Experiments and Ethnography: Combining Methods for Better Understanding of Behavior and Change

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There is much evidence that social institutions facilitate and sustain relations of trust, reciprocity, and cooperation, particularly in small-scale societies, where they often prove pivotal to successful management of communally shared resources (McCay and Acheson 1987, Ostrom 2000). In many societies, including the African herders considered here, informal institutions enable community members to agree upon land use rules, monitor each other’s actual practice, and apply sanctions against violators (Dahl and Hjort 1976, McCabe 1990). These institutions work in part because individuals have a stake in retaining the multifaceted social relationships that ensure their survival in harsh and unpredictable environments and are willing to forgo some individual benefits in order to sustain these relationships over the long term (Seabright 1993).

While they may be effective, institutions are not static, nor do they perfectly allocate benefits across social groups (Knight 1992). Given their role in shaping social relations, it follows that an institutional change affects those relations in particular ways. The challenge is to understand the nature and scope of such effects, and this entails devising methods of measuring them at the level of individual or group behavior. This article addresses this challenge by combining ethnographic and experimental methods to investigate changes associated with the conversion of communally owned rangeland to private property among Samburu pastoralists in northern Kenya. Specifically, I find that privatization is associated with less cooperative behaviors and a reduction in adherence to the authority of traditional elders in the community. Further, this research reveals both the potential and the challenges of conducting experiments in the field and contributes to the emerging literature on the use of these methods in non-Western, small-scale societies (Henrich et al. 2004, 2001; Cardenas 2003; Tracer 2003; Ensminger 2000).

Examine the Behavior Change

There are a number of methods for exploring individual behavior. Quantitative survey data may serve as indicators of general tendencies. For example, measures of school enrollments, health facility usage, wage labor rate, or market transactions might be marshaled as evidence that people in an African community are participating more in modern society and, by extension, adopting “modern” attitudes and beliefs. Sociologists and anthropologists often survey attitudes and values of their research informants to try to gauge their likely behavior. However, attitude surveys may be weak indicators of behavior, since they reveal only what informants say they would do in a given situation, not what they actually do. Anthropologists also collect qualitative data from observations and interviews as evidence of behavioral trends. By closely examining particular situations and how individuals act and react, they draw conclusions about behavior and sometimes generalize across a population.

Experimental methods provide a novel way to triangulate with ethnographic methods such as observation, interviewing, and surveys. Particularly when the evidence from ethnography is mixed, experiments have the advantage of focusing on particular types of behavior and enabling the researcher to observe numerous individuals faced with the same behavioral choice. Developed primarily in economics, experimental games elicit behavior by asking people to make choices in bargaining situations. Keeping the games and procedures standard and abstracting the game from particular real-world situations makes comparison across field sites possible. The games generate behavior that can be analyzed statistically, replicated, and compared within and across populations (Camerer and Fehr 2000). The purpose of experimental economics is to test the assumptions of

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2. Barth (1993), for example, advocates such an approach to the understanding of behavior.
economic theory regarding human behavior and to develop theories that more adequately account for observed behavior (Camerer 2003, Ledyard 1995). While it is relatively new in anthropology, there is increasing interest in using experiments cross-culturally (Roth et al. 1991, Ensminger 2000, Henrich et al. 2001, Henrich and McElreath 2002).

One of the most important findings of experimental economics is that behavior in games diverges sharply from the “rational egoist” assumption of neoclassical economic theory that individuals act to maximize their material self-interest. Ensminger claims that “it appears that even in highly developed societies, individuals place some value upon sharing and cooperation even when they are given every opportunity not to” (2000:159). She notes that cross-cultural experiments have found members of small-scale societies in developing countries no more fair, trusting, or cooperative than people in the developed world. In contrast to a moral-economy perspective (Scott 1976), she argues that it may be elements of the institutional environment that account for levels of trust, fairness, and cooperation rather than generalized levels of these factors in a given society (2000:169–70).

