Who is (More) Rational?

Choi, Kariv, Muller, and Silverman

Miguel Acosta[2]

September 20, 2017

[2] A modification of Guy Adrior's slides. . . to suit my tastes.

Questions

- How can we *accurately* measure rationality?
- How does rationality vary socioeconomically?
- (How does rationality affect wealth?)

Issues in Measuring Decision Quality

- Problem 1 - Identification: Preferences over objects *depend* on many things (unobserved incentives or constraints, different information or beliefs).
- Problem 2 - Measurement: Hard to isolate decision-making quality (clear and non-confounded decisions)

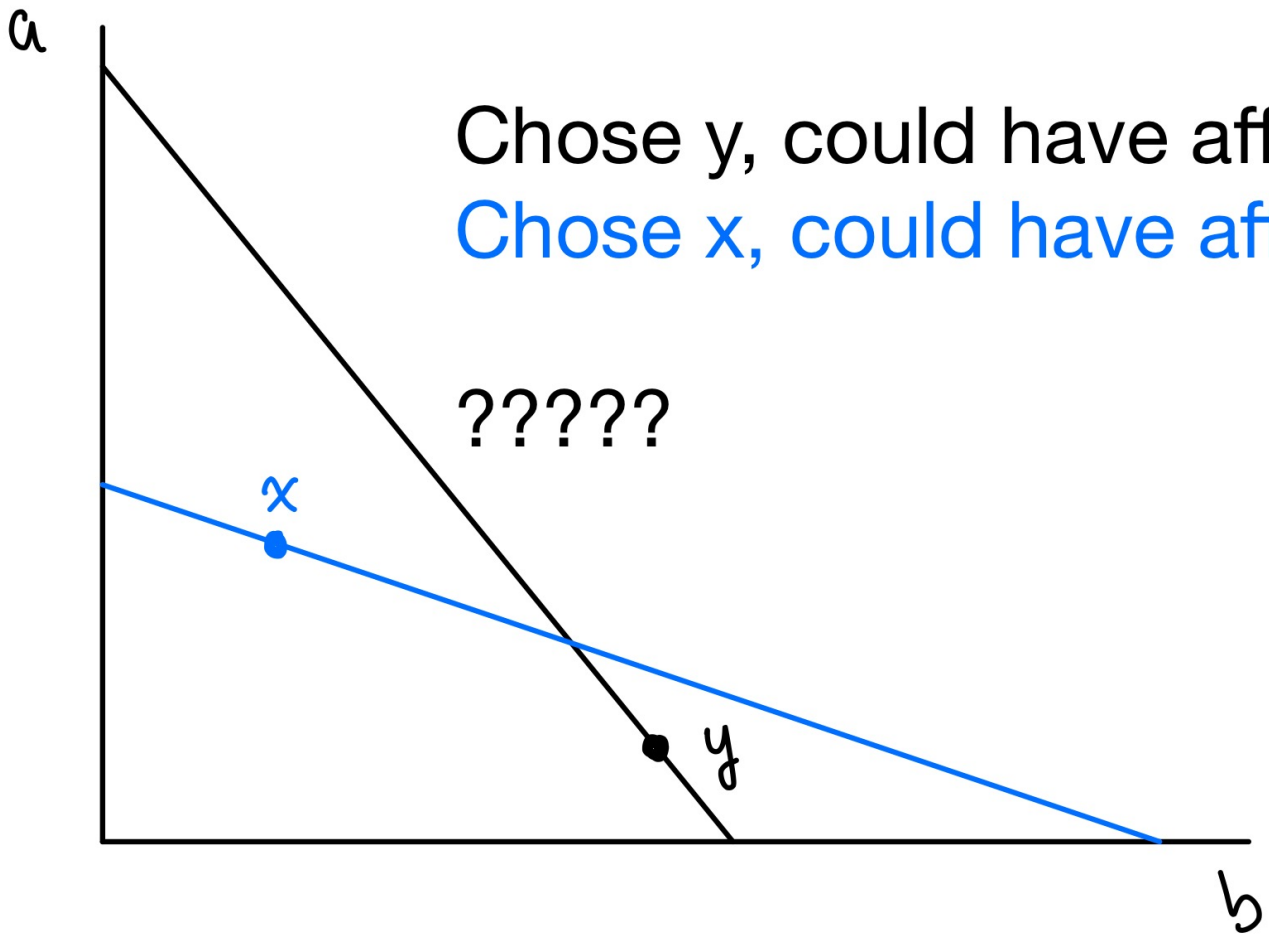
Experimental Setting

- Data:
  - use CentERPanel, an online, weekly, and stratified survey of 2000+ households and 5000+ members.
  - Representative sample of Dutch-speaking population in Netherlands - 1182 members participated
- Design:
  - 25 rounds.
  - Each subject picks from an allocation on a two-dimensional budget line in each round
  - Each budget line was selected independently for each round
  - Subjects received the payoffs (converted into Euros) from one randomly selected round as payoff for the experiment

