CHALLENGES TO INFERRING PREFERENCES FROM CHOICES

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UNDERSTANDING PREFERENCES

- Work in decision theory seeks to understand the nature of preferences
  - Using theory and experiments
  - Positive and normative analysis

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Choices → preferences → welfare/policy/etc.

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Choices $\leftrightsquigarrow$ preferences $\rightarrow$ welfare/policy/etc.

Choices ⇜⇝ preferences

1. "Mistakes" (NIELSEN & REHBECK, 2022)
   - Elicit "meta-preferences" (e.g., do you *want* to be transitive?)
   - Additional information individuals can use to properly characterize a decision

BIG PICTURE OVERVIEW

- Ask subjects which of several axioms they want choices to satisfy ("meta-preference")
  - Data that isn't typically elicited

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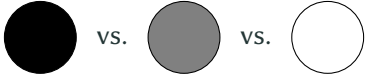
  - Data that isn't typically elicited
- Present opportunities to violate the axiom
- Allow subjects to revisit choices when they disagree with axiom preferences
  - Do choices change?
  - What does this imply of initial or revised choices?

ELICITING AXIOM PREFERENCES

Options:



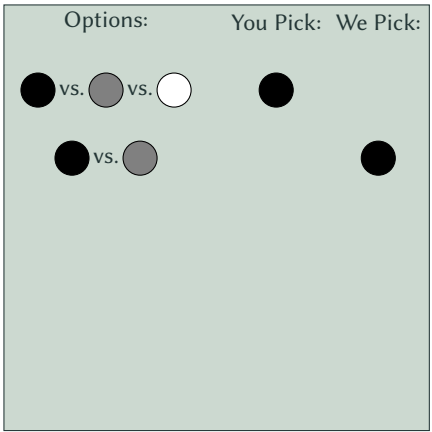
You Pick:

We Pick:

Yes, I want to use this rule

No, I will decide myself

RECONCILIATION



Black:
80% chance of $0
20% chance of $10

Grey:
60% chance of $0
40% chance of $6

White:
80% chance of $0
20% chance of $7

Black:
80% chance of $0
20% chance of $10

Grey:
60% chance of $0
40% chance of $6

RESULTS

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⇒ eliciting “meta-preference” data can enrich understanding of preferences and choices

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Ongoing: Using “meta-preference” data to understand time-inconsistent choices, how individuals characterize and learn from inconsistency, etc.

Choices ⇜ preferences

1. "Mistakes" (NIELSEN & REHBECK, 2022)
   - Allow individuals to reveal "meta-preferences"
   - Additional information individuals can use to properly characterize a decision
2. Incompleteness (NIELSEN & RIGOTTI, 2023)
   - Allow individuals to reveal when they are unsure of a choice
   - Individuals define their own "welfare-relevant domain"

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- Our paper: Just ask people!
- What we do:
  - Elicit choices under uncertainty
  - Tell subjects that we'll use these choices to estimate their preferences and will make inference based on their estimated preferences
  - Subjects can respond with
    - Strict preference
    - Indifference
    - "I don't know" (incomplete preference) → not used in estimation

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⇒ Individuals are aware of their incompleteness and can reveal this, leading to more reliable preference estimation

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Ongoing: Understanding how individuals prefer "recommendations" constructed from forced choice vs. allowing for incompleteness

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Ongoing: Using subjective confidence data to understand when individuals are properly characterizing decisions

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3. Noise (MCGRANAGHAN ET AL., 2022 & 2023)
   - Different elicitation tools that enable robust inference when preferences are implemented with noise

