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Bringing Norms In

The Role of Context in Experimental Dictator Games

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Experimental economics aims to understand the foundations of human behaviors such as altruism, trust, and cooperation through controlled choice situations that enable comparison of behaviors across both individuals and societies. While games aim to elicit “pure” behavior by isolating it from social contexts, there is some evidence that participants bring their normative frameworks into game situations and that this might influence their behavior in games. To test this hypothesis, two versions of the dictator game, one uncontextualized and one closely resembling a local social norm, were conducted in a population of Kenyan livestock herders. Behaviors in the two versions were strikingly different; players in the contextualized game adhered closely to the social norm, while those playing the uncontextualized version exhibited a wider range of behaviors. In addition, individual demographic variables predicted behavior in the contextualized game (but not in the uncontextualized game), in contrast to the results of most earlier cross-cultural experimental work. Understanding how norms influence behavior in experiments creates new possibilities to investigate the operation and transformation of norms.

Experimental economics games have been used recently in anthropology to investigate the basis of pro-social human behaviors such as fairness, altruism, and cooperation (Tracer 2003; Sosis and Ruffle 2003; Henrich et al. 2004). Using games, experimenters create standardized situations abstracted from ordinary social context that are designed to elicit behavior demonstrating player preferences or dispositions (Camerer 2003). By standardizing protocols across field sites, researchers can compare behavior across individuals and groups to explore the range of variation across cultures and the factors (e.g., individual demographic characteristics or group-level differences) that underlie it. Taking the context out of experiments enables cross-cultural comparisons and may produce insights regarding the universality (or not) of pro-social behaviors, but it makes it difficult to interpret players’ behavior to the extent that behavior is influenced by social

norms. For example, recent research has demonstrated that people in a diverse group of societies around the world engage in costly punishment of unequal behavior in third-party punishment experiments¹ (Fehr, Fischbacher, and Gächter 2002; Henrich et al. 2006).² In the experiments reported by Henrich et al. (2006) the amount of punishment varied considerably across societies and was not explained by individual-level demographic variables such as age, gender, wealth, or income. This suggests that cultural differences may account for variation in punishment behavior. What people are punishing in these experiments is violations of socially recognized and perhaps culturally specific norms of behavior, and this raises the question whether and how the experimental situation evokes norms in the individual player and, related to this, whether the experimental context affects behavior.

There is considerable evidence that changes in the framing or context of a game alter player behavior (Hoffman et al. 1994; Elliott and Hayward 1998; Babcock and Loewenstein 2004). For example, Pillutla and Chen (1999) found that players were more cooperative in a game presented as a social event and less cooperative in the same game presented in an economic context. Wang (1996a, 1996b) found cross-cultural differences (between U.S. and Chinese samples) in decision making and risk aversion in a game presented either as a life-and-death situation or as an economic choice. Ensminger (2004, 376) suggests that Orma pastoralists in Kenya made relatively high offers in a public-goods game because it resembled a local practice of fundraising. If context matters for player behavior, this will have consequences for the interpretation of experimental results, because it implies that, even in a game apparently devoid of context, players bring their own norms into the situation and act accordingly. Indeed, the varying normative frameworks regarding “fairness” or “altruism” applied by players from different societies may help explain some of the variation in punishment behavior in the experiments referred to above. Greater understanding of the way players apply their normative frameworks to the experimental situation may help illuminate the particular structure of rules and values that determine the levels of cooperation

1. The third-party punishment game is played by three anonymous players. As in a dictator game, player 1 and player 2 are allocated a stake of money by the experimenter and player 1 is given the opportunity to split the stake with player 2. Player 1 retains whatever is not given to player 2. Player 2 simply receives whatever player 1 allocates. Player 3 also receives a stake of money (about half what player 1 and 2 split) and is informed of how player 1 split the stake with player 2. Player 3 has the option to punish player 1 by paying some of his/her stake to have a proportionate amount reduced from player 1’s takings. Similar punishment behavior has also been observed in other experiments (see Gintis 2000 for a review of punishment in public-goods games and Falk, Fehr, and Fischbacher 2003 for ultimatum games).

2. The Roots of Human Sociality project, of which I was a member, conducted experiments among 15 small-scale societies around the world. See <http://www.hss.caltech.edu/roots-of-sociality/phase-ii> for details about this project.

and punishment in society. Such understanding, in turn, may explain the variation of behavior observed in cross-cultural experiments.