If institutions influence the levels of trust, fairness, and cooperation that we observe in society, then we might expect an institutional change to be reflected in behaviors that reveal such norms. Accordingly, we might expect that a change in property rights among pastoralists would alter levels of fairness and cooperation among them and that these changes would be detectable in the behavior of individuals in experimental games.

ETHNOGRAPHIC BACKGROUND: LAND PRIVATIZATION AMONG THE SAMBURU

The Samburu are pastoralists living in semiarid north-central Kenya. They number approximately 200,000 and herd cattle, sheep, goats, and some camels. Historically, they were highly mobile, moving several times a year in accordance with rainfall and pasture availability. In recent decades, sedentarization has proceeded in response to government policies favoring settlement and a desire among many people to live in proximity to health services, schools, and markets. While subsistence production of milk and meat are still mainstays of the Samburu’s lifestyle, they are increasingly involved in market transactions of livestock and other commodities as well as in wage labor (Spencer 1987, Holtzman 1996, Little et al. 2001, Lesorogol 2002).

Before the colonial period (1890–1963), land was communally held and used and Samburu had access to areas far beyond the borders of the current Samburu District. They did not have fixed clan territories, but councils of local elders made decisions regarding resource sharing and land use (Spencer 1965). The British regime took control of the land, vesting decision-making authority in government hands. While the Samburu appreciated certain aspects of British policy, such as the weakening of the neighboring Turkana, they generally objected to government efforts to limit the seasonal migrations dictated by the exigencies of pastoral livestock production (Lesorogol 2002).

After independence in 1963, parts of the district underwent an adjudication process to determine ownership. The primary goal of land adjudication in Kenya was to establish individual freehold title to land (Okoth-Ogendo 2000). However, the semiarid lands inhabited by pastoralists were deemed unsuitable for individual ownership because of their lower productive potential. Instead, following the advice of donors such as the United States government and the World Bank, the Kenya government established a system of “group ranches” wherein title to land was transferred to groups of households (Rutten 1992, Galaty 1994). The idea was that local residents would gain title to the land as a group and would, furthermore, jointly manage their herds of livestock. The government and donors anticipated a shift from the existing system of production, in which land was used communally but livestock were individually owned and managed, to a system of group land ownership and group management of livestock geared increasingly toward market production (Grandin 1981, Rutten 1992, Kimani and Pickard 1998).

Most Samburu were not interested in such a radical change to their livestock production system. Many opposed group ownership of land, an idea that did not exist in their culture (Lanyasunya 1990). Others remained unaware of the consequences of the land adjudication exercise, largely because government officers often concealed the details of the process, which was implemented in a top-down, heavy-handed fashion (Lesorogol 2002). Warned by their leaders that neighboring communities were likely to covet their lands, many Samburu joined group ranches solely to preserve their claim to the land.

However, a small group of Samburu, mostly men, desired private land of their own. These individuals had had experiences outside Samburu District, such as formal education, military service, or employment, which had exposed them to agricultural societies in other parts of the country where land ownership was highly valued. They associated land ownership with becoming part of “modern” Kenyan society, in which owning land, along with formal education, Western-style clothes and housing, and white-collar employment was a maker of success. They also realized that land, even in Samburu District, was a valuable commodity and an investment opportunity. The land adjudication process in Samburu District contained a little-known provision enabling individuals to make claims for private land, and these individuals took advantage of it.

In Sambu, 37 individuals laid claim in 1978 to the community’s most productive land, a swath of flat, fertile land on a high plateau (Lesorogol 2003). This brought them into conflict with the elders, who opposed privatization, and it was only in 1986 that a compromise was reached: all the land on the plateau was equally subdivided among resident households, while the less desirable land on a rocky escarpment became a group ranch. About 240 households received individual plots of approximately 23 acres each. To date, this is the only in-
stance of equal subdivision of land among the Samburu, and it was implemented despite the fact that most residents opposed privatization per se.

