

Chapter 3



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Experimental Economics: A Powerful New Method for Theory Testing In Anthropology

Jean Ensminger

Experimental economics offers much promise as a method for anthropologists to test important theoretical assumptions regarding economic preferences, social norms, and social capital. While there is much theoretical speculation about the role of self-interest in human behavior and the counter-veiling force of social norms in maintaining cooperation, there is actually little empirical data to defend many theoretical speculations (see Green and Shapiro 1994; Friedman 1995; and Ostrom 1998). Anthropologists have the opportunity to enter this burgeoning field with powerful cross-cultural data that could move these important theoretical debates in interesting directions.

Experimental economists have taught us a great deal in recent years about the ways in which people in developed societies routinely violate simple assumptions about narrowly self-interested behavior (Fehr and Schmidt 1999; Davis and Holt 1993; Hagel and Roth 1995). We have learned that fair-mindedness, trust, and contributions to the common good are frequently observed in one-shot anonymous games played for real money. Until recently, very few economic experiments had been run in non-Western societies. The few non-Western society studies that we do have (some examples are: Cameron 1999; Kachelmeier and Shehata 1997; Roth et al. 1991; Yamagishi and Yamagishi 1994) show some cross-cultural variation relative to the United States, but it is not great. Until recently, there were virtually no studies from less developed societies. That all changed when Joseph Henrich, then a doctoral student at UCLA, decided to run the ultimatum game among Machiguenga Indians in Peru (Henrich 2000). His

results were startling. It turned out that the Machiguenga play such games more like "economic men" than do typical members of highly developed Western societies. This result prompted members of the MacArthur Foundation's Preference Network to fund about a dozen anthropologists to replicate the experiments in other less developed societies to see how robust the findings were. The sample (spanning Africa, Latin America, Papua New Guinea, and Asia) includes roughly equal numbers of hunting and gathering societies, horticultural groups, pastoralists, and small-scale sedentary agricultural populations. Those pilot studies are now complete and the results should be of great interest to fellow anthropologists (Henrich et al. n.d.). I hope to make the case in this chapter that experimental economics has much to offer anthropologists seeking to rigorously examine fundamental economic assumptions and measure the relationship among institutions, culture, and economics. Experiments offer an opportunity to add rigor to the measurement of often fuzzy phenomena such as social norms, social capital, and trust. By sharing a common method, experiments also offer a potentially great vehicle for dialog between economists and anthropologists, and a mechanism for them to talk more precisely about the impact of institutions and culture upon economic behavior. Furthermore, once we have a solid base of studies from diverse societies, we may be in a position to learn a great deal about the evolution of reciprocity, altruism, fairness, and cooperation.

In this chapter I will first outline some of the simplest economic experiments that may be appropriate for largely uneducated populations. This is followed by a rather lengthy discussion of methods that have been worked out by myself and other members of the cross-cultural project that adapt these experiments to the vagaries of the remote populations with which anthropologists often work. Finally, I discuss some of my own results from the ultimatum and dictator games that concern the relationship between market involvement and fair-mindedness. Contrary to intuition, markets seem to be correlated with more, not less, fairness. What is more, this result has been supported by the cross-cultural data from fifteen societies (Henrich et al. n.d.).

Some Basic Experiments

Economic experiments typically involve play between two or more individuals who do not know the exact identity of the partner(s) against whom they are playing. The simplest game is the dictator game, in which two partners play against each other, but never actually know each other's identity. The first player is given an endowment of cash and asked how he or she would like to divide the money with the partner. The first player

is clearly the dictator in this game because their division of the money determines exactly what each player receives. This game has the potential to tell us something about norms of fairness cross-culturally. Analysis of demographic variables may also give us clues about variations in fair-mindedness based on wealth, education, sex, age, and a host of other variables.

In a slight variant of the dictator game, known as the ultimatum game, the second player has the option of rejecting the first player's offer, in which case neither player receives any money. This version of the game introduces a strategic decision by player one, who might be inclined to calculate the lowest offer that player two will find acceptable. Similarly, this game affords us the opportunity to examine punishment behavior. For example, narrow economic self-interest would predict that player two should accept any offer, however small, rather than reject and forfeit everything. But in the United States, offers of less than 25 percent are rejected about 50 percent of the time. One interpretation of these findings is that many people are prepared to pay a personal cost to enforce social norms (even anonymously) regarding what is fair. The permutations on these and other games are now well developed, and expanding rapidly; scientists have been able to examine a wide range of economic decision making and the demographic effects of variables such as sex, ethnicity, and the characteristics of the recipient upon those decisions.

Another commonly played game is the public goods game. In one version, four or five individuals are given an endowment and told that they have the option of contributing any portion of that money to a "group project." Each player then privately decides how much they wish to contribute and places that amount in an envelope. Whatever they and their fellow players contribute is placed in a common pot and doubled by the experimenter. Whatever they do not contribute to the pot is kept as a private good. Each player is then given an equal share of the common pot. This game is a test of the free rider problem, as it is in everyone's narrow economic interest to refrain from contributing to the common pot and hope that others contribute high amounts which a defector will still share equally.

