

Opportunistic Reputation and Non-Opportunistic Help in an Indirect Reciprocity Game

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Reputation

- There are players of different types.
- Players treat different types differently.
 1. Trustworthy (positively reciprocal) players are trusted.
 2. Negatively reciprocal players get higher offers in the ultimatum game.
 3. Reciprocal players treat „good“ players kindly.
- Players have an incentive to mimic the behavior of a nicely treated type T. If a player i does so, other players have a higher belief that player i is of type T. „Player i has a reputation of being of type T.“
- Indirect reciprocity

Indirect reciprocity

- Third type of reputation is closely related to indirect reciprocity.
 - People reward those with a reputation for being “good”.
 - Rewarding is perceived as being “good”.
 - This creates an incentive to reward.
- Term indirect reciprocity goes back to Alexander (1987).
- Important, because many transactions are not bilateral. Therefore, direct reciprocal does not create incentive for cooperative behavior.

Research Questions

- Is there indirect reciprocity?
 - Do people reward kindness towards others?
- Relative importance of
 - Strategic helping to get good reputation.
 - Pure indirect reciprocity.
- Nature of social preferences.
- Can the evolution of social preferences of humans be based on indirect reciprocity?

Experimental and Empirical Evidence

- Harbaugh (1998): Donations to Charity are partially driven by prestige motive. Prestige can be beneficial if others are indirectly reciprocal, strategic concerns come into play.
- Milinski et al. (2002): Donations to UNICEF are rewarded by other subjects.

Seinen & Schram (2001)

- Experimental Helping Game.
 - Repeated interaction. In every period, pairs are formed, one is donor, the other recipient.
 - Donor can help: cost c for donor, benefit $b > c$ for recipient.
 - Donor is informed about how often the recipient helped when he was a donor (score).
- Results
 - Subjects make choices dependent on recipient's and their own score.
 - Hence evidence for both indirect reciprocity and strategic reputation building.

Experiment Idea

- Goal
 - Assess interplay of indirect reciprocity and strategic reputation building.
 - Distinguish between helping choices based on “pure” indirect reciprocity and on strategic reputation building.
- Helping games in which some player have **public score** and some have **private score**.
- Pure indirect reciprocity:
 - How do **players with private score** help players with public score?
- Strategic play:
 - How do **players with public score** help compared to players with private score?