TESTING EXPECTED UTILITY

- Canonical tests of EU rely on comparing choices in *paired* decisions
  - Common ratio effect
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  - Common ratio effect
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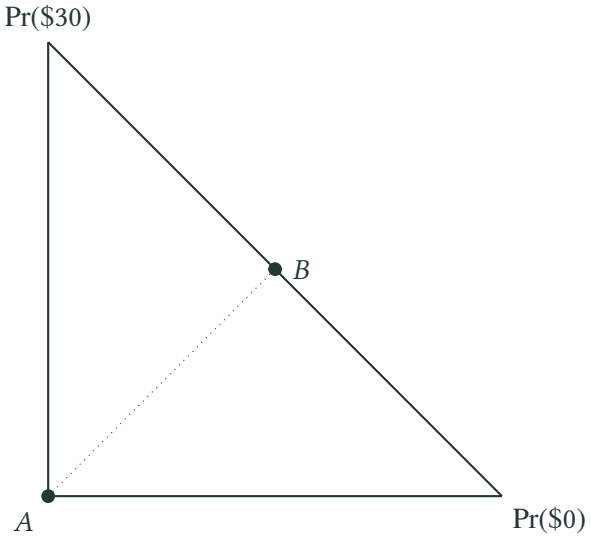
- We show paired choices are subject to *biased* inference if preferences are implemented with noise

CLOSER TO INDIFFERENCE



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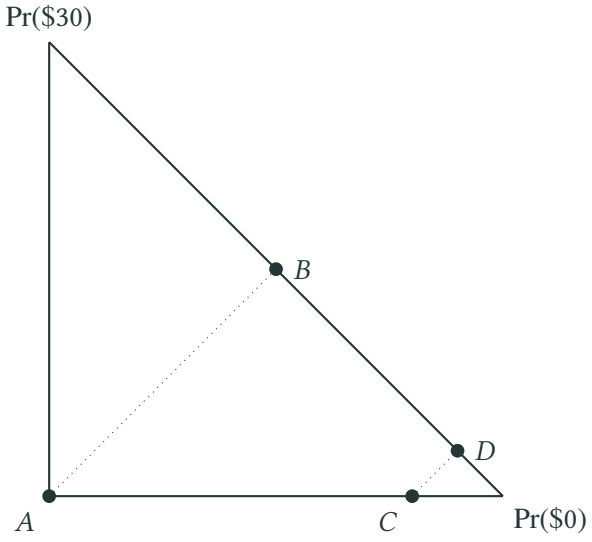

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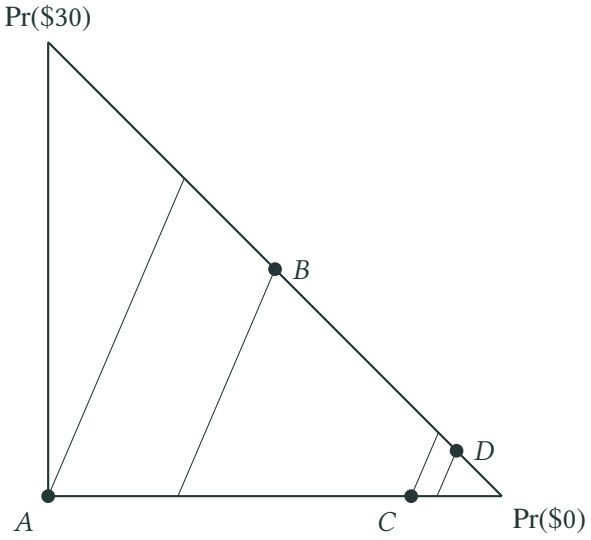

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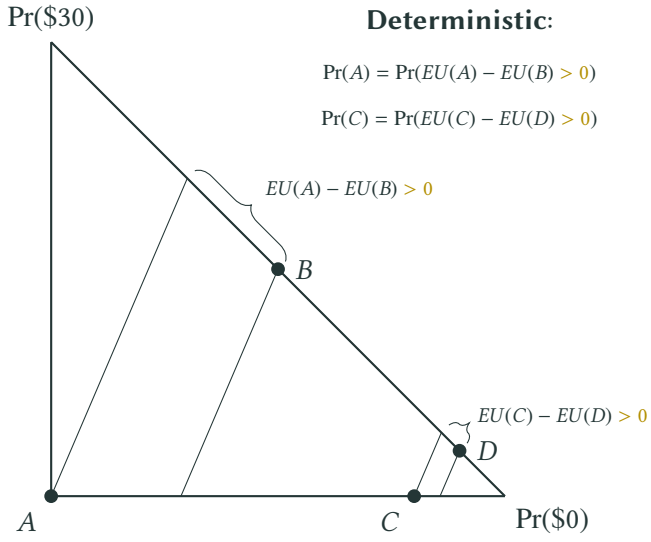