**Privatization and Behavior: Ethnographic Evidence**

Since most Siambu people agreed to privatization in order to avoid eviction by the 37 individuals who were trying to appropriate all the land, one might not expect to see many changes in actual land use or ideas relating to land ownership. During 18 months of fieldwork [June 2000–December 2001], I conducted structured household surveys with 100 randomly selected households in Siambu, as well as in-depth interviews with more than 30 key informants. These data, as well as my observations of daily life in Siambu, revealed that a number of aspects of land use remain essentially unchanged more than ten years after privatization: there are few fences dividing property (there are fences around cultivated fields), cattle still move within and outside the boundaries of the privatized area, and people still share some communal resources such as water.

However, changes are also evident. A few individuals are fencing their entire parcels, not only their cultivated fields. More people participate in farming than did so before privatization, cattle movements are more limited, and encroachments on cultivated areas are punished. Timber and firewood have become privately owned commodities that are bought and sold. Change in attitudes is manifested in pervasive rhetoric about the virtues of land ownership. Practically everyone I spoke with agreed that owning land was a good thing because it freed individuals from the control of the community, enabling them to make decisions about their land and “development” unhindered by others.

These emphases on individual control and autonomy are rather surprising in a society that has relatively robust institutions of social control such as a male age-set system, exogamous clans, and councils of elders. Many informants claimed to be immune to the authority of others, even traditional elders, at least regarding land use decisions. Research in anthropology and ecology has demonstrated how pastoralist communities regulate land use on common land, and the role of the council of elders is a feature of successful systems [Dahl and Hjort 1976, McCabe 1990, Scoones 1994]. It is arguably the authority of elders that often protects common property from the overuse and degradation that would result from an absence of rules and enforcement procedures. By removing their de jure authority over land use, privatization shifts bargaining power away from elders [as an institution of communal land management] and toward landowners who now possess greater rights in their individual parcels [Seabright 1993], and this raises the question to what extent elders’ authority is eroding in other domains.

In sum, this ethnographic evidence yields a somewhat contradictory picture regarding the extent to which social norms regarding land have changed and how behavior has been affected. In order to clarify the situation, I turned to experimental games.

**Experimental Design**

Because the fieldwork was conducted ten years after privatization, a longitudinal approach [measuring behavior in Siambu before and after privatization] was not possible. Instead, I decided to compare the behavior of Siambu residents with that of residents of a comparable Samburu community where land had not been privatized. Bernard [1993:68] points out that this type of two-group posttest-only design can be very effective, particularly where there are large measurable differences in results between the two groups and where these are substantiated by ethnographic evidence. The comparison community, Mbaringon, is located 40 km southeast of Siambu. I conducted extensive fieldwork in Mbaringon as well as Siambu and used results from Mbaringon to compare with those in Siambu not only in the experimental games reported here but also regarding the politics of privatization and its socioeconomic outcomes.

Mbaringon and Siambu have similar cultures, environments, and land use patterns, but they are far enough apart geographically not to have had unusually significant influences on each other, for example, from daily interactions. While it is theoretically possible that the variations I observe in cooperation and adherence to authority between Mbaringon and Siambu are due to intrinsic differences in the communities predating privatization, I think that there are good reasons to doubt this. Interviews with many elders in both Mbaringon and Siambu reveal the same pattern of seminomadic land use relying on agreed-upon rules of access to seasonally available resources [prior to privatization in Siambu]. Furthermore, when a few individuals began to experiment with cultivation in Siambu in the early 1960s, the community under the direction of the elders punished them collectively. The opposition to privatization of land in Siambu also involved collective action organized by elders [Lesorogol 2002, 2003]. These examples suggest that Siambu people were cooperative and that elders’ authority was strong prior to privatization. However, because [as in most anthropological studies] privatization itself was a natural experiment and not a controlled laboratory one, the causal relation of privatization to behavior should be considered indicative, not conclusive.

