

Does Punishment Explain Cooperation?

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Punishment

- ▶ Perhaps people cooperate to avoid being punished.
- ▶ Evidence: Ultimatum versus Dictator
- ▶ Second-order collective action problem
- ▶ Conclusion: People do cooperate to avoid punishment, but this doesn't make cooperation any less mysterious.

The Ultimatum Game

Imagine someone offers you \$10. All you have to do is decide with another person how to share it.

- ▶ You decide how much to offer the other person.
- ▶ The other person either accepts or rejects.
- ▶ If they reject, neither of you gets anything.

- ▶ How much would you offer?
- ▶ What is the least you would accept?

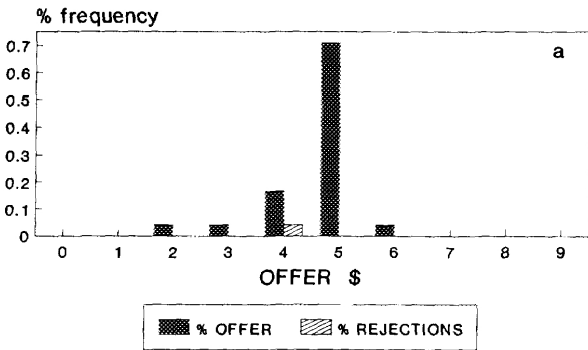
[Play game in class.]

How would a self-interested person play?

- ▶ Responder would accept any non-zero offer.
- ▶ Proposer would make the smallest possible offer.

What do real people do?

Ultimatum Game Results



Why were these subjects so generous?

- ▶ Altruism?
- ▶ Fear of punishment?

We can test these hypotheses...

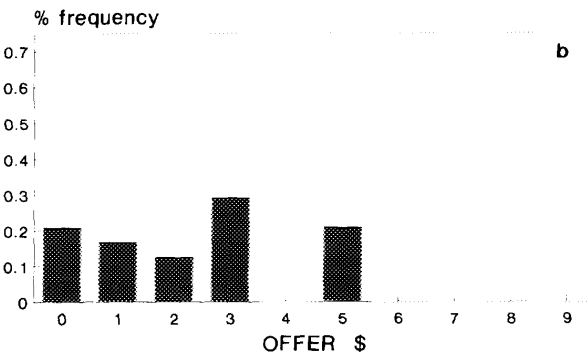
The Dictator Game

Once again you are given the opportunity to divide \$10. This time, however, the responder must accept whatever proposal you make.

This allows us to separate the two hypotheses.

- Altruism** Subjects should be just as generous in Dictator.
- Punishment** Subjects should be less generous in Dictator.

Dictator Game



Results

- ▶ Less generosity when responder cannot punish.
- ▶ Generosity was in part motivated by punishment.
- ▶ But not entirely: offers are somewhat generous even in Dictator.

Public Goods Game

In each round,

- ▶ 4 subjects each get 20 tokens, each worth 10 cents.
- ▶ May invest any number of tokens in “collective project.”
- ▶ Collective project pays 20 cents per token, divided evenly among 4 subjects.

Payoffs in public goods game

Payoff/token	For each token	
	kept	invested
	10¢	5¢

- ▶ If all tokens are invested in group project, each player gets \$4 (20 cents per token).
- ▶ If none are, each player gets \$2 (10 cents per token).
- ▶ Yet the selfish strategy (invest nothing) always earns more than the cooperative strategy.
- ▶ Like a 4-player prisoner’s dilemma.
- ▶ In such games, cooperation typically starts high but quickly declines to zero.

Public Goods with Punishment (Fehr & Gächter)

- ▶ Subjects can assign “punishment points” to each other.
- ▶ Costly to punish or be punished.
- ▶ Subject gets no direct benefit from punishing.
- ▶ Individuals are anonymous
- ▶ Two versions (treatments)
 - Partner treatment Same group of 4 subjects plays together all 10 rounds.
 - Stranger treatment Subjects randomly re-assigned to groups between rounds.

