Homo reciprocans: A Research Initiative on the Origins, Dimensions, and Policy Implications of Reciprocal Fairness

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Abstract

Experimental economists and other social scientists have discovered an important form of human behavior that has been inadequately analyzed by behavioral scientists. In public goods, ultimatum, and other games where players gain from cooperative behavior, agents have a predisposition to cooperate and to undertake costly punishment of defectors, even when this behavior cannot be justified in terms of traditional game-theoretic equilibrium and learning concepts. We call this 'reciprocal fairness.'

Our research has four goals. First, can the experiments on reciprocal fairness be replicated with diverse subject pools and various strategic settings? Second, how might such behavior have evolved, given that it is formally altruistic, and hence 'unfit' except under stringent circumstances? Third, how does the existence of reciprocal fairness influence our analysis of social policy in such areas as taxation, charity, redistributive expenditure, and criminal sentencing? Fourth, how to what extent does cultural variation induce differences in the strength of reciprocal behavior and conditions under which agents exhibit reciprocal fairness?

1 Explaining Cooperative Behavior

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[1] See, for instance, Debreu (1959), Arrow and Debreu (1954), Arrow and Hahn (1971), or Mas-Colell (1985).

[2] See Thompson and Faith (1981) and Fudenberg and Maskin (1986). For a more general treatment of the Folk Theorem and its variants, see Kreps (1990) or Fudenberg and Tirole (1991).

[3] For instance, a group of potential cooperators can offer incentives for individuals to monitor and punish defection (Weissing and Ostrom 1991, Bendor and Mookherjee 1987), or can ostracize defectors (Cremer 1986, Hirshleifer and Rasmusen 1989, Gintis 1989, Boyd and Richerson 1992). In addition, cooperators can differentially associate with other cooperators (Boorman and Levitt 1980, Grafen 1979, Hamilton 1963, Wilson 1980, Trivers 1971, Bergstrom and Stark 1993, Bergstrom 1995).

[4] See Shapiro and Stiglitz (1984), Bowles (1985), Hölmstrom (1979), Hölmstrom (1982), Bowles and Gintis (1993), Hölmstrom and Milgrom (1994), Grossman and Hart (1983, 1986) and Hart and Moore (1990).

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[5] For an overview, see Davis and Holt (1993) and Fehr and Tyran (1996).

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2 Homo reciprocans

reciprocal fairness

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[6] One of us (Herbert Gintis) has used artificial life simulations of the ultimatum game indicating that sufficiently high mutation rates and sufficiently low rates of migration among groups (or a sufficiently small size of the whole population) can reproduce the empirical finding of the ultimatum game. This result, however, is more plausibly interpreted as genetically-evolved vindictiveness rather than 'noise' or 'error' on the part of responders, since normally a considerable fraction of the population exhibits retaliatory behavior.

[7] In the work of Ostrom et al. (1992) the same group of subjects interacted for roughly 25 periods, and subjects could develop an individual reputation for punishing defectors. Their experimental design therefore permits an interpretation of costly retaliation in terms of strategically rational behavior: retaliation may increase cooperation in future periods. In Fehr and Gächter (1996), group composition is changed in every period and individual reputation formation is ruled out by the design. Therefore, costly retaliation does not

Homo reciprocans

Homo economicus *Homo reciprocans*

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3 Topic I: Experimental Research on Sustaining Cooperation Via Reciprocal Fairness

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confer any pecuniary benefit to those who punish. Nonetheless, punishment of free-riding was prevalent and gave rise to a large and sustainable increase in cooperation levels.

[8] Levine (1996) analyzes a utility function that combines cooperation and retribution.

[9] Non-reciprocating strategies also emerge from artificial life simulations. On the fitness of non-reciprocating strategies, see Nowak and Sigmund (1993).

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4 Topic II: Explaining Reciprocal Fairness

culture of honor

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[10] The most notable attempt to explain retaliation is doubtless Sethi and Somanathan (1996), who use neither group selection, nor local interactions, nor other forms of heterogeneity to prove that under the appropriate conditions costly retaliation against defectors can sustain a cooperative equilibrium in a common pool resource game. However their result depends on the absence of mutation or what we consider to be implausible patterns of mutation—in particular, that cooperators mutate into retaliators at a sufficiently high rate to squelch the emergence of defectors. More important, their model implies a very low level of defection and retaliation, whereas we believe human societies exhibit high levels of defection and very high levels of reciprocal fairness.

general level

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Homo sapiens

Homo sapiens

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[11] Mathematical biologists have shown that the conditions favoring group selection of altruistic behavior are extremely restrictive, and the behavior of most life forms can be explained without recourse to dynamics based upon altruism or group selection (Williams 1966, Dawkins 1989, Maynard Smith 1976). Nevertheless eusocial nonhuman species have emerged and do very well, and group selection is part of the account of their existence. See Alcock (1993), Ch. 16, for a recent review of the literature. For the case of *Homo sapiens* see Caporael (1987), Simon (1993) and the discussion in Wilson and Sober (1994).

5 Topic III: Cross-Cultural Research in Reciprocal Fairness

5.1 The Effect of Environmental Differences on Behaviors

slash and burn

5.2 Research Method in a Small Scale Society

5.3 Expanded Cross-Cultural Research

Medium of exchange.

Sphere of exchange.

Situational characteristics.

Economic and ecological correlates.

6 Topic IV: The Implications for Social Policy

Injustice: the Social Bases of Obedience and Revolt

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[12] Samuel Bowles and Herbert Gintis have argued for a reciprocity theory of giving (Bowles and Gintis 1998c), but have not developed formal models of the phenomenon.

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[13] Evidence for this view is presented in Gilens (1996). Similarly, Citrin and Green (1990) uses voting data and other statistical data to argue that only to a very small degree does self-interest explain to the political preferences of Americans in many policy areas, including cash grants based on means-tested criteria.

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