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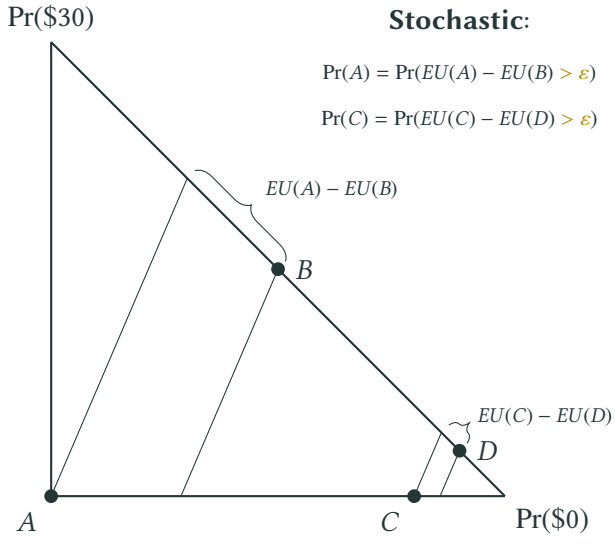
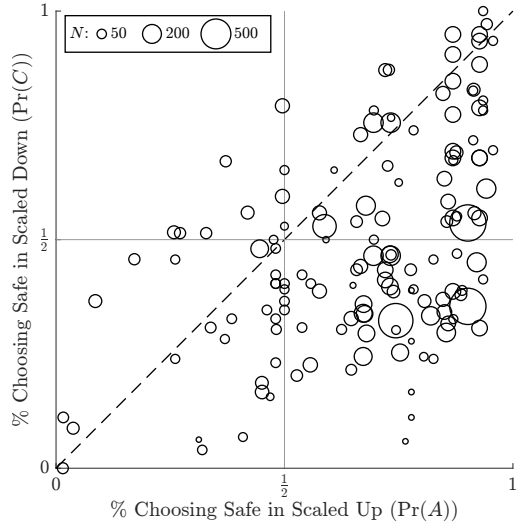


DATA FROM BLAVATSKYY ET AL., 2020



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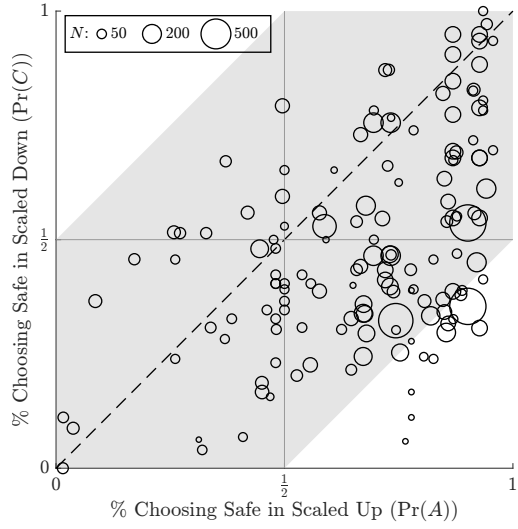
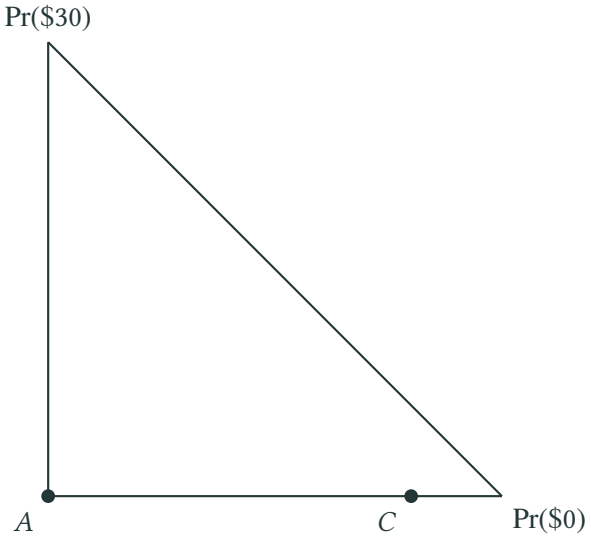