This paper discusses experiments conducted among Samburu pastoralists in northern Kenya aimed at exploring the relationship of context to player behavior in the dictator game. The dictator game is played by two anonymous players who are provided with a stake of real money (in these experiments, the stake was equal to one day's casual-labor wage).³ The first player (player 1) is asked to divide the stake between the two. Player 1 may give any amount (in 10% increments) of the stake to player 2 and retain the balance of the stake. Player 2 makes no choice in this game. An economically rational player 1 would be expected to offer zero to player 2, since there is no way player 2 can sanction player 1's behavior and, since the game is anonymous, there is no knowledge of player 1's identity (hence no negative effect on player 1's reputation). Thus, a positive offer from player 1 represents an altruistic act, and the game is interpreted as a measure of the degree of altruism or fairness demonstrated by player 1.

Many experiments in the United States and internationally have found that players in this game make positive offers, often as high as 50% of the stake and sometimes even higher (see Tracer 2003; Henrich et al. 2006), though there is a wide range of offers in many cases (Camerer 2003). The ubiquity of positive offers suggests that people do not behave according to the canonical assumptions about rational egoistic behavior of mainstream economic theory. Instead, many players demonstrate a taste or preference for fairness even when self-interested behavior would not be detected or punished. This finding alone hints that players bring norms into games in the form of other-regarding preferences, but it is difficult to ascertain the nature of these norms in an uncontextualized game. The dictator game has been found to be sensitive to changes in context. Eckel and Grossman (1996) found that replacing an anonymous player 2 with a well-known charity, the Red Cross, led to significant increases in offer size. They argue that this sensitivity to context, far from being a hindrance, enables experimenters to learn more about the psychological and social factors that influence behavior (p. 189). The aim here is similar—to demonstrate how context cues particular social norms.

The experiments discussed here find significant differences in player behavior in two versions of the dictator game, one uncontextualized (as just described) and one modeled on a well-known Samburu norm of meat sharing. Players in the contextualized (meat-sharing) game made offers consistent with the local norm with a limited spread of offers, while those playing the uncontextualized game made higher offers on average over a wider range. These results indicate that the con-

textualized game cued a local norm and that most players responded by making offers that were normatively appropriate.

The Importance of Norms

Norms are shared beliefs about appropriate behavior held in a particular group or community. Pillutla and Chen (1999, 86) define norms as “legitimate and socially shared guidelines to accepted and expected behavior” and point out that norms may refer to both the rules that underlie behavior and the behavior itself. In other words, repeated patterns of behavior create expectations about future behavior and ensure a degree of predictability in social relations. This predictability has been emphasized by scholars of institutions as having a lubricating effect on social relations and reducing the transaction costs of various forms of exchange (North 1991). When others' behavior is relatively easy to predict, individuals spend less time deciphering actions and are better able to establish cooperation with others. When norms are unclear or when there is widespread violation of normative behavior, others' actions become less predictable and cooperation more difficult to establish or maintain.

Predictability is important for understanding the reasoning of players in experimental games. Presumably, players base their decisions in games on some calculation (whether conscious or not) of the likely behavior of the other player(s) in the game. Thus, it seems reasonable that if the game resembles a well-known norm in their society, they will more readily assess the probability of particular (normative) behavior on the part of the other player and make their own choice accordingly. If the game does not cue a particular norm or if it cues multiple norms, a wider range of behaviors of other players will be anticipated and player behavior will likely be more varied as well.

Norms are enforced by sanctions of violations as well as rewards for behavior consistent with norms. In this way they play an important part in regulating individual behavior. On the one hand, the existence of sanctions and rewards for behavior creates incentives for individuals to adhere to social norms in an instrumental fashion (Scott 2000; Posner 2000). On the other hand, these mechanisms signal the values or the moral code of society through prescriptions of acceptable behavior (what one “ought” to do) and proscriptions of unacceptable behavior (what one “ought not” to do) (Cialdini, Reno, and Kallgren 1990; McAdams 1997). The moral weight of various norms may differ within a community, however, such that violations of some norms may be tolerated to a greater degree than violations of others. There also exists a wide range of sanctions for norm violations ranging from formal fines or imprisonment to informal gossip, social distancing, or even irritated glances.