**Hypotheses and Methods**

I hypothesized that, given the high value they assigned to individual freedom and control over land, Siambu people would behave more selfishly and display lower levels of cooperation in games that measured these variables. A decline in cooperation was also a logical consequence of the breaking up of large homesteads and increasing agricultural activities in which labor sharing across households was minimal [Lesorogol 2002]. In addition, I expected Siambu residents to show less respect for elders’ authority than people in Mbaringon because elders had
lost their authority to make decisions regarding land use as a result of privatization.

The methods used in these experiments were based on protocols developed by a MacArthur Foundation–funded cross-cultural project in which games were played in 15 small-scale societies across the globe [Henrich et al. 2001]. The games were played for real money, with the stakes set at one day’s wage [here Ksh 100 = $1.33]. Except in one game, players were kept anonymous to each other to reduce reputation effects, and games were played in rapid succession to minimize collusion. Players were adults, mostly from randomly selected households that had participated in earlier surveys. A small proportion of players played more than one game (though without a decision-making role in the second game), but no one played the same game twice.

Public meetings were held in each community to explain that they would have a chance to play fun games for real money without revealing the purpose of the games or any specific procedures. On game day, people gathered in the morning at the primary school, and the directions for the game were read to them. A number of examples were given to ensure understanding of the game and the roles of the various players. Participants received a show-up fee of Ksh 40 ($0.50) that they retained regardless of what they received in the game. Players were chosen at random by drawing their names from a hat and sent into another room to play. In the game room, the instructions were repeated and several examples were given to confirm the player’s understanding of the game, including the implications of different choices. The players easily understood most games, and it was not necessary to eliminate anyone because of misunderstanding of the game. After playing, people either went home with their takings or waited in a separate room for their payoff, depending on the type of game.

THE DICTATOR GAME: MEASURING FAIRNESS

In the Dictator game each pair of players is given an endowment of Ksh 100. Player 1 then decides how to divide the money between himself and player 2. He may opt to keep all the money [the choice predicted by neoclassical theory, which assumes a profit-maximizing, rational individual] or he may give any fraction of the money [in 10-shilling increments] to the other player. Player 1 keeps whatever he does not give player 2. Player 2’s only role is to accept the amount offered by player 1 from the administrator. Positive offers from player 1 indicate a concern for fairness over self-interest. I conducted this game with 30 pairs of players in Siambu and 32 pairs in Mbaringon.

Siambu offers in the game averaged 30% of the stake, compared with 24.6% for Mbaringon. This difference is not statistically significant at the .05 level, suggesting that Siambu players are at least as fair-minded as Mbaringon players. The mean offer of 27.3% is within the range of developed-country experiments of 20–30% (Camerer 2003:57–58). Fewer players kept all the money for themselves (7.5% combining Siambu and Mbaringon) than is common in developed-world experiments, where up to 30–40% of players give offers of zero [Camerer and Fehr 2000].

The distribution of offers (fig. 1) shows that 23% of Siambu players split the stake 50–50 with player 2 compared with only 9% in Mbaringon. In contrast, 38% of players in Mbaringon gave 20%, making this the modal offer there. The distribution is quite similar to what Ensminger (2000) found among the Orma, another group of Kenyan pastoralists. The spread of offers over the range from 0 to 50% implies that there is no consensus on a single norm of fairness, whereas in U.S. studies modal offers of 0 and 50% indicate the two competing norms of pure self-interest and fairness [Ensminger 2000].

While I had hypothesized that privatization of land in Siambu would make individuals more selfish, the results of the cross-cultural experiments [which I learned of only after I had returned from the field] suggest another interpretation. Henrich et al. (2001) found that the degree of market integration correlated with higher offers in Ultimatum and Trust games. These games are similar to the Dictator game in that player 1 decides how to split a pot of money with player 2. In the Ultimatum game, player 2 has the option of rejecting player 1’s offer, in which case both players get nothing. In the Trust game, 6. I used the nonparametric Mann-Whitney test to compare the mean offers in Siambu and Mbaringon because of the nonnormal distribution of offers in the games. The results of the Mann-Whitney test for the Dictator game were z = 1.64, p = 0.10.

