

Econ 311: Behavioral and Experimental Economics

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Reciprocity

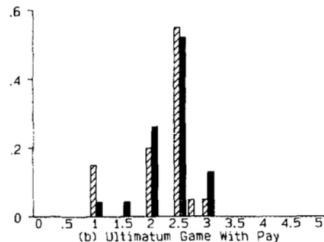
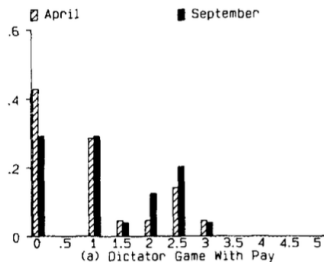
Motivating Evidence

- ▶ Recall dictator game from Forsythe et al (1994)
- ▶ What if we allow recipient to have some say in the matter?
 - ▶ 45 additional subjects drawn from same overall population
 - ▶ As before, one player proposes at division of a \$5 endowment
 - ▶ New treatment: recipient can either accept or reject the offer
 - ▶ If reject, they both get \$0
 - ▶ This is called the *ultimatum game*
- ▶ Expected results from classical preferences?
 - ▶ Selfish responders should never reject a non-zero offer
 - ▶ Knowing this, proposer should offer smallest non-zero amount

Ultimatum Game: Responder Behavior

- ▶ Rejections do happen, though not very often
 - ▶ 8 out of 45 (18%) of offers were rejected in total
- ▶ Rejection likelihood increases as offers get smaller
 - ▶ No offers of \$2.50 (ie 50% of pie) or higher were rejected
 - ▶ 5 of 6 (83%) of offers less than \$2.00 were rejected
- ▶ Rejection is a form of *costly punishment*

Ultimatum Game: Proposer Behavior



- ▶ Proposals below \$2.00 extremely rare
- ▶ Strong peak at \$2.50 (50-50 split)
- ▶ So in equilibrium, rejections are rare because low offers are rare

Explaining Rejections

- ▶ Recall Fehr-Schmidt model from last lecture:

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

where $\alpha < \beta \leq 1$

- ▶ Let $\beta = 1$ and $\alpha = \frac{1}{2}$
- ▶ Player 1 is responder
- ▶ What is utility of rejecting?
 - ▶ $U(\$0, \$0) = 0$
- ▶ Will player 1 accept payoffs $(\$2, \$3)$?
 - ▶ $U(\$2, \$3) = 2 - (3 - 2) = 1 \implies$ accept
- ▶ Will player 1 accept payoffs $(\$1, \$4)$?
 - ▶ $U(\$1, \$4) = 1 - (4 - 1) = -2 \implies$ reject
- ▶ So responder's desire for equity can lead to decision that decreases total welfare (aggregate payoffs)

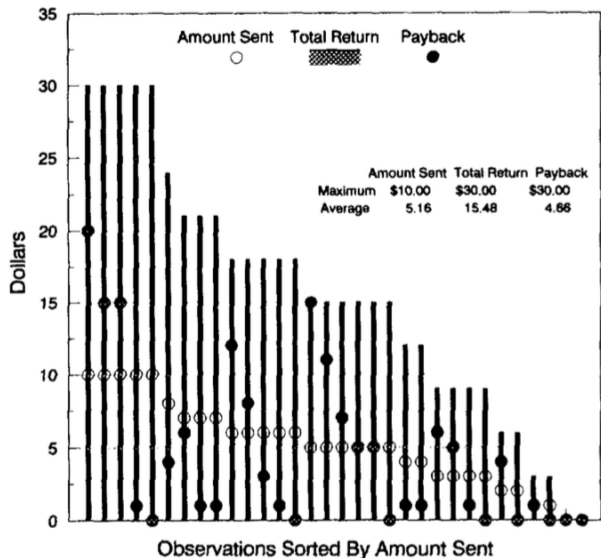
The Trust Game

- ▶ The ultimatum game is fairly limited in that it only allows the responder a binary choice: accept or punish
- ▶ What if we allow responder more variety in their choice, so they can not only punish, but also reward?
- ▶ The *trust game* accomplishes this
 - ▶ One player, the *trustor* starts out with $\$X$
 - ▶ Passes some amount $\$I \in [0, \$X]$ to other player, the *trustee* (so far, just like dictator/ultimatum)
 - ▶ Trustee gets $R \cdot \$I$ for $R > 1$, ie the passed amount is multiplied by interest rate R before trustee receives it
 - ▶ Trustee then can return some amount $\$P \in [0, R \cdot \$I]$ to trustor

Trust Game: Evidence

- ▶ Berg et al (1995)
- ▶ Trustors start with \$10
- ▶ Trustors and trustees in different rooms
- ▶ $R = 3$, ie if trustor passes \$1 it becomes \$3 for trustee
- ▶ Expected classical results?
 - ▶ Purely selfish trustees should return nothing
 - ▶ Therefore purely selfish trustors should pass nothing

Trust Game: Results



Trust Game: Discussion

- ▶ Did the average trustor make a profit by passing money to the trustee?
 - ▶ Average amount sent: \$5.16
 - ▶ This get multiplied to \$15.48
 - ▶ Trustors only send back average of \$4.86
 - ▶ Therefore average trustor would have been better off passing nothing
- ▶ Any limitations to design?
 - ▶ Trustees see amount passed, then make just one decision
 - ▶ Would be better to use *strategy method*
 - ▶ Trustee tells experimenter what they would pass back for every possible level of income, before seeing actual pass made by trustor