Topic 3: Altruism, Fairness, and Social Preferences

EC 404: Behavioral Economics
Professor: Ben Bushong

April 7, 2022

The Standard Model: Pure Self Interest

The standard model: pure self interest.

- A person cares only about his or her own outcomes, and not at all about the outcomes of others.

A famous passage from Adam Smith (1776):

> *It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard for their own interest. We address ourselves not to their humanity, but to their self-love, and never talk to them of our necessities, but of their advantage.*

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A Motivating Quote

A not-as-famous passage from Adam Smith (1759):

> *No matter how selfish you think man is, it is obvious that there are some principles in his nature that give him an interest in the welfare of others, and make their happiness necessary to him, even if he gets nothing from it but the pleasure of seeing it.*

Years before writing *The Wealth of Nations*, Adam Smith had concerned himself with these ideas. Then the lay dormant for a few generations.

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A Motivating Anecdote

A passage from Robin Dawes and Richard Thaler (1988):

> *In the rural areas around Ithaca it is common for farmers to put some fresh produce on the table by the road. There is a cash box on the table, and customers are expected to put money in the box in return for the vegetables they take. The box has just a small slit, so money can only be put in, not taken out. Also, the box is attached to the table, so no one can (easily) make off with the money. We think that the farmers have just about the right model of human nature. They feel that enough people will volunteer to pay for the fresh corn to make it worthwhile to put it out there. The farmers also know that if it were easy enough to take the money, someone would do so.*

An Overview of the Literature

Note: The literature on alternatives to pure self-interest is almost entirely an experimentally based literature.

- Begin with experiments that contradict pure self-interest.
- Use these experiments to motivate alternative theories.
- Develop new experiments to test these alternative theories.
- Use these new experiments to modify alternative theories.
- And so on....

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Experimental Evidence that Contradicts Pure Self Interest

We'll focus on evidence from three experimental games:

- Prisoners' Dilemma Games
- Dictator Games
- Ultimatum Games

For all studies:

- anonymous interactions
- "one-shot" interactions
- typically for real money

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Prisoners' Dilemma Games

An example of a Prisoners' Dilemma Game:

	C	D
C	$3, 3$	$0, 4$
D	$4, 0$	$1, 1$

Key feature: (C, C) maximizes social surplus, but D is a dominant strategy for each player.

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Prisoners' Dilemma Games

In Prisoners' Dilemma Games:

- Pure self interest implies that people should choose D.
- In experiments, it is not uncommon for people to choose C.
- For instance, in Cooper *et al* (*GEB* 1996), cooperation rates are about 30%.

Note two other features of data:

- There is a great deal of heterogeneity — some people cooperate a lot, others cooperate very little.
- Subjects play 20 rounds with new opponents, and as time passes and they get feedback on earlier games, people cooperate less.

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Dictator Games

Dictator Games:

- There is a pie of size P.
- Player 1 (the dictator) offers a share $s \in [0, 1]$.
- Payoffs are $x_1 = (1 - s) P$ and $x_2 = sP$.

In Dictator Games:

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- There is a pie of size P.
- Player 1 (the proposer) offers a share $s \in [0, 1]$.
- Player 2 (the responder) then accepts or rejects this offer.
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In Ultimatum Games:

- Pure self interest implies that Player 2 should accept any $s > 0$, and so Player 1 should choose the smallest positive s (and perhaps $s = 0$).
- In experiments, it is not uncommon for Player 1's to choose $s >> 0$ and for Player 2's to reject low offers.
- For instance, Fehr and Schmidt (*QJE* 1999) survey 11 prior experiments, and conclude that:
  - (i) Player 1's virtually never choose $s > 0.5$;
  - (ii) The vast majority of Player 1's choose an s between 0.4 and 0.5;
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A Framework for Social Preferences

Let $\mathbf{x} = (x_1, x_2)$ be a vector of material payoffs.

- x_1 is player 1's material payoff.
- x_2 is player 2's material payoff.

Pure self interest: Player 1's preferences are $u^1(x_1)$.

Social preferences: Player 1's preferences are $u^1(x_1, x_2)$.

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More generally, let $\mathbf{x} = (x_1, x_2, ..., x_N)$ be a vector of material payoffs.

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Definition: A person exhibits *simple altruism* if her utility is increasing in other people's material payoffs (i.e., she likes other people's material payoffs to increase).

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$$u^1(x_1, x_2) = x_1 + \phi x_2 \qquad \text{for some } \phi > 0.$$

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Reminder: The Prisoners' Dilemma is:

	C	D
C	$3, 3$	$0, 4$
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Because choosing C rather than D increases the other player's material payoff, simple altruism militates in favor of a person choosing C.

