Social Preferences

- Why do we help our neighbor?
- Why do we hurt our enemy?
- Why do we give to charity?
- People are not completely selfish

Token Contribution Games

n players

each player an random endowment w^i of tokens

players simultaneously choose how many token to keep x^i and how many to donate $w^i - x^i$

the aggregate number of donated tokens is Y

players randomly draw a cost c^i of contributing from distribution f^i

money payoffs to player i

$$w^i - c^i(w^i - x^i) + qY = x^i + (1 - c^i)(w^i - x^i) + qY$$

Incentives

For a selfish individual

If $q - c^i > 0$ then donate all; if $q - c^i < 0$ do not donate anything

Social benefit of contributing a token nq

Benefit to others of contributing a token $(n-1)q$

Net cost to you of contributing a token $q - c^i$

Transfer ratio $\tau^i = -\frac{(n-1)q}{q-c^i}$

How much you can give someone else at a cost of 1 to yourself

Information Conditions

- Public: costs are known to everyone prior to donation decisions
- Ex Ante Private: Costs are private at the time of decision, but known to everyone after donation decisions
- Private: Costs are private forever

Blind versus Double-blind

- Blind: deal with anonymous opponents
- Double-blind anonymous even to the experimenter

Repetition

- Play once
- Strangers: Play repeatedly with different opponents
- Partners: Play repeatedly with the same opponents

Remark: with $n > 2$ it is generally done as partners

Example: Dictator

Dictator: two players, known costs, second player has no endowment

Standard case: $c^1 = 2, q = 1$ meaning $\tau^1 = 1$

[it costs you two to give a token, but get one back, so the net cost of the transfer is one]

Andreoni and Miller: a wider variety of transfer ratios

Experimental Data on Dictator

Double-blind data From Eckel and Grossman [1996 GEB]

(pooled with Hoffman et al data: see E&G)

10 tokens; 1-1 transfer ratio; 48 subjects

Contributed tokens	Percentage of people
0	63%
1-4	29%
5	6%
9	2%

Example: Standard Public Goods Contribution Game

$w^i = w$

$c^i = c$ and is known

so everyone is symmetric

Example: Additively Separable Prisoner's Dilemma

	Cooperate	Defect
Cooperate	2,2	0,3*
Defect	3*,0	1*,1*

Note that the private gain from defecting is 1 regardless of what the other player is doing: this is what it means to be additively separable

Not all Prisoner's Dilemma's are additively separable

In this case $w^i = 1$, $c^i = c$

net cost of donating: $c - q = 1$

gain to other from donating: $q = 2$

so $c = 3$

Example: Palfrey-Prisbey

two players, $w^i = 1$, $q = 15$

c^i drawn uniformly on 10 to 20, ex ante private

τ^i	Percent donating
0.3	100%
0.2	92%
0.1	100%
0	83%
-0.1	55%
-0.2	13%
-0.3	20%

Data from Levine and Palfrey

4 Person Palfrey and Prisbey

from second 10 rounds

$q = 3$		$q = 15$	
τ^i	%	τ^i	%
1.8	0.00	9.0	0.60
2.7	0.18	13.1	0.67
6.8	0.27	33.7	0.79
∞	0.88	∞	0.86

Altruism versus Spite

When τ^i is positive it is costly to donate, so a donation indicates *altruism,* meaning you are willing to bear a cost to help someone else

When τ^i is negative is costly not to donate, so failing to donate indicates *spite*, meaning you are willing to bear a cost to hurt someone else

Instrumental Theories

An instrumental theory postulate a utility function of the form

$u(m, y)$

where m is my money income and y is your money income

Simple Linear Theory

$u(m, y) = m + \alpha y$

- α could be negative or positive as you are spiteful or not
- $\mid \alpha \mid < 1$ means you care more about your own income

Andreoni and Miller

$u(m,y) = \text{sgn}(\gamma)[\,m^{\gamma} + \alpha y^{\gamma}\,]$, $\gamma \leq 1$

- when $\gamma = 1$ this is the simple linear case
- $\gamma \to -\infty$ limiting Leontief case $u(m,y) = \min\{m, \alpha y\}$
- $\alpha = 1$ implies an equal division will always be preferred when 1-1 transfers are available
- one interpretation is that this reflects a concern for fairness
- but not egalitarian, not willing to sacrifice for fairness
- used to analyze dictator game with varying contribution ratios

Fehr-Schmidt

A preference for fairness

$$u(m,y) = m - \alpha \max\{y - m, 0\} - \beta \max\{m - y, 0\}$$

- $\alpha \geq \beta$ meaning if you are getting more than me I dislike it more than if I am getting more than you
- I dislike getting more than you because it is unfair
- Fits data on ultimatum, public goods and trust games