7. A rough index of market integration considering degree of wage labor and general involvement in market transactions was used in the first round of the cross-cultural project. More precise measures have been developed for the subsequent round of experiments now under way.

Fig. 1. Distribution of offers in the Dictator game. Black, Mbaringon (N = 32); white, Siambu (N = 30).
the experimenter triples the amount player 1 allocates to player 2, and then player 2 has the option of returning money to player 1. It may be that greater interaction with markets instills norms of fairness consistent with a 50-50 split as individuals realize that the advantages of anonymous transactions depend on one’s reputation for fairness, even among strangers (Ensminger 2004). Both Mbaringon and Siambu are integrated into markets: they trade livestock and other goods, purchase food and other necessities, and participate in wage labor. The offers in both communities are consistent with those in other societies with similar levels of market integration studied in the cross-cultural project, supporting the market-integration hypothesis. Further, privatization of land in Siambu has brought people there into greater contact with markets for land and with government institutions more generally, perhaps accounting for their relatively high offers.

**THE PUBLIC GOODS GAME: COOPERATION**

The Public Goods game allows four players to contribute to a “community project.” Each payer is given Ksh 50 and may allocate any amount (in 10-shilling increments) to the project. Their contributions are combined and doubled by the experimenter, and the total amount is divided equally among the players. Clearly, the game involves the danger of free riding by players who contribute nothing but share equally in the takings. It differs from the others discussed here in that the players see each other.9 However, they are not allowed to talk to each other, nor do they know the offers made by the other players.

I hypothesized that Siambu players would exhibit lower levels of cooperation (lower contributions to the community project) than Mbaringon. The average offer of players in Mbaringon (57%) exceeded that of players in Siambu (48%), but this difference was not statistically significant (Mann-Whitney test $z = 1.24, p = .21$). Particularly striking, however, was the fact that 31% of players in Mbaringon contributed their entire endowment to the community project, while only 6% did so in Siambu (fig. 2). These results indicate that the mutual trust required for successful cooperation was achieved to a greater extent among Mbaringon players than among Siambu players.

In fact, the Siambu community has had difficulty cooperating in building a new school. Funds were raised in the mid-1990s for a new school building using a harambee, a Kenyan practice whereby members of a community contribute to public projects. Midway through construction the project stalled, and many people believed that the community members in charge of the project had misused the funds. In this connection, Ensminger (2000) points out the possible cueing effect of the Public Goods game. Since the game rather closely resembles harambee, it is likely that when people play the game they behave as if they were participating in a harambee. She surmises that Orma offers in this game were higher than in other games because of this association with harambee, in which there are sanctions against free riding. The fact that Siambu offers were lower may reflect their negative experience with the school harambee: sanctions had failed to rein in the corruption that marred the school building attempt, leading many people to become disillusioned with the whole process.

Another element of the Siambu ethnographic context is salient here. When land was privatized, households were forced to move to their new parcels. While efforts were made to keep extended families in proximity, there was inevitably some separation. Even when parcels were geographically contiguous, large homesteads were broken up as each household moved onto its parcel. Settlement structures reflect this change: virtually all Siambu homesteads are composed of a single household, not an extended family as is customary [and prevalent in Mbaringon]. This physical separation has reduced the day-to-day cooperation normally involved in pastoral livestock production and domestic work. When neighbors are far away, it is harder for women to share daily tasks. For example, I witnessed fewer informal gatherings of women in Siambu than in Mbaringon, where women came together frequently to share child care, gather firewood, or fetch water. It was also more difficult to assemble men for meetings in Siambu than in Mbaringon [or in many other communities where I had worked previously]. Further, Siambu people’s increasing reliance on household-level crop cultivation for food and income may have reduced the incentives to cooperate, given the constraints on time and labor and the rising costs of cooperation resulting from physical separation.
Elders’ Authority in a Double-Blind Dictator Game

Privatization removed elders’ legal authority over land in Siambu. They can no longer make binding decisions about how individuals use land as they do on communal or group-ranch land by, for example, closing off certain areas for grazing and imposing fines on violators. Legally, any individual owner can assert the right to keep livestock off his land. A few have done so by fencing their parcels. Individual rights to grow crops are recognized and even protected by the elders, the reverse of past sanctions against cultivation. Even if elders’ de facto authority over land has not been completely lost, it has been seriously compromised and transformed. Does this relative loss of authority extend to other realms of daily life?

