



## Discussion

# Cultural group selection, co evolutionary processes and large-scale cooperation (by Joseph Henrich)

Daniel Houser, Kevin McCabe\*, Vernon Smith

*Interdisciplinary Center for Economic Science, George Mason University,  
4400 University Drive, Mail Stop 1B2, Fairfax, VA 22030, USA*

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Before addressing Joseph Henrich's evolutionary explanation for altruism, it is important to ask whether the existing evidence taken in its entirety actually suggests that preferences are non-selfish in the standard game-theoretic (myopic) sense. Our own research corroborates Henrich's claim that the amount offered in ultimatum and dictator games is greater than predicted by standard economic theory based on payoff dominance. We also find, however, that this fact alone is subject to over interpretation, and that its robustness should be tested in less restrictive interactions. Specifically, the interpretation of the results in these decision environments confound the following motives: (1) self-interest based on dominance; (2) positive reciprocity; (3) negative reciprocity; (4) various forms of other-regarding utility, altruism representing only one such form; and (5) the constant sum form of some games precludes effects based on gains from exchange. Even within this class of games, the altruistic utilitarian explanation for giving does not accord well with the fact that experimental instructions and procedures typically have a dramatic affect on outcomes (Hoffman et al., 1994, 1996). Thus, in the ultimatum game offers by the first mover vary from 44.4 percent of the available sum down to only 27.8 percent for subjects from the same American undergraduate culture. Moreover, similar large increases in ultimatum offers are observed by simply adding to the instructions two short sentences prompting the subjects to think about what they expect the other player to choose before making their choice (Hoffman et al., 2000). This "innocent" attempt by the experimenters to get the subjects to think about the strategic aspect of the interaction apparently had the effect of focusing the proposer's attention on the possibility that his/her offer might be rejected by the responder. Hence, the critical importance that the experimenter not attempt *any instructional or procedural variations* without performing controlled comparisons. This maxim creates a nightmare of complication for important, but hazard-laden, programs designed to make cross-cultural comparisons.

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\* Corresponding author. Tel.: +1-703-993-4856; fax: +1-703-993-4851.  
E-mail address: kmccabe@gmu.edu (K. McCabe).

The evidence we will cite is consistent with self-interested reciprocity as the primary motive for departing from dominant strategy equilibrium in experimental environments. Thus, in the investment trust game, which is formally equivalent to the dictator game, giving is greatly increased over that in the dictator game by the prospect of gains from exchange through reciprocity (Berg et al., 1995). We also have studied two versions of a trust game (McCabe et al., 1996; McCabe and Smith, 2000) that provide a direct test of altruism. Player 1 chooses between altruism and passing to player 2, who can then choose between the narrowly self-interested dominant strategy equilibrium and a cooperative outcome based on reciprocity. In both versions—one of which allowed player 2 to punish defection if player 1 did not reciprocate—we observed not even a single case in which altruism was chosen. Thus, “altruism” does not survive when the choice set is expanded to include competing alternatives.

Moreover, in McCabe et al. (2002) we report comparisons that provide a direct test of reciprocity against either self- or other-regarding utility. We find that the amount of cooperation by player 1 in a standard trust game depends crucially on the inferred “intentions” of the first mover, not the payoff preferences of player 2. In the case that player 1 was forced to “trust,” by passing to player 2, the latter is much less likely to play cooperatively (reciprocate) than when player 1’s trusting play is associated with a large opportunity cost.

In his article, Henrich dismisses reciprocity as a plausible evolutionary explanation for cooperation for reasons including (a) the theory has not yet been worked out; and (b) reciprocity (direct or indirect) seems implausible, even impossible, in large-scale societies where intertemporal transactions must be carried out with hundreds or thousands of different individuals. We hope for rapid progress in the former (see, e.g. Heiner, 2002), but believe the view that large-scale cooperation results from prosocial preferences is misconceived, implausible and ignores market institutions. Although a case can be made that impersonal market exchange grew out of personal exchange (Smith, 1998), the former has long dominated economic theory in accounting for the wealth of nations. Our reading of the evidence, including hundreds of market experiments, suggests that large-scale cooperation results from impersonal, selfish exchange that is mediated by institutions. The dramatic success of the online auction house eBay, where essentially anonymous buyers and sellers complete a very large number of successful transactions, provides a stark example of how well self-interested, but institution-mediated large-scale exchange can adapt quickly to a new technology. This example also illustrates the capacity for new market institutions to emerge from trial-and-error experimentation.