Decision-Making Quality

- Afriat's Critical Cost Efficiency Index (CCEI)
- Violations of first-order stochastic dominance

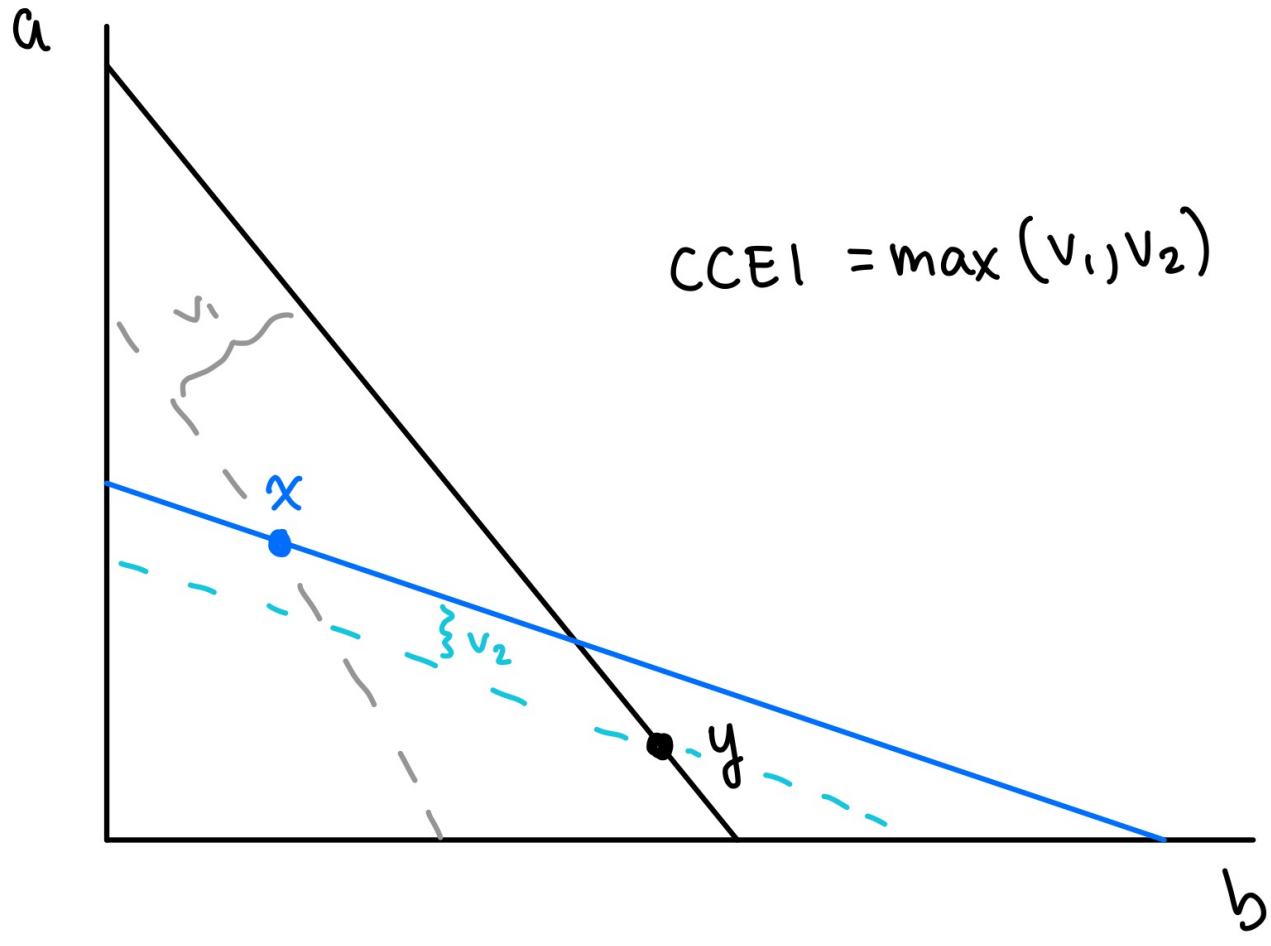
Not GARPy!