The strength of incentives and the moral force of norms ought to influence individuals' propensity to adhere to particular norms. In the experimental situation, the likelihood of players' behaving normatively may vary depending on the

3. The stakes were set in accordance with the protocols established in the Roots of Sociality Project, where stakes across all the societies studied were pegged at a day's wage.

significance of the norm(s) cued by the game situation. In the third-party punishment experiments mentioned above, players from all societies were willing to incur personal costs in order to sanction unequal offers, but the degree of deviation from an equal sharing of the stake (i.e., a 50–50 split) that they punished varied. For example, some punished any offer below 50% of the stake, while others punished only offers of zero. This variation may reflect differing assessments of the significance of the norm violations involved or differences in local sanctioning practice.

The experiments described here focus on the normative content of the game. In the contextualized game, appropriate behavior could be readily assessed by players. The meat-sharing norm is important for cooperation and reciprocity among the Samburu, and sanctions for norm violations, while informal, could be quite damaging to an individual's reputation. In contrast, the uncontextualized game presented players with a less clearly defined and broader set of choices for behavior.

Initial Experiments among the Samburu

The Samburu are pastoralists who live primarily in Samburu District in north-central Kenya. They depend on cattle, sheep, goats, and some camels for their livelihood, supplemented by trade and wage labor. They are seminomadic, moving their herds seasonally in search of pasture and water, which vary in their temporal and spatial distribution in this semiarid environment. The Samburu were one of the societies included in the cross-cultural experiments presented in Henrich et al. (2006), and they were located near the middle of the distribution of societies in terms of their degree of punishment behavior. However, as with the entire sample of societies, the particular pattern of behavior exhibited by the Samburu was not explained by individual demographic variables, leaving open the question why Samburu players played as they did (and differently from those in other societies, including other Kenyan ethnic groups).

Earlier experiments conducted with the Samburu in 2001 hinted that context might play a role—that players might be applying particular norms to the game situation. The spread of offers in the dictator game, for example, was quite broad compared with the distinctive bimodal pattern often seen in U.S. student samples (a mode at zero, representing perfect self-interest, and another at 50% representing a fair offer). For the Samburu there was a mode at about 20% of the stake, and it was clear from unsolicited player comments during the game that a number of them felt that this was a fair offer while others believed an offer of 50% was appropriate. Informal discussions and interviews in the weeks following the games revealed that in a number of real-world contexts a gift of 20% would be appropriate (Lesorogol 2005a). For example, women often share sugar with friends and neighbors who request it. When asked how much sugar they would give to friends if they had a kilogram of sugar, most women responded that they would give a “glass” of sugar, about 200

grams, or 20% of a kilo. Meat sharing is also very common in this society. When asked how much meat they would give to a passerby who came to their home when they were slaughtering a goat, informants responded that they would give the guest the hind leg, indicating a prescriptive norm for this situation. These examples suggested that in some situations giving 20% or so was appropriate, while in other cases an even split was deemed correct (e.g., sharing meat from a dead animal jointly discovered in the forest).⁴

Further evidence of the possible role of context was the way in which a minor variation in the game affected player behavior. In this case, before the game, a group of respected elders was asked to decide on the appropriate offer in this game and declared it to be 50% of the stake. When giving the game instructions, players were informed of elders' decision but assured that they could make any offer they chose. Interestingly, offers in one community fell significantly, suggesting that they were purposely flouting the elders' prescription (Lesorogol 2005a). This game was designed to measure the influence of elders' authority on player behavior, and the results suggest that it did have an effect—that the way in which the game was framed during the instructions did influence player behavior. Given these suggestions of the importance of context, it was appropriate to design an experiment to focus directly on the effect of context.

Methods

Interviews and observations had confirmed that the practice of giving a hind leg of a goat being slaughtered to a guest had the status of a norm. A wide range of informants agreed that this was the proper action to take, and the phrase “the hind leg for the guest” (*moru le laguetani*) was repeated by many verbatim, like a maxim. Although this division of meat is normative, there seems to be no overt sanctioning if someone fails to proffer the hind leg. Failing to adhere to the norm, however, would damage one's reputation, especially since it constitutes a failure of generosity, one of the most highly valued qualities among Samburu people. Someone who is not generous is called *laroi* (selfish), which has very negative connotations and is often used as a term of derision. Someone who is *laroi* is lacking in *nkanyit* (respectability) and is considered to have a major character fault (Spencer 1965).