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Consider the following idea (proposed independently by Fehr & Schmidt (1999) and Bolton & Ockenfels (2000)):

Definition: A person exhibits *inequity aversion* (aka *difference aversion*) if her utility is decreasing in material-payoff differences (i.e., she likes reductions in material-payoff differences).

A simple model (Fehr-Schmidt formulation):

$$u^1(x_1, x_2) = \begin{cases} x_1 - \alpha(x_2 - x_1) & \text{if } x_1 \leq x_2 \\ x_1 - \beta(x_1 - x_2) & \text{if } x_1 \geq x_2 \end{cases}$$

where $0 \leq \beta < 1$ and $\alpha \geq \beta$.

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Summarizing our analysis of inequity aversion:

- Inequity aversion can indeed explain experimental results in the Prisoners' Dilemma, Dictator Games, and Ultimatum Games (and several other commonly studied games).

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A Problem with Inequity Aversion

Are people as destructive as inequity aversion suggests?

More recent research suggests not.
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Some simple dictator-game experiments from Charness & Rabin (2002):

(1) Choose between

$(400, 400)$	$(400, 750)$	[$N = 26$ (Berkeley)]
30 %	70%	

(2) Choose between

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Andreoni and Miller (*ECTA* 2002) studied modified dictator games:

- Player 1 asked to divide N tokens between Player 1 and Player 2.
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(i) Pure self interest: maximize own payoff.

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- Here, keep all tokens for yourself.

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Table 3 — Classification of Subjects (176 students)

Utility Function	Strong Fit	Weak Fit
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Adapted from Charness & Rabin (2002)
Definition: A person exhibits *social-welfare preferences* if her utility is increasing in a social-welfare function (i.e., she likes higher "social welfare").

A simple formulation:

$$u^1(x_1, x_2) \; = \; x_1 \; + \; \lambda * W(x_1, x_2) \qquad \text{for some } \lambda > 0.$$

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A Problem with Social-Welfare Preferences

We've noted two types of social preferences: constructive (all three on previous screen) and destructive (inequity aversion).

With constructive social concerns, how can we explain rejections in the Ultimatum Game?

An answer: "Intentions" — how we got there matters.

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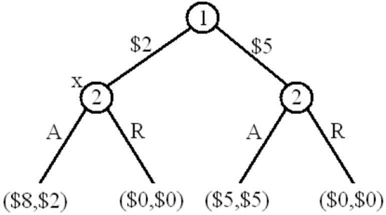
A Motivating Story

A motivating story from Robert Frank (1994):

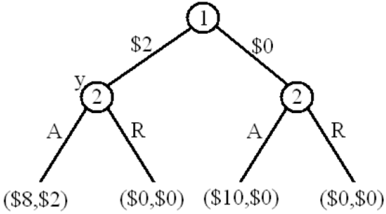
> *There is an often-told story of a boy who found two ripe apples as he was walking home from school with a friend. He kept the larger one for himself, and gave the smaller one to his friend. "It wasn't fair to keep the larger one for yourself", the friend replied. "What would you have done?" the first boy asked. "I'd have given you the larger one and kept the smaller one for myself," said the friend. To which the first boy responded, "Well, we each got what you wanted, so what are you complaining about?"*

Some Motivating Hypothetical Examples

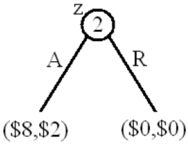
Game 1



Game 2



Game 3



Some Evidence from Blount (OBHDP 1995)

Consider two versions of the "Ultimatum Game":

Version 1:

- Player 1 offers a share

$$s \in \{\$0.00, \$0.50, \$1.00, ..., \$9.50, \$10.00\}$$

- Player 2 then accepts or rejects this offer.
- If Player 2 accepts, payoffs are $x_1 = 10 - s$ and $x_2 = s$; otherwise $x_1 = x_2 = 0$.

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Results for Version 1 (where Player 1 chooses the share):

- Only 29% accept ($9.50, $0.50).
- Only 41% accept ($8.00, $2.00).
- Only 64% accept ($6.00, $4.00).

Results for Version 2 (where a computer chooses the share):

- 80% accept ($9.50, $0.50).
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Exactly how do intentions matter?

An often discussed motive is “reciprocity”:

- *Reciprocity* (aka *reciprocal altruism*): You are motivated to be kind to those who are kind to you, and you are motivated to be unkind to those who are unkind to you (and you trade off these motivations against material payoffs).

For instance, in the ultimatum game, making a low offer is an unkind act, and so if I'm a reciprocal altruist I'll be motivated to be unkind back, and hence I might reject.