THE SOLUTION: ELICIT VALUATIONS



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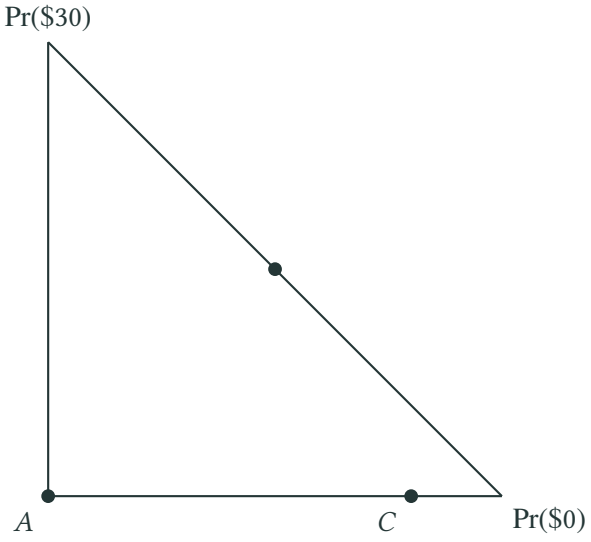

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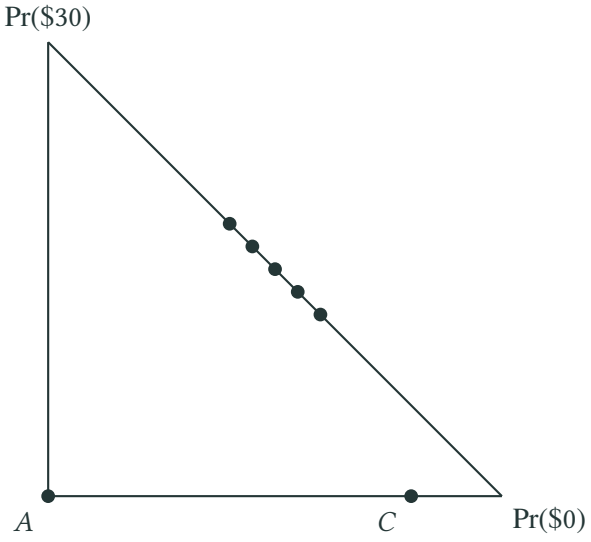

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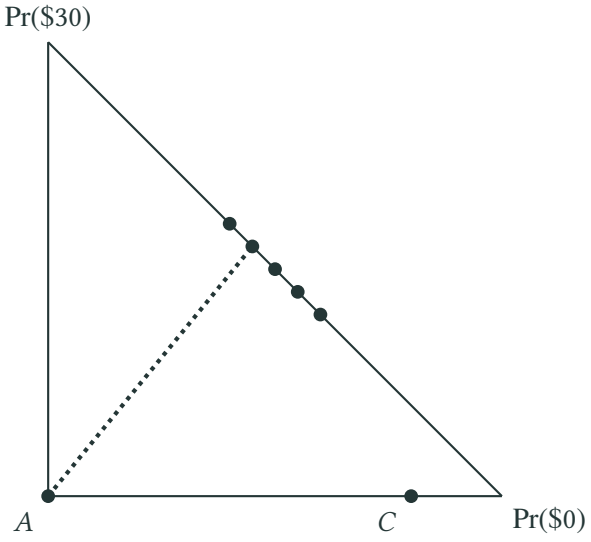

