

Econ 311: Behavioral and Experimental Economics

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Introduction to Social Preferences

Motivation

- ▶ The standard model typically assumes that only one's own payoff/consumption enters one's utility function
- ▶ Yet the observational evidence otherwise is massive:
 - ▶ Charitable giving: over \$300 billion annually by more than 100 million individuals
 - ▶ Volunteering: nearly 8 billion hours annually by more than 60 million individuals
 - ▶ SNAP program: benefits totaling over \$70 billion distributed to 45 million people in US
 - ▶ All statistics annual averages for USA

Social Preferences

- ▶ If the outcomes or beliefs of others affect an agents' utility in any way, we say that agent has *social preferences*
- ▶ We have two kinds of social preferences:
 - ▶ *Distributional preferences*: the agent cares only about the final outcome, ie who has what
 - ▶ *Reciprocal preferences*: the agent cares additionally about the path we took to arrive at an outcome
 - ▶ The same outcome can feel good or bad depending on context and reference points

Formalizing Social Preferences

- ▶ Assume there are 2 agents in the economy
- ▶ Agent i gets consumption x_i
- ▶ Preferences of agent 1 represented by utility $U_1(x_1, x_2)$
- ▶ Assume that budget constraint is $p_1x_1 + p_2x_2 = m$
- ▶ What does budget constraint look like?

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- ▶ What does budget constraint look like?
 - ▶ Straight line, downward sloping
 - ▶ If x_1 on horizontal axis, slope is $-\frac{p_1}{p_2}$

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- ▶ *Envy*: agent 1's utility decreases in agent 2's payoff
- ▶ *Selfish*: agent 1's utility does not depend on agent 2's payoff

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 - ▶ $x_1 = \frac{m}{p_1}$ and $x_2 = 0$
 - ▶ Spend all resources on own payoff

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 - ▶ Note that increasing payoff of "richer" agent cannot make agent 1 better off
- ▶ What is optimal allocation from agent 1's perspective?
 - ▶ $x_1 = x_2$, ie even split of resources
- ▶ Sometimes say that this type of agent demonstrates pure *inequality averse* preferences

Utilitarian Preferences

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 - ▶ Increased payoff to *either* agent makes player 1 equally more well off
- ▶ What is optimal allocation from agent 1's perspective?
 - ▶ Optimum allocation will be corner solution
 - ▶ Agent 1 will prefer to allocate all payoffs to whichever of x_1 and x_2 is cheaper
- ▶ Sometimes say that this type of agent demonstrates pure *social welfare* preferences

Fehr-Schmidt Difference-Aversion Preferences

- ▶ In general it is possible for someone to care both about inequality and about total welfare
- ▶ We have several different ways of writing this down
- ▶ One possibility: difference aversion preferences from Fehr and Schmidt (1999)

$$U(x_1, x_2) = \begin{cases} x_1 - \alpha(x_1 - x_2) & \text{if } x_1 > x_2 \\ x_1 - \beta(x_2 - x_1) & \text{if } x_1 \leq x_2 \end{cases}$$

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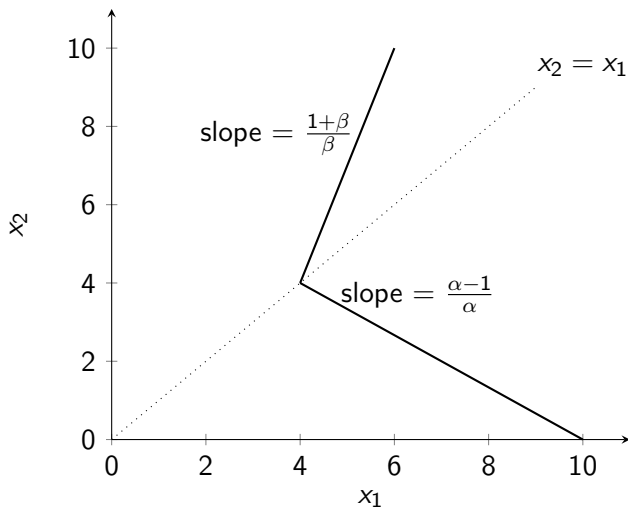
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- ▶ Interpretation:
 - ▶ Agent 1 dislikes inequality
 - ▶ But she dislikes it *more* when she is the one who has the smaller allocation