Meat sharing is an important mode of cooperation among the Samburu, who rely on livestock and livestock products for their diet and livelihoods. The bulk of reciprocity revolves around livestock, particularly the exchange of live animals, but slaughtering and sharing meat are central components of all rituals and ceremonies. Although the routine slaughtering of a goat for food does not assume ritual significance, the sharing of the meat involved is far from trivial both in a social

4. This is not to argue that in every situation 20% or 50% would be the Samburu norm for sharing; norms for sharing are dependent on the context. See Holtzman (2001) for another view of Samburu food sharing emphasizing gendered access to and control over food resources.

Table 1. Offers in the Uncontextualized and Contextualized Games

Offers	Minimum	Maximum	Median	Mean	Mode	S.D.
Uncontextualized ($n = 15$)	30	70	40	41.3	30	13.55
Contextualized ($n = 15$)	0	30	20	19.3	20	10.99

and a nutritional sense. Thus, while giving away meat is under the control of the owner of the goat, it is not in his interest to violate norms regarding the proper division of meat because he might lose out on future opportunities to receive meat himself and could develop a reputation for selfishness.

The meat-sharing scenario closely resembles the uncontextualized dictator game in which player 1 has the choice of how to split the stake with player 2, and therefore it was not difficult to modify the game to resemble the meat-sharing situation. Two experimental treatments were conducted; the usual, uncontextualized game and the contextualized game based on the meat-sharing norm. The games were played in the Samburu community of Ngurunit in August 2003. No previous experiments of this kind had been conducted in Ngurunit, nor were the earlier interviews regarding meat sharing conducted in this community. There was therefore no reason to believe that people here would anticipate the contextualized game (though it became clear that the meat-sharing norm exists in this Samburu community).

The stake size for the games was 100 Kenya shillings. Participants also received 20 shillings to compensate them for the time spent in the exercise. Thirty anonymous pairs of players were randomly assigned to the two treatments (15 pairs to each), and the games were played in rapid succession on the same day at the same site. The two groups were physically separated and had no opportunity to discuss the games either among themselves or across groups (research assistants monitored the groups while they were waiting to ensure that there was no discussion about the games). The instructions were translated and back-translated by native Samburu-speakers and delivered to the players by fluent speakers. The primary difference in the instructions was that in the contextualized game the players were told to imagine that the 100 shillings given to player 1 represented a goat being slaughtered at home and that player 2 came by while the meat was being divided. Player 1 then had to decide how much meat (from none to all of it) to give to player 2 and divide the money accordingly.

Players entered the playing room one by one in random order according to selection of their names from a hat, and the game was explained to them once again. Ten ten-shilling coins were used for the stake, and these were placed in front of the player on a table and manipulated by the player to show how the stake should be divided. Several examples were shown to the player, and comprehension of the game was checked by administration of test questions before play began. The participants had no difficulty understanding the game in either the uncontextualized or the contextualized form. Aside

from the changed instructions for the contextualized game, players were encouraged to consider the coins used in the game as a representation of the anatomy of the goat being slaughtered. Thus, when asked to show how much meat they would give to the guest (player 2) players divided the ten coins as if they were parts of the goat's anatomy. This turned out to be easier than anticipated, as players relatively quickly decided how many coins would be about equal to a leg, a head, and so on. After all the games were played, players were paid according to the decisions made in the game.

Results and Discussion

The distributions of offers in the two games were quite different (see table 1 and fig 1). In the uncontextualized game, the mean offer was 41.3% of the stake, which is almost identical to the mean of 40% in another dictator game played in a different Samburu community, Mbaringon, also in 2003 (Lesorogol n.d.). The mean offer in the contextualized game was 19.3% (Mann-Whitney difference of means test $z = 4.17$, $p < .01$).⁵ This finding was confirmed by a pooled regression analysis that included the contextualized treatment as a dummy variable. The contextualized treatment had a significant ($p < .01$) effect on offers; ceteris paribus, offers in this game were 24.35 shillings less than in the uncontextualized game.

The distribution in figure 1 illustrates that offers clustered around 20% and 30% of the stake, except for three zero offers. Unsolicited comments made by players in the contextualized game during play reveal that they were trying to adhere to the norm of giving the hind leg to the guest. Almost all players

5. The Mann-Whitney test of difference of means was used because of the nonnormal distribution of data points in the games.