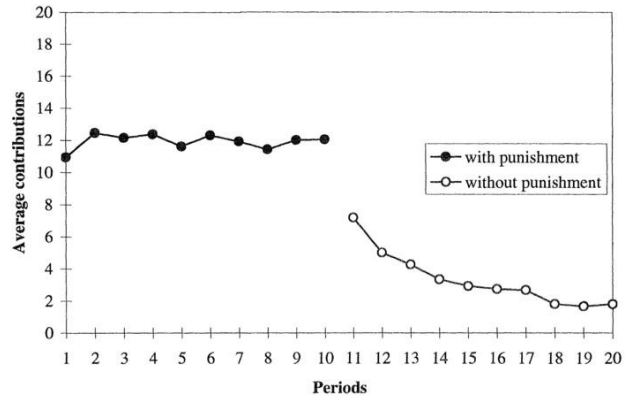


FIGURE 1A. AVERAGE CONTRIBUTIONS OVER TIME IN THE STRANGER-TREATMENT (SESSIONS 1 AND 2)

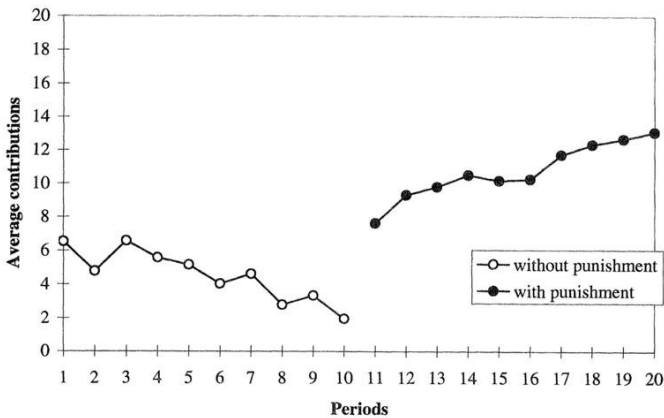


FIGURE 1B. AVERAGE CONTRIBUTIONS OVER TIME IN THE STRANGER-TREATMENT (SESSION 3)

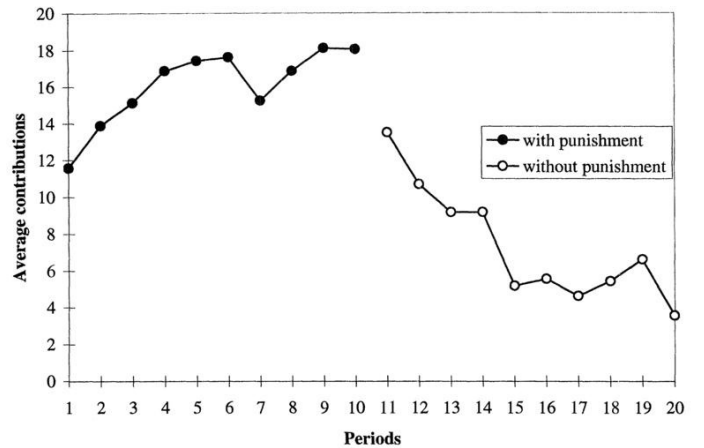


FIGURE 3A. AVERAGE CONTRIBUTIONS OVER TIME IN THE PARTNER-TREATMENT (SESSION 4)

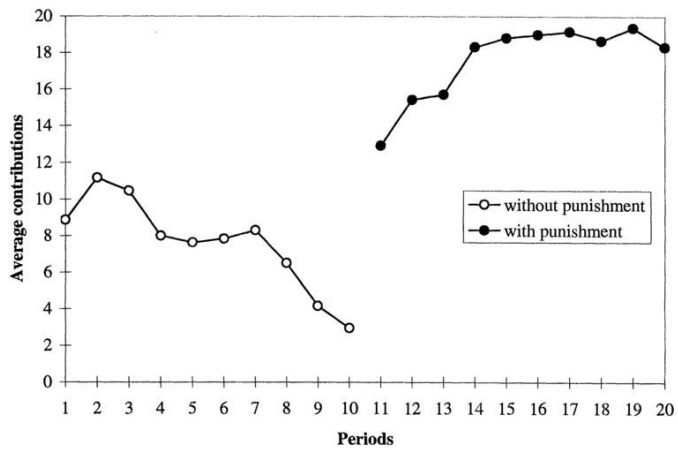


FIGURE 3B. AVERAGE CONTRIBUTIONS OVER TIME IN THE PARTNER-TREATMENT (SESSION 5)

Cooperation with punishment

- ▶ Without punishment, cooperation unravels.
- ▶ Punishment maintains cooperation.
- ▶ People are willing to punish even though it costs.

Why punish?

- ▶ Benefit of punishment are shared.
- ▶ But cost is borne by punisher.
- ▶ Why not let someone else do it?
- ▶ Punishment is a form of cooperation.
- ▶ It is clearly important in human cooperation.
- ▶ But it is just as hard to explain.

- ▶ We began with a puzzle: why cooperate.
- ▶ Our answer (to avoid punishment) leads to another puzzle: why punish
- ▶ The 2nd puzzle is just as puzzling as the first.