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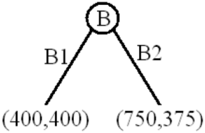

[51%] **[49%]**

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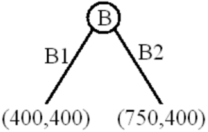

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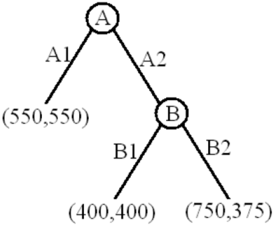

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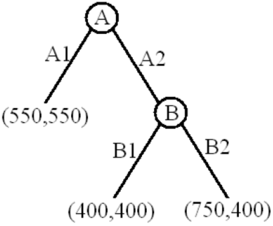

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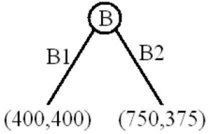

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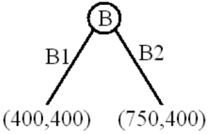

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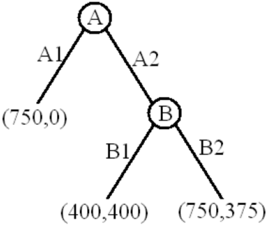

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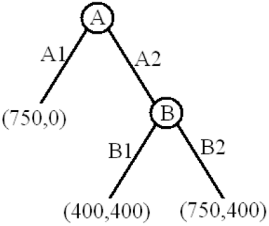

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- Standard Dictator Game: Player 1 is given \$10. Then Player 1 is given the opportunity to share some with Player 2 (in \$1 increments).
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- Bully Dictator Game: Player 1 and Player 2 are each given \$5. Then Player 1 is given the opportunity to either (i) share some of her \$5 with Player 2 or (ii) take some of Player 2's \$5 (in \$1 increments).

Note: In terms of final payoffs, these games are identical — they both involve Player 1 choosing how to allocate \$10 between Player 1 and Player 2 (in \$1 increments).

Some Evidence from Krupke & Weber (JEEA 2013)

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Consider two slightly different-er versions of a "Dictator Game":

- Standard Dictator Game: Player 1 is given \$10. Then Player 1 is given the opportunity to share some with Player 2 (in \$1 increments).
- Dictator Game with Sorting: First, Player 1 decides whether to (i) get \$10 vs. (ii) play a split-\$10 dictator game. If Player 1 chooses option (i), the game ends. If Player 1 chooses option (ii), then Player 1 is given \$10 and given the opportunity to share some with Player 2 (in \$1 increments).

Note: In terms of final payoffs, these games are identical — they both involve Player 1 choosing how to allocate \$10 between Player 1 and Player 2 (in \$1 increments).

But also note: In the second game, there are two ways to choose (\$10,\$0).

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Results from Lazeer, Malmendier & Weber (2012)

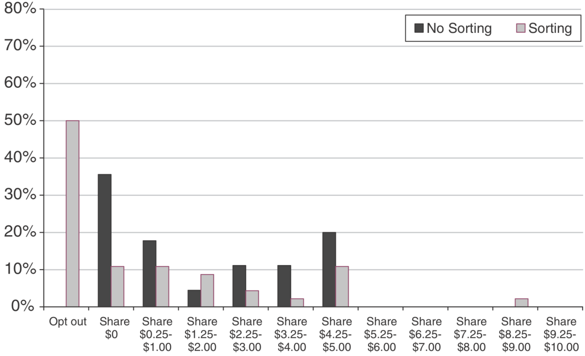

Figure 1A. Distributions of Amounts Shared
(*Experiment 1, Berkeley*)

Social Preferences: Summary

- Clearly people are not pursuing pure self-interest.
  - But note: This doesn't mean they don't care about their own outcomes.
  - If you had to write down a very simple model, pure self interest is probably close enough.
  - . . . that's why this is a 400-level class; the nuance isn't entirely necessary, but you'd otherwise be unable to handle a lot of data and real-world experience.
- A variety of social motives have been suggested: altruism, inequity aversion, utilitarianism, maximin, reciprocity, concern withdrawal....
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Exercise

Suppose that we collect data on how people play the two games depicted on the board (using techniques as in Charness & Rabin). As depicted below, 30% of subjects chose B2 in Game A, while Y% of subjects chose B2 in Game B. Note: in both games, Player B's payouts are listed **second.**

(a) If everyone has inequity aversion (with differing degrees of concern), what would we expect for Y?

(b) If everyone has social welfare preferences (with differing degrees of concern of social welfare), what would we expect for Y?

(c) If everyone has social welfare preferences (with differing degrees of concern of social welfare), and also has concern withdrawal, what would we expect for Y?

(d) If everyone has social welfare preferences (with differing degrees of concern of social welfare), and also has strong reciprocity (negative and positive), what would we expect for Y?