Experiment Design

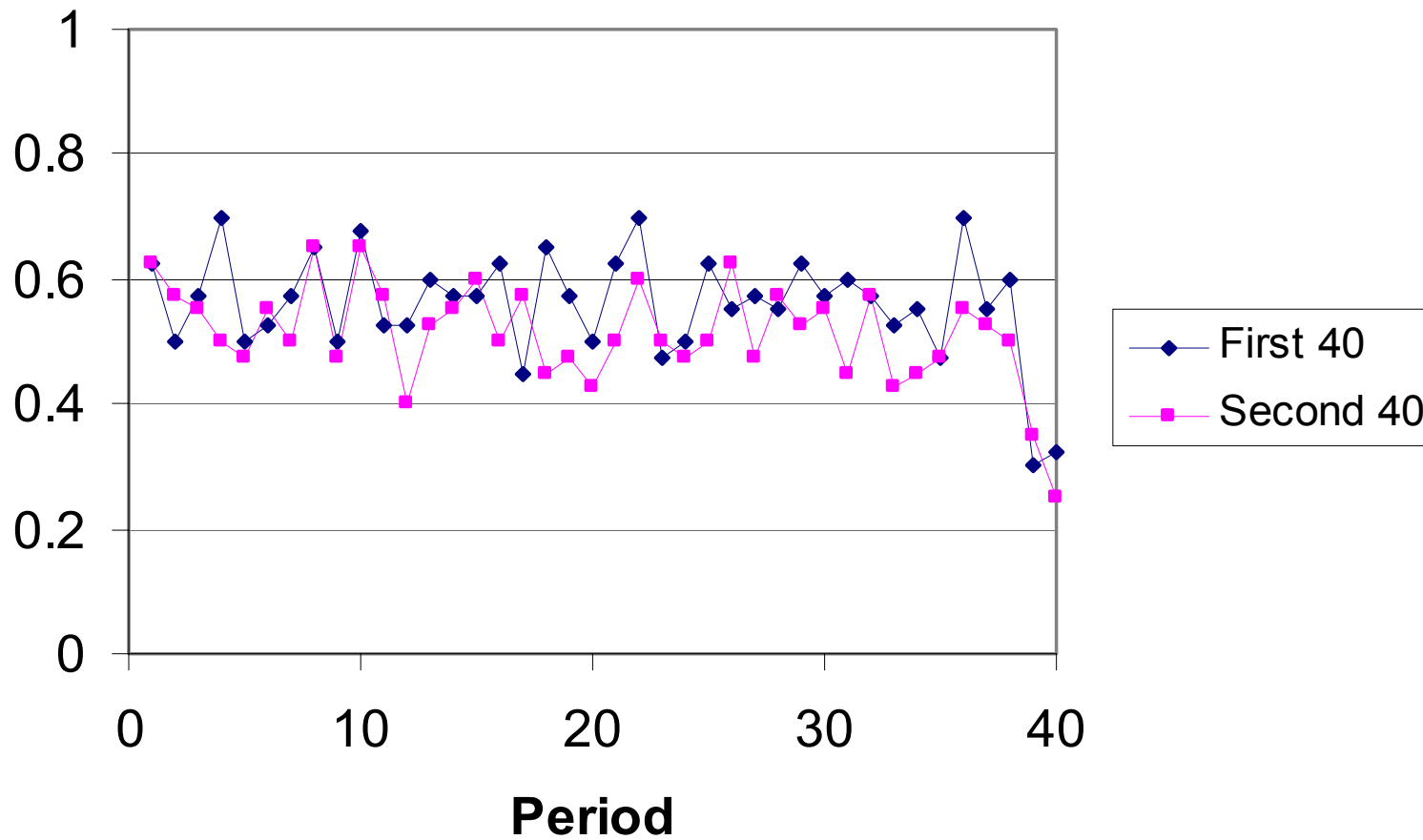
- Helping Game: Donor can help at cost of 6 points in which case the recipient receives 15 points.
- If recipient has public score, donor sees recipient's last 5 decisions as donor (#helping, #not helping).
- 5 sessions, 16 subjects in each, 80 periods.
- 8 subjects have a public score in first 40 periods.
- The other 8 in last 40 periods.
- Allows within subjects comparison of strategic reputation building.

Hypotheses

1. Subjects are indirectly reciprocal, i.e. donors' helping rate increases in recipients' score.
2. There is pure indirect reciprocity, i.e. there are subjects who help even when they cannot build reputation.
- Subjects strategically build a reputation:
 3. For any given recipient's score (including absent score) a donor with public score helps more often than a donor without public score.
 4. Reciprocal relation is stronger for donors without score than for donors with public score.

