Preferences and constraints: The value of economic games for studying human sociality

We argue that classic economic games and their more recent extensions should continue to play a role in fieldworkers' methodological toolkits. Economic games are not replacements for observational and self-report studies of behavior, but rather complements to them: While observational and self-report data measure individuals' behavior subject to the constraints of cultural institutions, competing demands on their resources, and even self-presentation bias, economic games can be designed to measure comparatively unconstrained individual preferences, or to selectively introduce constraints, providing insight into how individuals would behave under certain conditions *if* they had the opportunity. By using a combination of experiments, observation, and self-report, anthropologists, economists, and psychologists can continue to improve their understanding of how preferences translate into "real world" behavior, and how "real world" constraints influence preferences, across diverse human societies.

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Preferences and constraints: The value of economic games for studying human sociality

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Earlier this year, Galizzi and Navarro-Martinez[1] published a paper critiquing the external validity of experimental economic games—that is, whether the findings from the experimental contexts generalize to behavior "in the real world." This is not a new critique of experimental economics. As Camerer[2] sees it, the ongoing debates within economics about whether experiments have external validity are fueled by a misunderstanding of the purpose of economic experiments, namely, the measurement of individual preferences under the experimental manipulation of rules and norms. Such debates about economic experiments transcend disciplinary boundaries. For example, inspired by research in economics, Henrich and a team of anthropologists[3] conducted experimental economic games in 15 different societies, using protocols closely matched to those used in Western Europe and North America. Their results revealed diverse behavior across samples, and they attributed this diversity to differences in "economic patterns of everyday life in these societies" (p. 74). This publication—and the spate of field-based experimental economic games that followed—leaned heavily on economic games as a source of systematic insight into everyday life beyond the experimental context. Such interpretations led to critiques similar to those in economics: that economic experiments have little-to-no power to predict "real world" behavior[4].

It should not surprise us, however, that behavior in economic games sometimes diverges from real-world behavior. Economic games are only appropriate for answering questions they are designed to answer. The classic economic games—the Dictator Game or the Ultimatum Game, for example—explicitly attempt to minimize contextual cues other than those manipulated by the researcher, providing insight only about participants' preferences under these conditions[2,4,5]. Games that are framed in terms of cooperative institutions, for example, demonstrate the power of small methodological changes to alter participant behavior[6]. Though prominent critiques have driven some researchers away from using economic games, here we highlight their continued utility for anthropologists, economists, and psychologists working in field contexts. In short, the strength of this experimental method is its flexibility.

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While on the one hand, economic games can be designed to measure preferences as independently as possible of the constraints of daily life, on the other hand, researchers can introduce just enough framing to gain insight into face-to-face behavior that may be difficult to capture in observational studies or discuss with participants.

For those unfamiliar with them, economic games are experiments that offer a flexible, low-cost method for researchers studying human behavior. Fieldworkers can provide participants at their study sites with part of a day's wage and ask them to divide the money between themselves and third parties (i.e., *alters*). Under some experimental designs, alters can respond to decisions made by the focal participant (the *decider*); under others, they cannot respond. In most versions of these games, deciders know only that alters are strangers, and vice versa. These strangers are almost always from the same university or community, although this is usually implicit and not expressly stated to participants. After deciders divide the money, and alters have the opportunity to respond if relevant, researchers may ask follow-up questions to probe why participants made the decisions they did.

Revealing preferences

Economic games can enhance participant agency relative to what is possible in daily life. If decisions are made in private, games may reveal more about behavioral proclivities toward strangers (in large-scale societies) or toward unspecified same-community alters (in small-scale societies) than observed or self-reported actions, which can be heavily constrained by cultural institutions, social obligations (e.g., when money is received, one must share), an individual's existing funds and competing demands on those funds[4], and the extent to which individuals can choose their social partners[7]. Allocation games, such as the Dictator Game, are particularly good at minimizing exogenous constraints: They provide participants with the opportunity to be generous or selfish without conditioning their decisions on the anticipated

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responses of alters or on the possible reactions of third parties, including the reactions of experimenters[7]. Take, for example, recent work by BGP and colleagues testing whether moral values and belief in morally-concerned deities affects rule-following[8]. Participants played a game with alters specifically designated as geographically distant co-ethnic, co-religionists with whom the participants never interact. Participants may be unwilling to disclose their self-favoring or in-group-favoring biases in self-report measures; however, the design of the game provides a behavioral measure of whether individuals demonstrate rule-breaking favoritism in the absence of constraints from social expectations or reputation management. Further, this game provides the opportunity to examine the role of religion in the strengthening of social ties—in the event that participants someday forge such ties with geographically-distant others.