α, β	Percent of people
0,0	30%
0.5,0.25	30%
1,0.6	30%
4,0.6	10%

The Trust Game

- Player 1 has an endowment of w^1 tokens
- Player 1 chooses how many tokens to keep x^1
- Player 2 gets $w^2 = q(w^1 - x^1)$ tokens
- Player 2 chooses how many tokens to keep x^2
- Player 1 gets $w^1 - x^1 + x^2$
- Player 2 gets $q(w^1 - x^1) - x^2$ tokens
- Frequently conducted experiment
- Too much going on to understand

Relative Income Models

Relative Fehr-Schmidt

$$u(m,y) = m - \alpha \max\{(y-m)/(y+m),0\} - \beta \max\{(m-y)/(y+m),0\}$$

- Differences measured relative to the total

Bolton and Ockenfels

$$u(m,y) = v(m, m/(m+y))$$

- v twice differentiable, increasing and concave in the first argument, and concave with a maximum at ½ in the second argument
- basically a smooth version of relative Fehr-Schmidt
- qualitative analysis of many games
- quantitative analysis of several games, but different preferences used to explain different games

Remark on Spite

- Fehr and Schmidt and Bolton and Ockenfels preferences exhibit spite
- Could also call it egalitarianism
- a Pareto inferior allocation may be preferred if it is fairer.
- when $y > m$ my utility decreases in your income
- hence I am willing to pay to reduce your income

Charness and Rabin

$U(m, y) = (1 - \alpha)m + \alpha(\delta \min(m, y)) + (1 - \delta)(m + y))$, $0 \leq \alpha, \delta \leq 1$

- weighted average of my income, the least income either of us have, and the social total
- dependence on the least income of either gives rise to a concern for fairness
- Leontief when $\alpha = \delta = 1$
- Monotone Altruistic Preferences (no spite)
- Qualitative not quantitative analysis

Cox and Sadiraj

$$U(m,y) = m^{\gamma} + (\alpha \bullet 1(m < y) + \beta \bullet 1(m \geq y))(y^{\gamma} - m^{\gamma})$$

- $0 < \gamma < 1, 0 \leq \beta < 1, 0 \leq \alpha \leq \beta, \alpha \leq 1 - \beta$
- weights on m^{γ}, y^{γ} depend on how fair the allocation is.
- Monotone Altruistic Preferences (no spite)
- Qualitative analysis only

Lifetime Wealth versus a Reference Point?

$u(m,y)$ versus $U(M+m,Y+y)$ where M,Y are lifetime wealth

- doesn't matter in the simple linear case
- matters as soon as there is non-linearity
- what does m,y mean when you are walking down the street?
- we don't give all our money away to strangers
- we sometimes give some to homeless people
- if lifetime wealth matters: for small amounts we should give all or nothing

The Token Contribution Paradox

Number of tokens donated to the “common” in a public good contribution game (Isaac and Walker)

Fraction donating more than 0	Fraction donating more than 1/3	Fraction of possible tokens donated
0.23	0.10	0.07
0.58	0.33	0.29
0.55	0.30	0.24

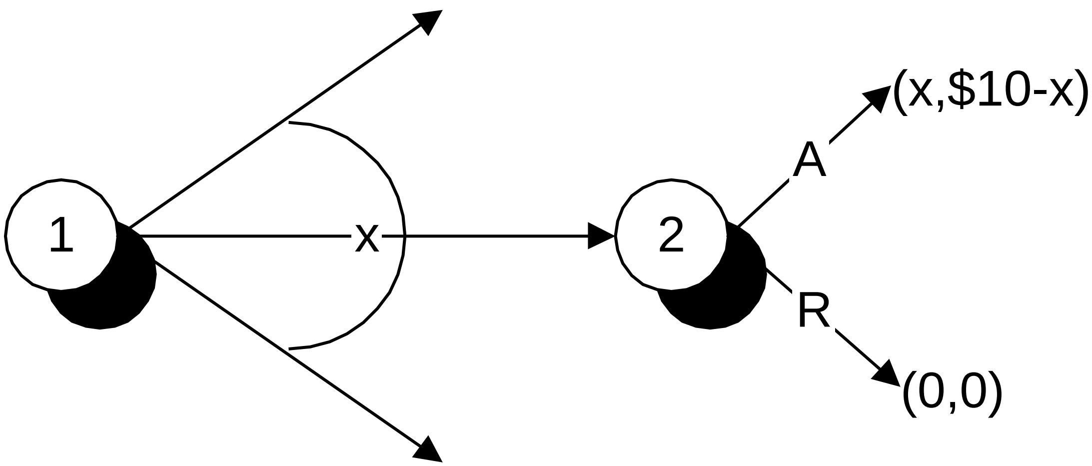
Self-Control Models?