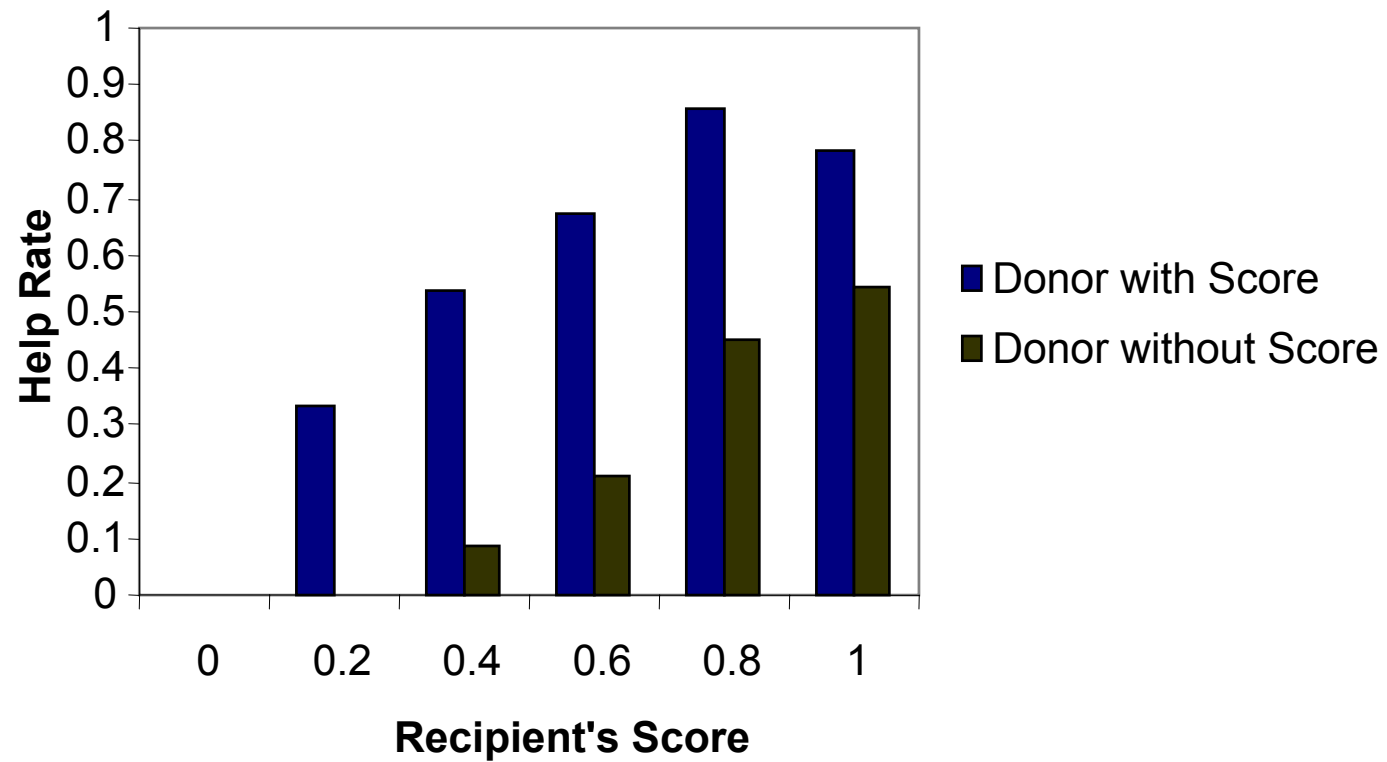
Helping over Time

Average Helping Rate over Periods



Experiment Results

Donor's Average Help Rate for Recipients with Full Public Score



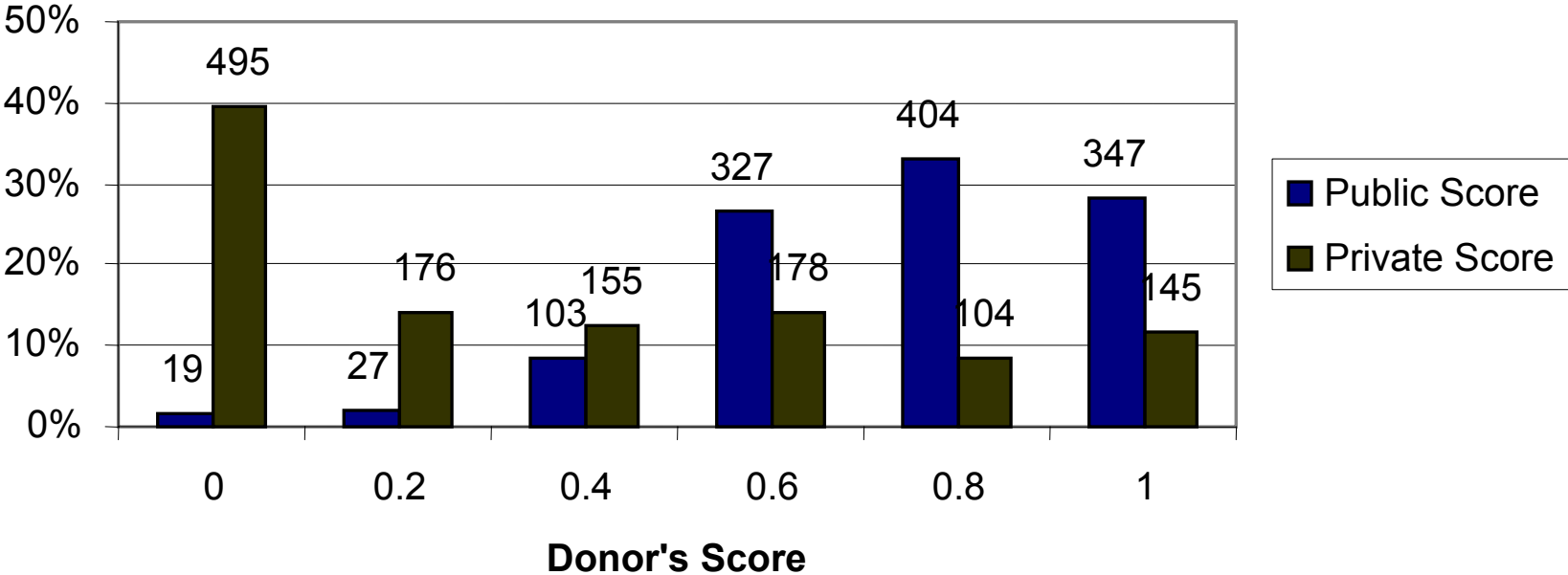
Helping in different situations

	Recipients without score	Recipients with score
Donors without score	32 %	37 %
Donors with score	69 %	74 %

- Also donors with private score help a lot.
 - Pure indirect reciprocity.
- Donors with public score help significantly more than donors without.
 - Reputation effect.
- Recipients with score receive somewhat more than recipients without (not significant).

Strategically Maintained Scores

Distribution of Donors' Public and Private Scores



Payoff Maximizing Score

- In each session for the observed helping rate expected payoff is maximal for score 0.8