To help answer this question, I designed a version of the Dictator game to measure adherence to elders’ authority. The game was to be played exactly the same way as the normal Dictator game, but first I convened a meeting of elders and asked them to agree on an offer that they felt was the most appropriate for player 1 to make—that is, to establish a norm for the offer. In both communities, the elders agreed that a 50-50 split was the best offer to make. When giving instructions to the players, I informed them of the elders’ norm but reiterated that they were free to make any offer they chose. To ensure anonymity, this game was played double-blind so that even I would not know who made which offer.

In this version of the Dictator game, the mean offer in Mbaringon was 26.3%, slightly higher than in the first game (24.6%). While there was still a mode at 2%, the whole distribution was shifted to the right (Fig. 3). In Siambu, however, the mean offer dropped significantly, from 30% to 20.6%, and there was a mode at 10%. Offers of 50% dropped from 23% to 7%. The difference in means between Mbaringon and Siambu in this version of the Dictator game was nearly significant (Mann-Whitney test $z = 1.83$, $p = .06$).

These results indicate that players in Siambu did not adhere to the norm set by the elders. On the contrary, players apparently flouted the authority of the elders by giving particularly low offers. There is a possibility that this drop was an effect of the double-blind treatment in this experiment. However, if that were the case, we would expect a similar drop in Mbaringon, which did not occur. By contrast, in Mbaringon, the rise in offers of 40% and the absence of zero offers suggest some effort to respect the norm, although the mean only rose slightly.

The problems in cooperation noted above may also signal a decline in respect for elders’ authority. During my fieldwork I observed two cases of intraclan marriage in Siambu, a practice strictly prohibited by Samburu. In both instances, men of the warrior age-group challenged their elders, arguing that there was no meaningful reason to deny these couples the right to marry. They even made arguments from modern science (that the prospective bride and groom were not genetically closely related) in order to support their case. Most elders privately opposed the marriages but were unable to stop them. These examples suggest a reduction of elders’ authority in Siambu that is confirmed by the game results.

The Importance of Ownership in Samburu Notions of Fairness

In games in which player one decided how to split the endowment given to both player 1 and player 2 [Dictator, Dictator with Norm], there was a mode of 20% in Mbaringon. Was this just chance, or was something more systematic at work? Other information gleaned during the games encouraged me to examine this issue more deeply. First, a few players in the Dictator game told me that they gave 20% because this was fair. They pointed out that retaining money for themselves and their families was their main priority. Second, when discussing the Dictator game with the elders in Mbaringon, some took the position that 20% was a reasonable offer, since family needs should take precedence over sharing the money with a stranger. Others claimed that since the money had been given to both players, it was only fair

Mbaringon could also be a reason for people to worry about how I perceived their offers. It is difficult to speculate on the direction of experimenter effects. My general feeling was that people were not overly concerned about my knowing their offers, but I cannot entirely rule out possible experimenter effects.

This was also the case in two other games not reported here: Dictator with Third Party Punishment and Trust.
to split it evenly. These arguments appeared to hinge on the issue of ownership. Who really owned the money in the game?

Further investigation revealed that concepts of fairness depended crucially on the notion of ownership or entitlement. After the games, I had individual discussions with about 30 people in both Siambu and Mbaringon in which I posed several hypothetical situations involving sharing that are common occurrences in daily life. I asked women, “If you had a kilogram of sugar at home and someone came by asking for sugar, how much would you give her?” Or “If you were butchering a goat to eat and someone came by, how much meat would you give?” I asked men, “If you were hunting [which is unusual but not entirely unheard of] and killed a gazelle and were butchering it and someone came by, how much meat would you give?” Or “If you walking with a friend in the forest and came upon a dead gazelle, how would you share the meat?”

