Economic models are not evolutionary models

Roger J. Sullivan and Henry F. Lyle, III

Department of Anthropology, California State University, Sacramento, Sacramento, CA 95819-6106. **sullivar@csus.edu** **lyle@csus.edu**
www.csus.edu/indiv/s/sullivanr

Abstract: Henrich et al. reject the "selfishness axiom" within a narrowly-defined *economic* model, and are premature in claiming that they have demonstrated cross-cultural variability in "selfishness" as defined in broader *evolutionary* theory. We also question whether a key experimental condition, anonymity, can be maintained in the small, cohesive, social groupings employed in the study.

The authors of the target article are to be commended for successfully executing a complex study and generating much-needed data on human cooperation in cross-cultural contexts. They have used an economic model to test an evolutionary problem – are rules of cooperation between non-kin universal or particular? Our main problem with the article is that it never explicates the difference between an economic and evolutionary model – a test of the canonical economic "selfishness axiom" becomes an unexplicated test of Trivers' (1971) assertion that apparently altruistic acts are ultimately self-interested. This lack of definition leads to problems in the very first paragraph in which the authors point out that participants in experimental economic games "care about fairness and reciprocity" (target article, sect. 1, para. 1). Although concerns with fairness and reciprocity are a problem for the economic "selfishness axiom" – which predicts that people should be narrowly concerned with immediate selfish returns – they are anticipated by a broader evolutionary theory of reciprocity. Trivers (1971) and, more recently, Bshary and Schäffer (2002) use the example of symbiosis between reef cleaner fish and their hosts to demonstrate that social animals should be both selfish *and* concerned with fairness and reciprocity. In this example of between-species cooperation, various species of host fish are kept free of parasites and the cleaner wrasses benefit from a food source. Both parties play fair: the wrasses by not biting healthy tissue and the host-fish by not eating the cleaner fish. Roaming reef fish return faithfully to the same cleaner stations, unless they are cheated by poor service or opportunistic bites by the parasite-cleaning wrasse. By focusing on a problem for classical *economic* theory in the target article – why people should be concerned with fairness and reciprocity – the authors have created something of a strawman by implying an *evolutionary* theoretical conundrum where none exists.

The target article authors have tested the economic "selfishness axiom" with a narrowly focused method using one-time transactions between anonymous pairs of players. In evolutionary theories of cooperation, however, "selfishness" is just one dimension of a more complex dynamic of reciprocity. In his broader evolutionary model, Trivers argues that "[c]learly, what matters for the evolution of reciprocal altruism is that the same two individuals interact repeatedly" (Trivers 1971, p. 42). A more appropriate methodology for testing an evolutionary, rather than narrow economic, hypothesis might employ repeated interactions between people who recognize each other and who are likely to interact in the future. While Henrich et al.'s study provides valuable data about cross-cultural variation in human cooperation, it does not reject the null-hypothesis of selfishness in the dynamic of human reciprocity beyond a narrow economic definition particular to the methodology employed.

The second point we would like to make is that it is questionable whether anonymity between gaming pairs can be maintained in small experimental groups whose members are inter-dependent and highly familiar with each other. While conducting cross-cultural fieldwork on social aspects of mental illness in the Pacific, Sullivan has found that anonymity and confidentiality cannot be assumed (Sullivan & Allen 1999; Sullivan et al. 2000). Even the most personal information elicited in a research interview can become the subject of hilarious post-study analysis in "small-scale" settings where participants are well known to each other. The target article authors acknowledge the problem of anonymity in the smaller groups of their study, stating that "[i]n groups like the Au, Gnau, and Hadza, who live in small villages or bands and eat in public, it is nearly impossible to keep secrets and quite difficult to hide anything of value" (target article, sect. 5, para. 2).

The unlikelihood of achieving enduring anonymity between gaming protagonists suggests that uncontrolled variables may affect the data outcomes, in particular, differences in status between players. Based on Sullivan's experience of fieldwork in a hierarchical post-colonial "small-scale" society (Palau), a low-ranking individual might feel obliged to *accept any offer* from a high-ranking individual out of deference protocol, and a high ranking individual may well *reject any offer* from a low-ranking individual simply because such an offer would be inappropriate from a low-ranked group member. The possibility that gaming pairs will not remain anonymous, and that players could be revealed to be of unequal status, may profoundly affect game outcomes in terms of both offers and refusals. A perusal of Ultimatum Game rejections in Table 2 shows that the rates of rejection are highest amongst the Au (8/30 pairs; 26.7%), Gnau (10/25 pairs; 40%) and Hadza (13/55 pairs; 23.6%) – the same groups identified by the target article authors as being the least private. A high rejection rate may reflect uncertainty about true anonymity, and that the cost of rejecting an offer is less than that of having to reciprocate in the unknowable future. Given the difficulty in maintaining anonymity in "small-scale" societies, it would seem necessary to control for status differences by matching the status of each protagonist, or letting it be known that each protagonist would be of approximately equal rank. There is no indication in the target article that any such consideration of the effects of relative rank and status were controlled during the study.

Finally, Haley and Fessler (2005) have demonstrated that the outcomes of economic games are affected by subtle cues. For example, when anonymous Dictator Games were played under the gaze of stylized eye-like shapes, allocations were 55% higher than when no eye shapes were present (Haley & Fessler 2005, p. 252). Henrich and colleagues employed gaming methods that were inconsistent between groups. If even subtle experimental cues can dramatically alter game play, then we might expect to see between-group differences in game outcomes when a variable methodological protocol is used.

Economic models do not constitute evolutionary models, but the results of this narrowly focused economic methodology are presented as an evolutionary statement of the *nature* (or lack thereof) of human cooperation. In reality, the study methodology ignores key fundamentals of the evolution of human reciprocity as theorized by Trivers (1971): that reciprocal transactions require protagonist recognition and repeated interactions. By excluding these variables the target article has addressed only a narrow dimension of human reciprocity: selfishness in anonymous, non-repeated transactions. This should not be extrapolated to a general statement about the evolution of human cooperation.

Preferences, beliefs, and heuristics

Toshio Yamagishi

Graduate School of Letters, Hokkaido University, Sapporo, Japan 060-0810.
Toshio@let.hokudai.ac.jp
http://lynx.let.hokudai.ac.jp/members/yamagishi/

Abstract: Alternative interpretations are proposed for the finding that market integration is positively related to fair behavior in experimental games. Market activities may produce market relevant concepts and stories that interpret experimental games as incidences of social exchange, and thus may enhance the relevance of (1) market-related preferences or (2) a decision heuristic designed for social exchange.

The findings coming out of the cross-cultural experiment conducted by Henrich and his collaborators are of extreme impor-

https://doi.org/10.1017/S0140525X05430149 Published online by Cambridge University Press