- Over all sessions:

Score	0	0.2	0.4	0.6	0.8	1
Exp Payoff	0	0.57	1.03	1.39	2.42	1.92

Hypotheses are Confirmed

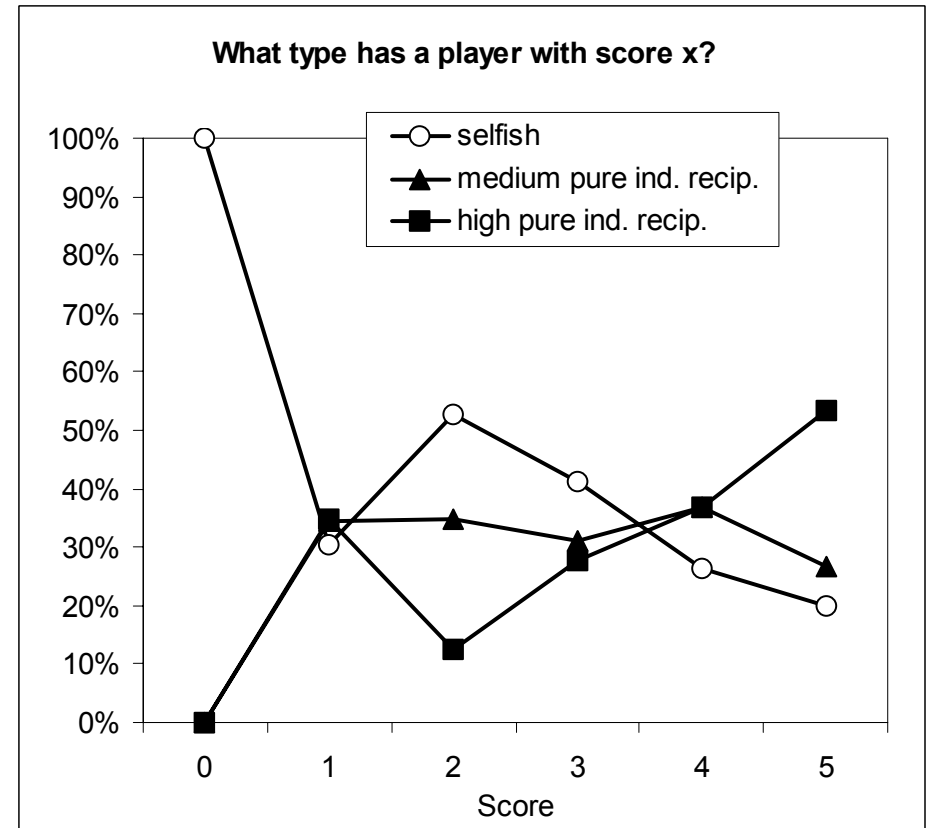
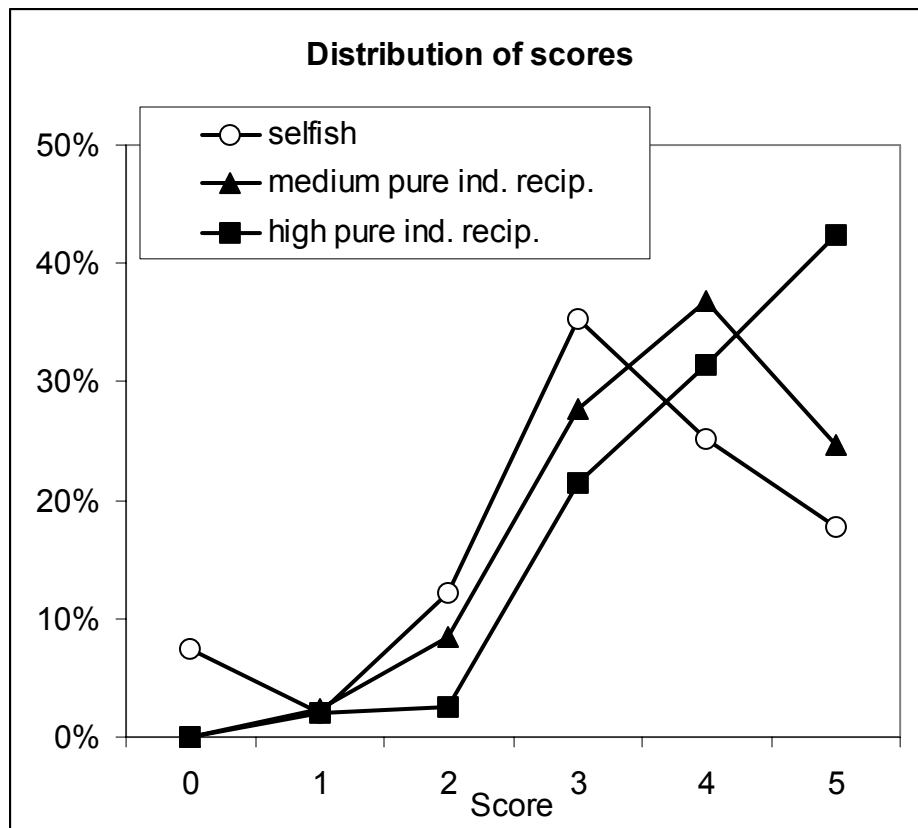
1. Subjects are indirectly reciprocal, positive relation in all sessions (both for donors with and without score)
2. There is pure indirect reciprocity: also subjects without score reward high scores.
3. Subjects strategically build reputation, average helping rate is higher for donors with score in all sessions and for all recipients' scores
4. Coefficient for recipients' score in linear probability model for helping choice is larger for donors without score than for donors with score in all sessions (for recipients with full score).