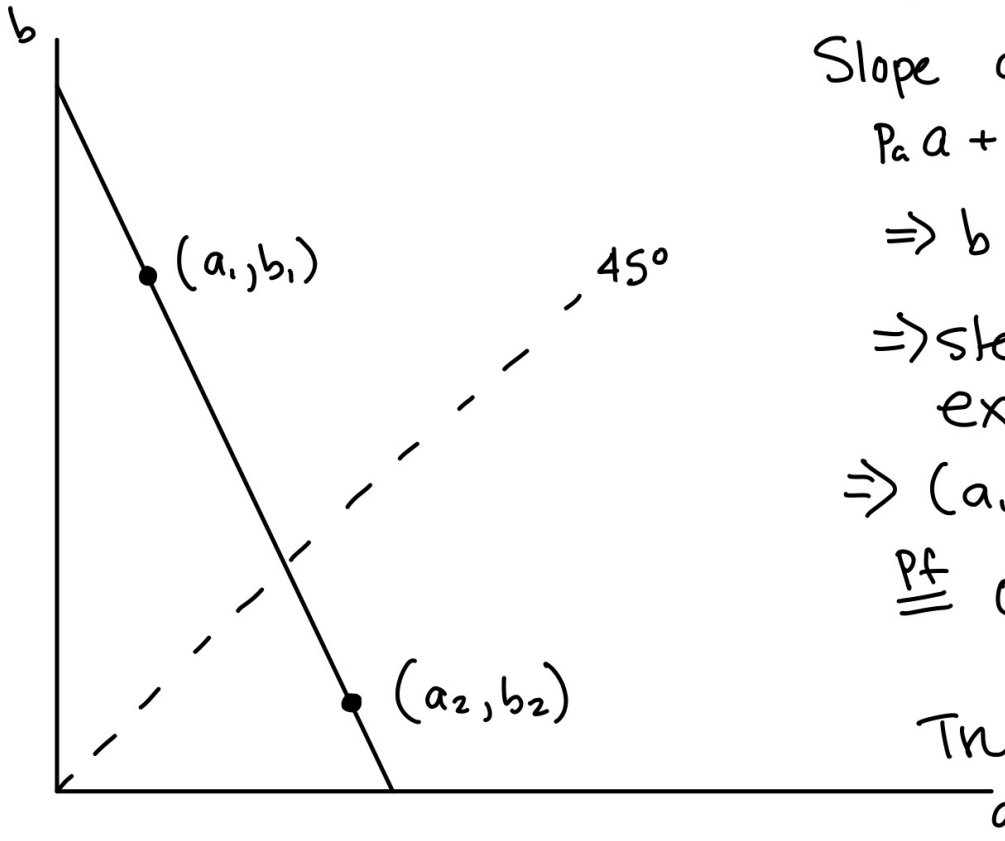
Chose y, could have afforded x

Chose x, could have afforded y

?????



Average: 0.881



$F \succeq_{FOSD} G \equiv U(F) \geq U(G)$

Slope of line

$p_a a + p_b b = 1$

$\Rightarrow b = \frac{1}{p_b} - \frac{p_a}{p_b} a$

$\Rightarrow$ steep means $\underline{a}$ expensive ($p_a > p_b$)

$\Rightarrow (a_1, b_1) \succeq_{FOSD} (a_2, b_2)$

Pf $\equiv 0.5[a_1(1-p_a) + b_1(1-p_b)]$

$\geq 0.5[a_2(1-p_a) + b_2(1-p_b)]$

Trust me. □

Average: 0.733

Decision-making Quality and Socioeconomics

OLS: CCEI $= f$(characteristics)

Female	$\downarrow$
Age	$\downarrow$
Education	$\uparrow$
Income	$\uparrow$
Not retired	$\uparrow$ (housework $\uparrow\uparrow$)
Partnered	$\downarrow$

Wealth Differentials and Decision-Making Ability

- Question: Do higher CCEI scores correspond to better outcomes in the real world?
- Focus on household wealth as the real-world economic outcome of interest.
- Establish the correlation between CCEI and household wealth by estimating regressions of the log of household wealth on socioeconomic variables, log of household contemporaneous income, and consistency score.
- Find a positive coefficient on CCEI (5% level).

A Causal Interpretation

- Thus far find an economically large and statistically significant correlation between CCEI score and household wealth, but want a causal interpretation
- Consider robustness of correlation with respect to the inclusion of additional controls for unobserved constraints, preferences, and beliefs to establish causality
- Establish robustness to income constraints by allowing income to enter into regression as a cubic, ruling out measurement error of contemporaneous income, and considering alternative approaches for proxying lifetime income.
- Find that the inclusion of these possibly-confounding variable does not change point estimate by much.

Very small criticisms

- Not causal (robustness?)
- Survey seems confusing at first glance

Conclusion

- There is heterogeneity in decision-making quality
- These differences in decision-making possibly explain differences in wealth