- models of a patient long-run self and impulsive short-run self with mental accounting
- predict that small amounts of "found money" are spent right away
- give in to small temptations, resist large ones
- so relevant "wealth" for small decisions is daily pocket cash not lifetime wealth
- but different behavior for larger amounts
- Dictator: $10, versus $1,000,000
- Largely unexplored

Ultimatum

Roth et al [1991]: ultimatum bargaining in four countries

Take or leave split of $10 pie; demand x



Experimental Results

pools results of the final (of 10) periods of play in the 5 experiments with payoffs normalized to $10

Demand x	**Observations**	**Frequency of Observations**	**Accepted Demands**	**Probability of Acceptance**
$5.00	37	28%	37	1.00
$6.00	67	52%	55	0.82
$7.00	26	20%	17	0.65

The Simple Linear Model

Demand x	Frequency of Observations	Probability of Acceptance	Utility of Demand With $\alpha = 3/7$
\$5.00	28%	1.00	2.86
\$6.00	52%	0.82	3.51
\$7.00	20%	0.65	3.71

35% reject \$3.00, so have $\alpha \le -3/7$

with $\alpha \le -3/7$ should demand at least \$7.00

but only 20% do that

The Fehr-Schmidt Model

α, β	Percent of people
0,0	30%
0.5,0.25	30%
1,0.6	30%
4,0.6	10%

Fits the ultimatum data

Reciprocal Altruism

- Dal Bo data
- final period of the two period games with a definite ending
- against an experienced player: who has already engaged in six or more matches
- in one shot game chance of cooperation 6.4%
- in second period chance of cooperation 9.3%
- cheat in first period probability of cooperation in the final period 3.2%
- cooperate probability of cooperation in final round 21%

Type Signalling Theories

$$u(m, y) = m + \frac{a^m + \lambda a^y}{1 + \lambda} y$$

- where a^m measures how generous I am
- and a^y measures how generous you are
- be kind to kind people

a^y is not observed and must be infered from behavior

assume three values of $a^i \in \{\underline{a}, a_0, \overline{a}\}$

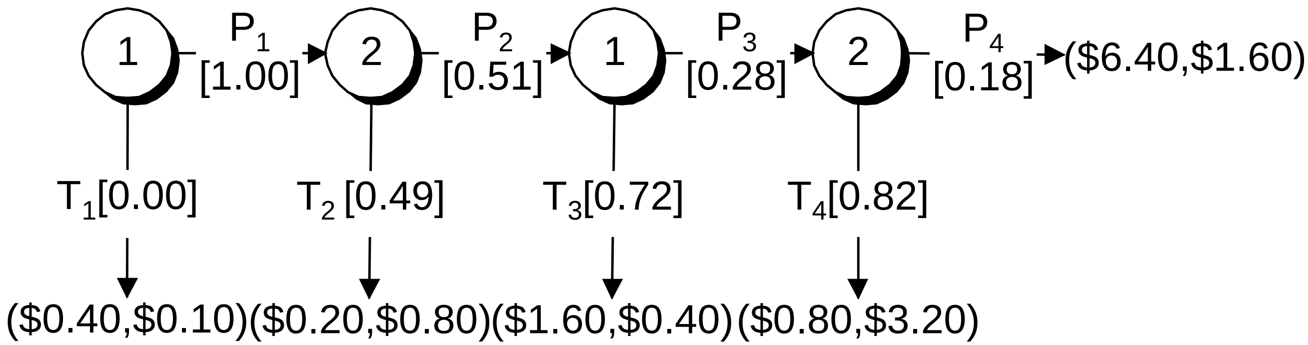
in ultimatum: if you make a high demand you reveal you have a low value of a^i hence are more likely to be rejected

Population Parameters

λ	0.45	Percent of people
$\underline{a}$	-0.9	20%
a_0	-0.22	52%
$\overline{a}$	+0.29	28%

fits ultimatum data exactly

Centepede



Node	Type	Benefit of Taking
1's last move	a_0	$0.14
2's first move	a_0	-$0.09 (should be 0)
1's first move	$\underline{a}$	-$0.16

Public Goods Contributions

public goods contribution game studied by Isaac and Walker [1988]

$c^i = 1$; four treatments were used with different numbers of players and different values for q

more than one token: convert data as if all or nothing contribution to match aggregate contribution rate

q	n	% giving	$a*$
0.3	4	0.00	1.13
0.3	10	0.07	0.38
0.75	4	0.29	0.17
0.75	10	0.24	0.06

vs 28% altruists w/ average coefficient of 0.29

Competition and Altruism

- If you are a price-taker
- You can't change anyone's utility but your own
- So social preferences are irrelevant
- So all these theories are consistent with experimental results showing selfish players explain well what happens in competitive markets

Role of Social Norms and Framing

- Intrinsic preferences towards other people
- Or social norms regarding how people should be treated in different circumstances?
- The latter doesn't have much predictive power, could be most anything
- List [2007, *Journal of Political Economy* "On the Interpretation of Giving in Dictator Games"

  If there is an option to take as well as give, most giving goes away

  Add option of taking $1 positive offers fall from 71% to 35%

- How do people perceive the problem?

  Is the goal to show I am fair?

  Is the goal to get as much money as possible?