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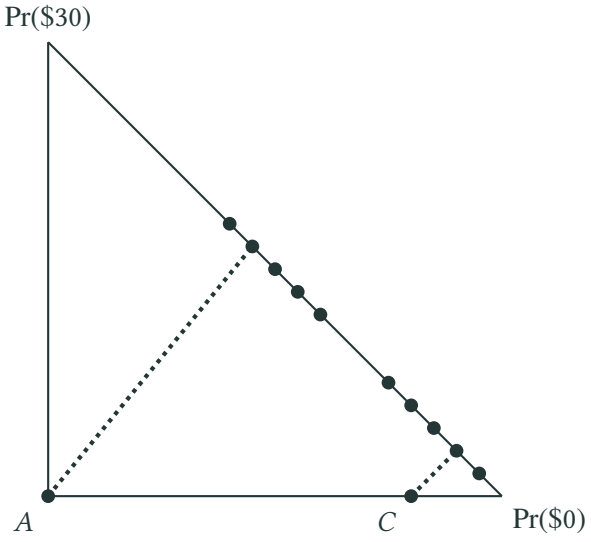

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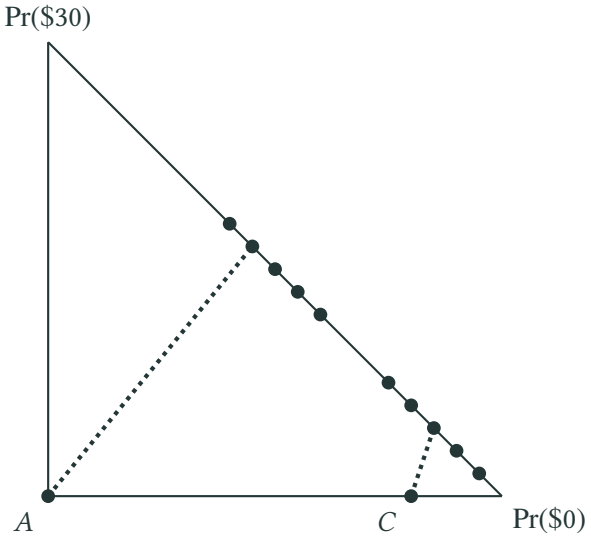

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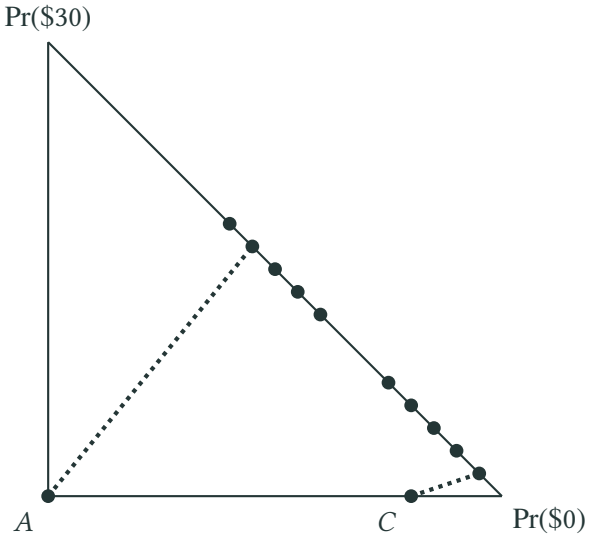

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$\Rightarrow$ Accounting for noise reveals quite a different understanding on the shape of preferences

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Ongoing: Understanding other domains in which noise biases inference from standard tests and how to correct for this

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Not immune to other challenges that behavioral welfare analysis faces! But provides useful additional data.

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A lot of open space to bring tools, insights, and methodologies from decision theory into policy work