Economic games can also permit researchers to observe rare interactions that might not take place within a field season or might not be salient enough to be recalled and reported by participants. Studying individuals' preferences for between-group vs. same-group relationships, ACP used an experimental paradigm in which alters were strangers, but members of either the same or a different ethnolinguistic/religious group as the decider[9]. In the populations with whom she collaborates, individuals with fewer resources or those who do not own cellphones are less likely to have the opportunity to interact with out-group members. Further, members of one population, the Tsimane', have only infrequent interactions with members of other ethnolinguistic groups, making these interactions difficult to capture in observation and self-report. When between-group interactions do occur, the Tsimane' often self-report suffering discrimination. ACP thus attempted to approximate a first-time interaction across group boundaries with a game, designed such that deciders learned the identity of stranger alters, and vice versa. Deciders who were Tsimane' were 60% less likely to give a coin to an alter from a group they perceived as having good access to markets, giving more money to other Tsimane' alters instead. Deciders often explained their decisions by indicating that alters were in need, consistent with Tsimane' individuals'

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common view of themselves as having fewer resources than other ethnolinguistic groups. A study based only on observational and self-report data might attribute the infrequent interactions between the Tsimane' and other ethnic groups to discrimination and exclusion from markets. However, this experimental paradigm reveals that the Tsimane' may also be responding to these experiences, preferring to invest in other Tsimane' rather than pursue interactions with other ethnolinguistic groups.

Greater insight into face-to-face relationships

When economic games are designed to reflect real life social interactions or institutions, they demonstrate a higher degree of generalizability to behavior outside the experiment[2,5]. To understand participants' preferences *and* how these preferences reflect daily life, MMG modified classic economic games to measure decider behavior with respect to specific, known alters using Recipient Identity-Conditioned Heuristics (RICH) games[5]. In these RICH games, deciders: (i) choose how to allocate a fixed number of coins across a photo-array of community members (allocation game), (ii) choose whether or not to take coins from these same alters (taking/leaving game), and (iii) choose whether or not to pay a fee to punish alters with a 4x multiplier (costly reduction game). Like traditional economic games, RICH games allow the decider to act on their preferences with comparatively little constraint or fear of social repercussions. But like observational studies, these games permit investigation of how a decider allocates a limited resource across an array of known alters based on each alter's characteristics (e.g., reputation), the decider's sentiments about each alter, and each alter's relationship to the decider (e.g., kinship, friendship). In debriefing interviews, participants in Fijian villages were twice as likely to relate RICH games to their daily lives as were participants in neighboring communities[10] who played classic anonymous games; further, almost all RICH game participants provided ethnographically-valid rationales for their decisions, including helping the "weak" and punishing "moneyheads."