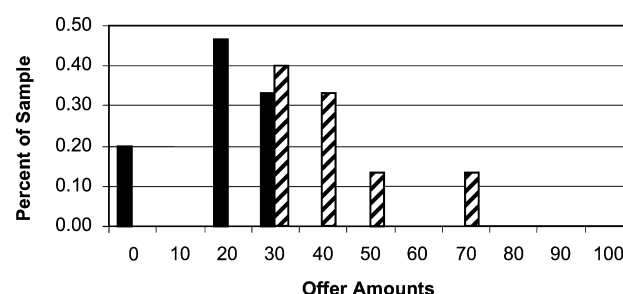


Figure 1. Distribution of offers in the two games. Black bars, contextualized game; diagonally striped bars, uncontextualized game.

Table 2. Player Characteristics

	Sex		Mean				MI 1	MI 2*	MI 3	MI 4*	MI 5
	Male	Female	Education	Age	Individual Income*	Household Wealth					
Uncontextualized (n = 15)	7	8	0.53	39	4,311	105,880	77	760	1.2	3.3	0
Contextualized (n = 15)	7	8	0.20	44	13,202	77,780	84	4,373	3.1	2.4	2.4

Note: * denotes significant difference of means at the .05 level. MI 1, % of household diet purchased in market; MI 2, annual income from wage labor, rental, trade; MI 3, frequency of wage labor in last month; MI 4, trips to market in last week; MI 5, frequency of trading goods for purchase/resale last month. Income and household wealth reported in Kenya shillings (1 USD = 75 KSH).

explicitly said that they wanted to give the hind leg and then went on to manipulate the ten coins so as to give the leg, deeming it to be either two or three coins out of the ten. One of the players who offered zero rationalized her offer in the normative context by saying that the goat was very small and, though she knew she should give the hind leg, she was prevented from doing so by the small size of the goat. One player diverged from explicit reference to the norm by explaining that he would give the head of the goat to the guest (which is also culturally appropriate, since men customarily eat the roasted head of the goat) and assigned the head two coins. In the abstract game, players made no reference to any particular norm. In fact, they made fewer comments overall and made little effort to rationalize or justify their offers to the experimenter. It may be that this game cued different norms for different players or that its abstract nature meant that it did not cue any specific norm. It is difficult to interpret the lack of comments from players without postplay interviews, which were avoided here because other games were to be played in the community subsequently.

It is possible that player characteristics rather than game context were driving offers in the games. Table 2 presents player characteristics for the Ngurunit sample. These include sex, years of education, age, annual individual income, total household wealth (measured in livestock and monetized), and five indicators of market integration.⁶ To determine whether these differences were significant predictors of offers in the games, regression analyses were performed with offers as the

dependent variable and sex, age, education, individual income, and household wealth as independent variables. Given the small sample sizes involved, these results should be interpreted cautiously. An ordinary least squares (OLS) regression revealed that none of these variables were significant predictors of offers in the uncontextualized game (table 3). This is consistent with other cross-cultural findings that individual demographic variables generally do not predict offer size (Henrich et al. 2004, 2006).

Sex and wealth were significant predictors of offer size in the contextualized game. Women gave lower offers (including two out of three zero offers), and wealthier individuals were more likely to give low offers (table 4). In addition, the model accounted for over 50% of the variation of offers. Given the narrow range of offers in the game, covering just three data points (zero, 20, 30), these results must be treated with caution. Because of small sample sizes, additional regression analyses were performed to check the robustness of the results. MM-estimation was used, and the results were similar to the OLS regressions: no significant predictors for the uncontextualized game while both sex and household wealth were significant for the contextualized game. Bootstrapping techniques (both random-X and fixed-X methods) confirmed these results with one exception; sex was significant in the uncontextualized game. These analyses suggest that women made significantly lower offers than men and wealthier individuals made lower offers in the contextualized game. For every increase in wealth of KSH 1,000, offers declined by .13%.

6. In spite of random assignment of players to treatment conditions, there was a statistically significant difference of means for annual individual income and for two market integration measures: MI 2, income from wage labor, rental, and trade, and MI 4, trips to the market in the last week. Players in the contextualized game had higher average annual income and more income from trading activities. Although the differences in household wealth were not statistically significant, players in the contextualized game had lower average wealth, meaning that they owned fewer livestock than those who played the uncontextualized game. It is plausible that the lower levels of wealth are one of the reasons for higher levels of income, as a number of studies have shown that pastoralists in this region who are poorer in livestock tend to rely more heavily on trade and wage labor for their livelihoods (Little et al. 2001; Lesorogol 2005b; Fratkin and Roth 2005).

