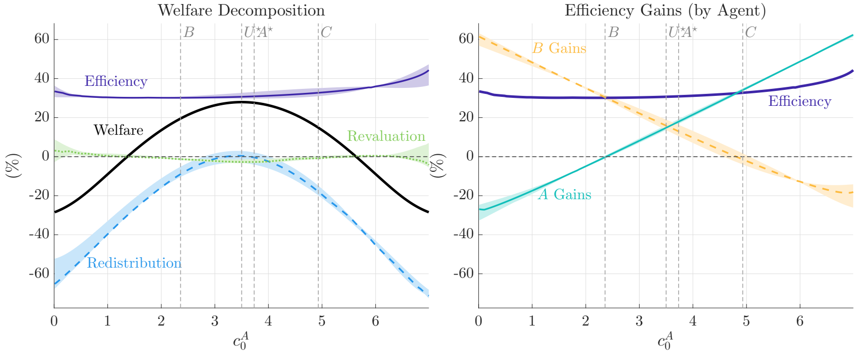
Remark #3: What explains/justifies/drives A?

Welfare Decomposition: Utilitarian SWF

- How would I approach this problem?

$$\underbrace{\sum_i \alpha^i \sum_t u^i\left(c_t^i\left(\underline{\theta}\right) + \frac{W^\lambda\left(\theta\right)}{I} c_t\left(\underline{\theta}\right)\right)}_{\text{compensated status quo}} = \underbrace{\sum_i \alpha^i \sum_t u^i\left(c_t^i\left(\theta\right)\right)}_{\text{alternative}}$$

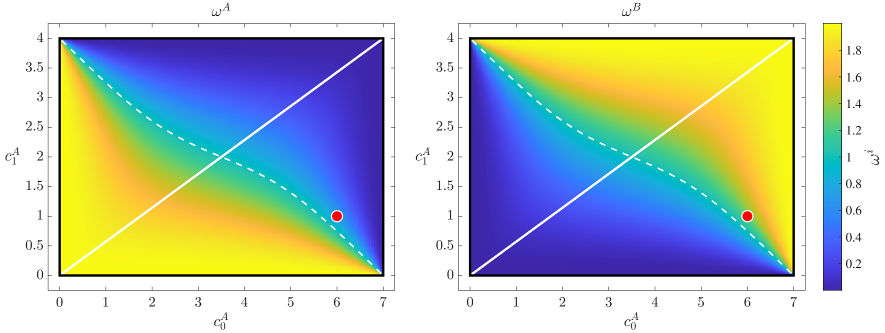
- Related but different from "veil-of-ignorance" in the paper



- Efficiency: invariant to
  - i) preference-preserving transformations
  - ii) SWF

Individual Weights: Utilitarian SWF

- How much does a utilitarian planner care about different agents?



$$\omega^i = \frac{\lambda^i}{\sum_i \lambda^i} \text{ with } \lambda^i = u'\left(c_0^i\right) + u'\left(c_1^i\right)$$

Comments on Applications

Applied Comments

#1 Insuring idiosyncratic risks **more valuable** than insuring **aggregate** risks

- Well understood $\rightarrow$ many contributions following Lucas 87
- Report Lucas histogram

#2 Implementation based on **expenditure shares**

- We need to look at financial market data
- Gains from financial integration $\rightarrow$ directly captured by differences in interest rates and (shadow) state prices

  Especially with production efficiency

#3 International results driven by **fast-growing economies**

- Full sample (32 countries): $\log A \approx 5.2\%$
  - Excluding China: $\log A \approx 1.9\%$
  - Excluding China, India, Korea, Indonesia: $\log A \approx 1.0\%$
- Decomposing with all countries vs. comparing "different universes"

Applied Comments

#4 Paper focused **identical isoelastic** preferences

- Evidence for Heterogeneous + Epstein-Zin preferences

Table 4: Cross-Sectional Distributions of Estimated Preference Parameters and Group Financial Characteristics

	Mean	Median	Std. Dev.	10%	25%	75%	90%
RRA	7.74	7.50	0.97	6.50	7.00	8.00	9.00
TPR (%)	6.81	4.08	7.31	1.01	2.02	6.19	22.31
EIS	2.01	0.70	3.17	0.02	0.20	2.50	5.00
Average RS	0.65	0.63	0.17	0.45	0.53	0.75	0.90
Initial WY	4.28	3.08	3.89	0.83	1.63	5.25	9.18
Growth of WY	1.08	1.07	0.05	1.03	1.05	1.10	1.14

The Cross-Section of Household Preferences: Calvet, Campbell, Gomes, Sodini 2022

- Assuming away heterogeneity → upward bias in welfare gains

#5 Second-order **approximation at complete markets**, not status quo

- Remarkably accurate → interesting

Conclusion

- Sensible measure of gains from completeness ...

  when alternative includes *entire* Pareto set
- Is it preferable to
  1. Lucas-histograms
  2. Decomposing SWFs?
- For partial financial liberalizations
  - Measure solely driven by least favored

    Rawlsian in consumption-equivalents

Thank you for your attention