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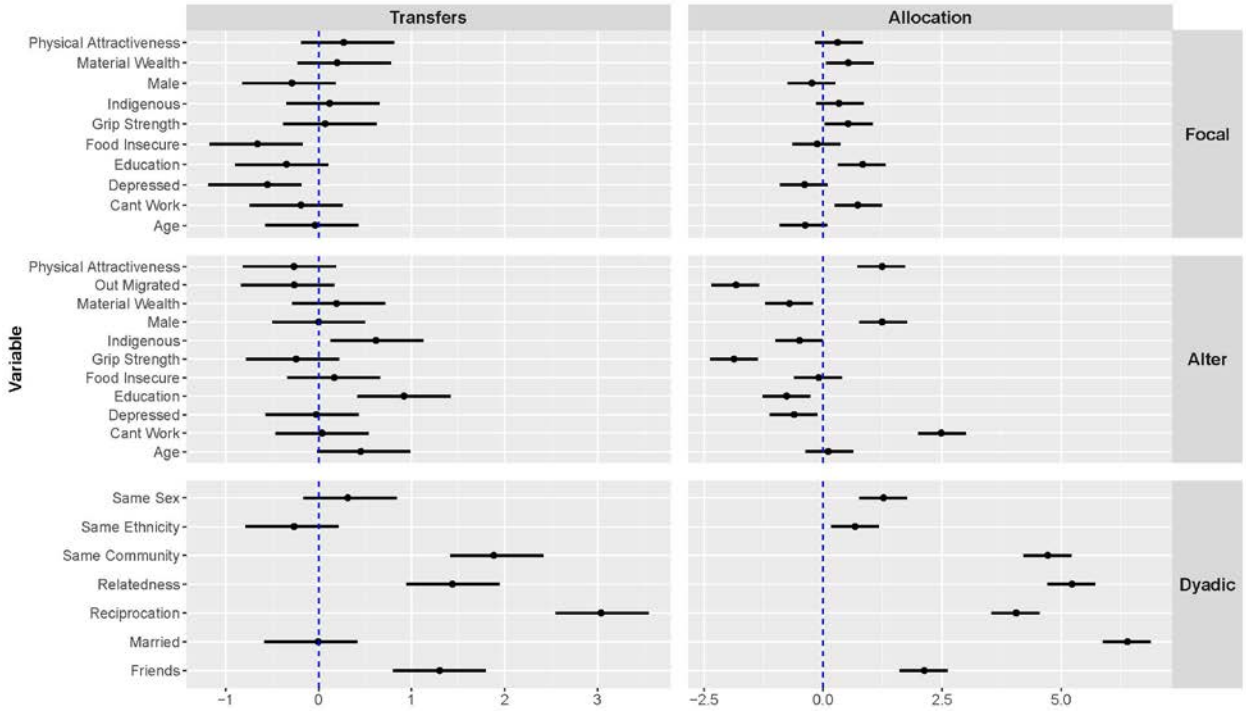

Figure 1. Standardized model estimates (medians and 90% credible regions) of predictors of allocations to alters. The left column indicates self-reported resource transfers and the right coin allocations in the allocation game. The top block of estimates for each model gives the effects of focal characteristics on the probability of giving to alters, the second block gives the effects of alter characteristics on the probability of giving to alters, and the bottom block gives the effects of dyadic characteristics on the probability of giving to alters. Each estimate reflects the effect of a single predictor controlling for all other predictors of transfers (left column) and allocation game giving (right column). See Supplementary Materials for methodical details and a complete discussion of results and implications.

In a recent field study in Colombia, CTR conducted a set of RICH games based on those developed by MMG. We present the results of this study (Fig. 1) alongside parallel results of self-reported resource transfers. Note that dyadic factors such as kinship, friendship, and village co-residence are positively associated with both observed resource transfers *and* allocation game behavior in the experiment, demonstrating that behavior in the experiment parallels behavior in a corresponding "real world" context. Note also that decider and alter characteristics influence allocation game transfers more than self-reported resource transfers. This suggests that the allocation game offers respondents the freedom to express preferences that they may not be able to express in daily life. Indeed, some poorer participants noted that the games provided them with the opportunity to finally give to others who had previously

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helped them. Jointly, these results both support the external validity of RICH games and demonstrate that economic games can provide insight into preferences in a way that observational studies often cannot.

In conclusion, we argue that classic economic games and their more recent extensions should continue to play a role in fieldworkers' methodological toolkits. Economic games are not replacements for observational and self-report studies of behavior, but rather complements to them: While observational and self-report data measure individuals' behavior subject to the constraints of cultural institutions, competing demands on their resources, and even self-presentation bias, economic games can be designed to measure comparatively unconstrained individual preferences, or to selectively introduce constraints, providing insight into how individuals would behave under certain conditions *if* they had the opportunity. By using a combination of experiments, observation, and self-report, anthropologists, economists, and psychologists can continue to improve their understanding of how preferences translate into "real world" behavior, and how "real world" constraints influence preferences, across diverse human societies.

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