Indifference Curves for Fehr-Schmidt Model

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Evidence

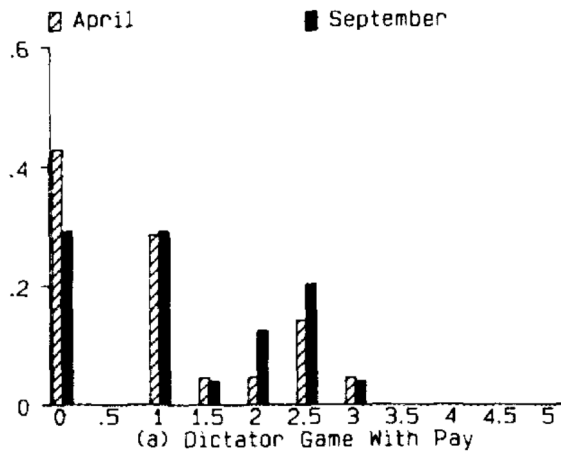
The Dictator Game

- ▶ Forsythe et al (1994)
- ▶ 48 students divided into pairs
- ▶ Each pair has one dictator and one recipient
- ▶ Dictator divide \$5 between themselves and their partner (recipient)
- ▶ This is the origin of the *dictator game*
- ▶ Note the budget set: $m = 5$, $p_1 = p_2 = 1$
- ▶ Predictions?

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- ▶ Predictions?
 - ▶ If people are totally selfish, dictators should keep everything

Forsythe et al (1994): Offers by Dictators



Dictator Game: Generalized Patterns

- ▶ Across numerous studies and populations, several patterns appear regularly in dictator games:
 - ▶ A minority of subjects are purely selfish
 - ▶ Offers between 0% and 30% of pie are common
 - ▶ Spike at 50% of pie
 - ▶ Rare to see allocations just above or below 50%
 - ▶ Offers significantly beyond 50% are essentially non-existent

Wanting to Appear Generous

- ▶ One potential confound with the dictator game design: experimenter can see which how much each dictator has given (if anything)
- ▶ Dictators may not actually be altruistic when completely anonymous, but want other people (including researcher) to think they are altruistic
- ▶ So how do we design an experiment where dictators are assured complete anonymity?

Double-Blind Dictator Experiment

- ▶ Run by Hoffman, McCabe, and Smith (1996)
- ▶ Ran sessions with 28 subjects
 - ▶ 14 proposers in room A
 - ▶ 14 receivers in room B
- ▶ 14 envelopes in room A
 - ▶ 12 have 10 \$1 bills and 10 pieces of paper similar in size to bill
 - ▶ 2 have just 20 pieces of paper
- ▶ Dictators are instructed to take an envelope, and leave just 10 items in it
 - ▶ Can be any combination of paper and dollar bills
- ▶ Envelopes are put in a box
- ▶ Experimenter comes in, takes box to other room, and hands out envelopes to the 14 receivers

Double-Blind Dictator Experiment: Results

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- ▶ Result in double-blind version?
 - ▶ 62% of dictators passed no money to receiver
 - ▶ So sizable fraction of subjects seem to be motivated by *image concerns*
- ▶ Experimental design question: What was the point of the 2 envelopes with only paper in them?

Generalizing the Dictator Game

- ▶ Very difficult to estimate preferences from just one decision
- ▶ We need to vary budget and prices to be able to learn about subject's utility functions
- ▶ Andreoni and Miller (2002) introduce the *generalized dictator game*
 - ▶ Now the dictator divides a fixed number of tokens
 - ▶ Number of tokens varies between rounds
 - ▶ Value of tokens to dictator and recipient also varies between rounds

Andreoni and Miller: Budget Sets

TABLE I
ALLOCATION CHOICES

Budget	Token Endowment	Hold Value	Pass Value	Relative Price of Giving	Average Tokens Passed
1	40	3	1	3	8.0
2	40	1	3	0.33	12.8
3	60	2	1	2	12.7
4	60	1	2	0.5	19.4
5	75	2	1	2	15.5
6	75	1	2	0.5	22.7
7	60	1	1	1	14.6
8	100	1	1	1	23.0
9 ^a	80	1	1	1	13.5
10 ^a	40	4	1	4	3.4
11 ^a	40	1	4	0.25	14.8

^a Were only used in session 5, others used in all sessions.