Implication for Fairness Models

- Levine (1998) and Charness & Rabin (2002) can be considered models of direct and indirect reciprocity:
 - Levine: empathy of A towards B depends on A's assessment of B's altruism. This could be based on how B treated C in the past.
 - Charness & Rabin: "Concern Withdrawal" can depend on treatment of third parties.
- Other fairness theories can explain the evidence less convincingly. They need additional assumptions for explaining indirect reciprocity.
 - E.g. if generous subjects (would) earn less, inequity aversion models would predict indirect reciprocity.

Pure indirect reciprocity and scores

- Do people with high pure indirect reciprocity have higher scores when the score is public?



Classification of subjects

- Reciprocal
 - Correlation between helping and recipient's score.
- Strategist
 - Helps more, when he has a public score
 - Pure, strong, weak, non strategist
- Simple egoist
- Simple altruist
- Negatively reciprocal altruist
 - helps in general, but punishes egoists

Within-Subject Comparison: Donor Types

	Pure Strategist	Strong Strategist	Weak Strategist	Non Strategic	Total
Reciprocal	8	12	14	4 (5)	38 (39)
Non Reciprocal	12	11	7	6 (11)	36 (41)
Simple Egoist				1	1
Simple Altruist				4	4
Negative Reciprocal Altruist				1	1
Total	20	23	21	16	80

Success of types: Payoffs Relative to Session Average

	Str Strat	Weak Strat	Total
Reciprocal	1.14 (20)	0.69 (19)	0.92 (39)
Non -Reci	1.23 (23)	0.87 (18)	1.08 (41)
Total	1.19 (43)	0.78 (37)	

- The non-reciprocal and strategists subjects are more successful.

Conclusions

- First clear experimental evidence for pure indirect reciprocity in the environment of repeated helping games.
- Clear evidence for strategic reputation building.
- Simple exploiters and sophisticated strategic exploiters are common and more successful than reciprocal players.
- Strategic incentives weaken reciprocity.