Henrich puts a new face on previously discredited evolutionary models of group selection in order to provide an answer to what some view as the “altruism dilemma.” An important part of his argument is that conformist transmission and success copying can work both to enhance within-group homogeneity and to maintain between-group heterogeneity. This might be true if the variation is measured over very short time periods and with respect to individual decisions, but it seems less plausible that there could be actual strategy copying leading to longer-term within-group homogeneity, as Henrich suggests. The reason is that, while decisions are observable, strategies typically are not. Differences in strategies might tend to remain stable across individuals within a group even in the event that their decisions became quite similar.

Social dilemma experiments with the voluntary contribution mechanism provide evidence that this is, in fact, the case. Broadly speaking, it is usually found in these environments that contributions to the public good start at around 50 percent of subjects' aggregate endowment, and decline to around 10 percent or so of the aggregate if the game is repeated about 10 times (see, e.g. Houser and Kurzban, 2002). It is also routinely found that there is substantial heterogeneity in propensities to contribute to the public good, with some subjects initially contributing most of their endowment while others contribute none (see, e.g. Gunnthorsdottir et al., 2002). By the tenth round, most subjects contribute little of their endowment, yet this does not necessarily imply that they have adopted the free riding strategy. In fact, if the game is stopped and restarted, then we have found that those who were acting cooperatively initially tend to behave cooperatively again (Houser and Kurzban, 2003). This suggests that while decisions across individuals became similar over time, underlying individual strategies displayed no such tendency.

We are not aware of any evidence, experimental or otherwise, that strategies, or beliefs and preferences (strategies' primitives) are as malleable as Henrich suggests. Opportunistic, self-interested decision copying might occasionally arise, but if preferences are generally stable, and if there are a few free-riders in the population, then it does not seem likely that decision copying could lead to sustained cooperation. In particular, we are aware of no systematic experimental evidence that non-cooperators tend to copy cooperators' decisions in a way that generates sustained cooperation, even when cooperators are in the majority. Quite the opposite: experimental evidence suggests strongly that it is typically cooperators who make the greatest movements toward the decisions of dogmatic non-cooperators (Andreoni, 1995; Gunnthorsdottir et al., 2002), with only the speed of this adjustment perhaps depending on a group's type composition (Houser and Kurzban, 2003).

Although we are sympathetic with the important objectives of his article, in our view it is implausible and experimentally unsubstantiated that the cultural transmission mechanisms Henrich identifies could lead to homogeneous beliefs, strategies or preferences. It is possible that decision copying, reinforced with the punishment mechanisms Henrich discusses, could generate somewhat homogeneous decisions over very short time periods. However, persistent and fundamental within-group differences in preferences, strategies and beliefs, particularly when combined with the stochastic forces Henrich mentions (plagues, environmental disaster), are quite likely to disrupt this homogeneity. Consequently, the effect and importance of co-evolution seem open to question.

An alternative, perhaps simpler, explanation for cooperation is that people have a propensity to reciprocate because it is in their self-interest to do so. Nature has sorted this out over the last 2–3 million years or more, and, in small interdependent social groups, provided humans with the ability to delay immediate gratification in the pursuit of greater mutual gains. Nature also gave humans the ability to reflect on their behavior and to evolve social tools (i.e. institutions) which allow ever-greater gains from impersonal trade. These emergent market institutions yield high fitness because they produce substantial personal and social benefits over large groups of strangers at relatively low cost, and require only non-cooperative individual strategies. Variation in the nature and implementation of institutions gives rise to the diverse "types" of cooperation that we observe across social groups.

We agree with Henrich that cultural co-evolution likely did occur. Certainly, it is not controversial that genes may respond to changes in their setting. We know that they respond

to changes in the natural environment (how did the Giraffe come to be 20 ft tall?), and expect that the same would be true of the cultural environment. The challenge is to determine the appropriate mechanisms and behavior to be understood.

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