Rationality: The Weak Axiom

- ▶ Before we try to say which utility function people are maximizing, we must ask: "Is there any possible utility function at all that could explain these choices?"
- ▶ Suppose we observed X chosen over (ie *revealed preferred to*) Y from one budget set and Y chosen over X from another budget set
- ▶ Implies $X \succ Y$ and $Y \succ X$, a contradiction

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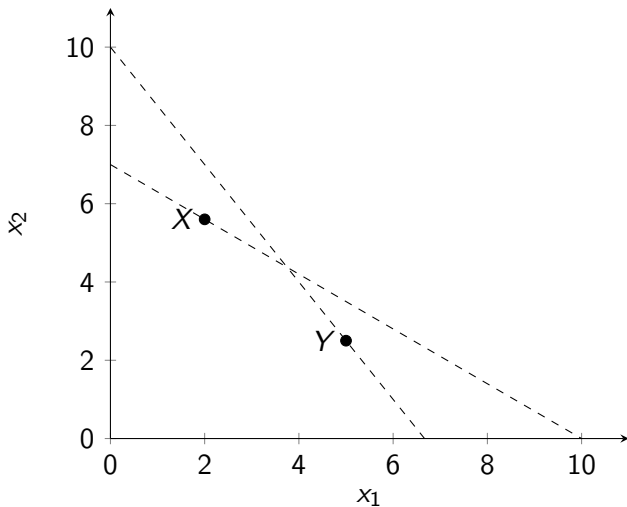
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Theorem

If WARP is violated, the observed behavior is not consistent with maximizing some utility function.

Visualizing WARP Violations

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 - ▶ But if we don't find a violation, we can't be sure if consumer is maximizing
- ▶ Additionally, it says nothing about cycles of inconsistencies

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- ▶ Additionally, it says nothing about cycles of inconsistencies
- ▶ Luckily we have another condition that addresses both of these issues

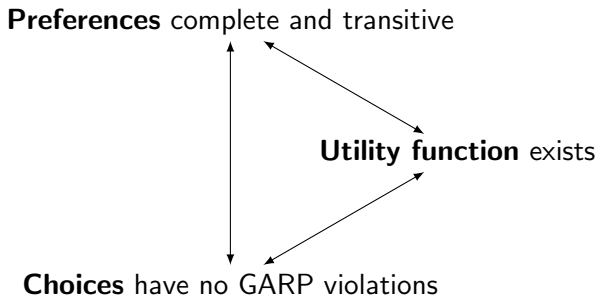
Definition

The *Generalized Axiom of Revealed Preference (GARP)* states that if X is revealed preferred (directly or indirectly) to Y , then Y cannot be strictly revealed preferred to X (directly or indirectly).

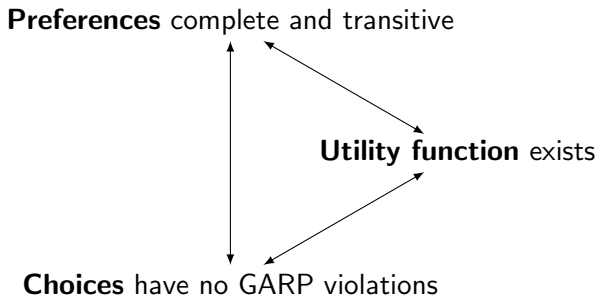
Theorem (Afriat, 1967)

For linear budget constraints, the observed behavior is consistent with maximizing some utility function if and only if the choices satisfy GARP.

Rationality: Three Equivalent Definitions



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- ▶ Rationality allows for many non-classical behaviors, eg:
 - ▶ Social preferences
 - ▶ Time inconsistency
 - ▶ Non-EU risk preferences

Andreoni and Miller: Results

- ▶ High degree of rationality
 - ▶ 90% subjects satisfy GARP exactly
 - ▶ Most of the remaining 10% only slightly deviated from GARP
 - ▶ Conclusion: 98% of subjects made choices that are consistent or nearly consistent with some utility function

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 - ▶ Conclusion: 98% of subjects made choices that are consistent or nearly consistent with some utility function
- ▶ Variety of utility functions present in the population
 - ▶ Now that we know subjects are optimizing a utility function, what is that function?
 - ▶ Selfish: 23% of subjects kept all their tokens
 - ▶ Utilitarian: 6% of subjects gave their tokens to the person (themselves or recipient) with higher conversion rate of tokens to dollars
 - ▶ Rawlsian: 14% of subjects always split tokens equally