Table 3. Regression Statistics for Uncontextualized Game

	Coefficient	SE	<i>t</i>	<i>p</i>
Intercept	651.00	764.48	0.85	0.42
Birth year	-0.31	0.39	-0.80	0.44
Sex (M/F)	11.31	8.93	1.27	0.24
Education	2.135	3.371	0.633	0.542
Individual income	-0.00	0.00	-0.30	0.77
Household wealth	1 .894E-05	5.128E-05	0.37	0.72

Note: Multiple *R*, 0.47; *R*², 0.22; Adjusted *R*², -0.21; SE, 14.94; Observations, 15.

Table 4. Regression Statistics for Contextualized Game

	Coefficient	SE	<i>t</i>	<i>p</i>
Intercept	131.89	244.33	0.54	0.60
Birth year	−0.05	0.12	−0.40	0.70
Sex (M/F)	−9.36	4.23	−2.21	0.05
Education	−3.35	3.76	−0.89	0.40
Individual income	0.00	0.00	0.36	0.73
Household wealth	−0.00	0.00	−3.91	0.00

Note: Multiple *R*, 0.83; *R*², 0.69; Adjusted *R*², 0.52; SE, 7.66; Observations, 15.

In the case of women, it might be argued that they are more likely to violate the norm (not to share meat) as they balance the needs of their family against the demands for broader sharing. It was a woman who justified her offer of zero by saying that the goat was very small (which was literally true, since most goats' market value is several times the value of the stake in the game) and therefore she could not share it. She clearly understood the norm involved and made a conscious decision to violate it for, in her mind, a good reason. Although women would presumably be concerned about the reputation effects of violating the norm, they may be somewhat less concerned about this than men, since men own more livestock, have greater rights over livestock, engage in more livestock exchanges, and participate more in public life.

As far as wealth is concerned, it could be argued that wealthier individuals are in a better position to violate norms in that their higher social status may to some degree insulate them from sanctions and their need for reciprocity is less than that of the poor. Scott (1985) has argued in favor of the countervailing power of the "weapons of the weak" as they deploy gossip and rumor to encourage the wealthy and powerful to adhere to social norms, but he grants that the wealthy often do violate norms with some impunity, indeed forcing the poor to resort to these "weapons" in the first place. This is particularly the case with norms of sharing, where the wealthy are seemingly opting out because they have less to gain in these relationships. Similarly, Ensminger and Knight (1997) have argued that it is often those with greater power in society who are able to shift norms in their favor, partly because of their ability to withstand the social sanctioning that often greets efforts to introduce new social practices.

Conclusion

While these are plausible explanations, a replication with a larger sample is needed to confirm these results. What is remarkable is the contrasting offers across the two games and the clear intention of almost all players in the contextualized game to adhere to the norm (or to explain why they did not). While virtually all players in the contextualized game explained that they needed/wanted to give the "hind leg to the guest," players in the uncontextualized game were far less vocal in expressing their interpretation of the game or in

justifying their offers. Context mattered in the way players understood the game and in their choices. Context made the meat-sharing game more meaningful to the players, thus prompting them to explain their reasoning without any questioning from the experimenter. When the game clearly cued a social norm familiar to players, almost all adhered to it. When the game failed to cue a particular norm, players made higher average offers over a broader range.

These findings support the idea that players in experiments do bring their normative frameworks into the game situation—more clearly when the game cues a particular norm as in the contextualized game but presumably also in the uncontextualized game, the difference being that the uncontextualized game evokes a range of possible responses depending on how it is interpreted by players (see Lesorogol n.d.). Experimenters interested in discovering universals of human behavior should be aware of the role of context and how it may affect behavior in games. At the same time, by manipulating game context, we may get closer to understanding the factors that influence not only general patterns of play, such as the levels of punishment exhibited in cross-cultural experiments, but also actual behavior in society. In this sense, experiments can be useful to anthropologists as an additional method to explore the operation of norms. They have the advantage over observation of generating behavior that is of interest across a range of individuals in a short time. Further, by altering the game context, researchers can tailor games to address questions about the content and operation of norms in particular societies.

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