Answers to these questions were very uniform across informants, regardless of age, gender, and wealth. In cases where the individual clearly owned the resource, the amount they would give away was about 20%. In the sugar example, women said that they would give the person a glass of sugar, about 200 grams (20% of a kilogram). They might give slightly more or less depending on their relationship to the person, but a glass was the norm. Similarly, when butchering their own animal (either because it was in their herd or because they had hunted it), they would give a passerby a hind leg (there is even a saying to this effect), about a quarter of the beast. However, when ownership was clearly joint, as in the case in which the two friends discovered a dead gazelle in the forest, then a 50-50 split was considered fair, since neither friend had more right to the dead animal than the other.

When ownership was clear, norms of fairness were also clear. In all these discussions, informants from both Mbaringon and Siambu gave answers almost immediately. Very little thought was required, because the norms were known. Considering the offers made in the games in light of these norms, I think that the question of ownership remained ambiguous enough to enable multiple interpretations. Even though the wording of the instructions was clear that the money was being given to both players, the fact that player 1 gained physical possession of the money and was given the right to decide how it was divided created a situation of de facto ownership by player 1. A player could reason that he actually owned this money and, in that case, an offer of 20% was perfectly fair. This is consistent with other experimental results showing that subjects who had “earned” the right to be player 1 by scoring high on a general-knowledge test gave lower offers in the Dictator game [Hoffman et al. 1994, Hoffman and Spitzer 1985]. Bolton, Katok, and Zwick (1998) note that the specific instructions given to players make a difference in how players perceive their roles and how they play. In this case, it seems that when individuals felt entitled to the money, they behaved in more self-interested ways. Confusion about ownership may also account for the spread of offers in both communities.

Two conclusions follow from this analysis. First, the Dictator game may be a more accurate measure of fairness if the ownership issue is rendered unambiguous. One way to test this would be to play the game using one of the hypothetical situations and see if offers were more consistent. Second, if concepts of fairness vary across cultures and are situationally dependent, even experiments may not be an accurate basis for comparisons. Mbaringon people appeared to be less fair-minded in these games than players in the United States or elsewhere, but they were making equally fair offers according to their norms of fairness and their understanding of ownership in the game. While this insight may enable us to alter the game to make it more accurate in Samburu, this will come at a cost of less comparability across cultures.

**CONCLUSION: HOW USEFUL WERE THE GAMES?**

In general, experimental economics strives to increase understanding of the bases of human behavior. Here, my intention was to combine experimental methods with ethnographic data to draw conclusions regarding the extent to which behavior has changed following an institutional change: the privatization of land. Beyond the specific findings from the experiments, the approach was useful in at least two ways. First, the results of the games triangulated with ethnographic observations and interview data to reinforce certain conclusions [less cooperation and less adherence to authority in Siambu] and cast doubt on others [more self-interested behavior]. Using standard games enabled comparison of my results with those of a larger project with many more communities, leading to new hypotheses about behavior in Siambu and Mbaringon [the market-integration hypothesis]. Second, the games themselves raised new research questions about cultural norms of fairness leading to an interesting new line of enquiry, which I pursued employing qualitative interviews. Combining experiments with anthropological insight into culture and social context has the potential to yield stronger analyses and greater understanding of the links between institutions, change, and behavior.

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Heat Loss from the Head during Infancy as a Cost of Encephalization

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It is generally acknowledged that the increase in brain size during human evolution must have resulted from strong selection pressures. This can be assumed not only because of the many evolutionary advantages enjoyed by the owners of larger brains but also because of the high costs of encephalization, which must have been offset by these advantages. The main cost of a larger brain stems from the high metabolic demands of neural tissue [e.g., Parker 1990, Foley and Lee 1991, Aiello and Wheeler 1995]. Depending on the stage of development, the energy consumption of the human brain accounts

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