The trust or investment game (see Berg, Dickhaut, and McCabe 1995) is a far less studied game, but offers the potential to test an important concept tied to the social capital literature and increasingly suggested as a variable related to economic development (Putnam 1993; Knack and Keefer 1997; Zak and Knack 1999). This game is again played with two partners who are unknown to each other. Both players are endowed with the same stake. Player one is then given the option of transferring any part of his or her stake to player two, with the understanding that anything transferred will be tripled by the experimenter. Player two then has the option of repaying player one with any part of the transfer. This game

yields a measure of trust (player one's offer) and trustworthiness (player two's return).

Cross-Cultural Examples

Joe Henrich's results among the Machiguenga caught the attention of economists because they were so dramatically different from the results we have seen so often in the developed world (Camerer n.d.). Once endowed, the Machiguenga made very low offers to their partners compared to all other known studies of the ultimatum game (a mean of 26 percent versus a typical mean of 40 to 50 percent in the United States), and these offers were almost never rejected, while offers below 25 percent are rejected about half of the time in the United States. A simple interpretation of these findings concludes that the Machiguenga are less concerned with fairness, not prepared to pay a price for punishing stinginess, and more narrowly economically self-interested than Americans. In the results of the large cross-cultural project funded by the MacArthur Foundation, the Machiguenga remain the most stingy in the ultimatum game, but there is also more variation among those societies than had previously been reported for other populations.

One of the most interesting cases is that of David Tracer (n.d.), who carried out experiments with the Au and the Gnaou of Papua New Guinea. Surprisingly, these populations made a lot of hyper-fair offers (greater than 50 percent). Even more curiously, these offers were as likely to be rejected as were low offers. Anthropologists will be quick to guess, correctly, that such behavior is in fact quite consistent with what one might expect from a competitive gift-giving or potlatching society, which indeed these are. This is one of the best examples we have of culture entering the context of an experiment even though it is one-shot and anonymous. It is a beautiful illustration of the way in which these experiments capture the real world coming into the laboratory, so to speak.

In another example, from my own experiments with the pastoral Orma of northeastern Kenya, we find that the Orma make rather high offers in the public goods game. They offer 58 percent, at the high end of the range (40 to 60 percent) that we commonly see in the United States. It is interesting that the Orma immediately identify the game as the "*harambee* game," a reference to a local institution which parallels the public goods game rather closely. The institution of *harambee* is widespread throughout Kenya as a mechanism for raising funds for the common good—school building and water projects, for example. Many people began referring to the public goods game as the "*harambee* game" after they had been exposed to it. This connection is all the more interesting because it turns out

that different demographic variables predict offer size in the public goods game than is the case in other games played among the Orma. In the public goods game it is wealth that is a significant predictor of offer size, and wealth is a completely insignificant predictor of offer size in the ultimatum and the dictator game (see Ensminger n.d.). Interestingly, this is exactly the behavior that is expected of villagers during a genuine fundraising. The wealthy are assessed a higher percentage contribution than are poor households. While a genuine *harambee* has strict monitoring and enforcement associated with it, there was no such enforcement associated with the play in this particular version of the public goods game. Nevertheless, the presumably habituated tendency for the wealthy to contribute more spilled over into the play in this experiment.

Methods

In anticipation of the likelihood that experimental economics may catch on among anthropologists and others interested in exploring cross-cultural variation in economic behavior in the field, it is worth considering some of the methodological lessons learned from the first pilot studies carried out under the auspices of the MacArthur Foundation. While the benefits of running experiments in less developed societies is great, the problems involved in trying to replicate the controlled conditions that exist in typical laboratory studies from developed societies are immensely challenging. I suggest that standards be established early on for this kind of research, lest the reputation of such work be sullied by uninterpretable and unreplicable results due to idiosyncratic experimental method.

Aside from the advantage of adding samples from the little-studied, less developed world, experiments from typical anthropological field sites offer the added benefit of drawing samples more representative of the population at large than is often the case in laboratory studies where subjects are predominantly university undergraduates. However, this clear advantage of getting out of the university and out of the laboratory is counterbalanced by some of the problems associated with working with populations less adept at experiments, and in environments where controls are challenging. In these paragraphs I lay out the steps I followed in organizing the logistics and mechanics of the actual games I played in Kenya in 1998. Where appropriate I add notes from the experiences of other researchers from the project, who faced different logistical challenges.

The Galole Orma are cattle pastoralists living in a rather remote part of northeastern Kenya. In recent years they have begun to settle down and engage in substantial commercial exchange (largely based upon cattle trading). While their economy is still almost entirely cattle-based, many

sedentary households also practice opportunistic flood-plain agriculture. Currently approximately one-third of the population is still nomadic, which also represents an attempt to live a subsistence lifestyle and resist market exchange in an effort to avoid selling productive capital through livestock sales. Two-thirds of the population is sedentary and sells livestock on a regular basis for subsistence. Outward signs of development are absent. There is no running water and no electricity, roads are scarce, and people live in grass houses with few personal possessions beyond clothing and cooking pots. Many sedentary households send their sons to primary school, a few send daughters, but relatively few children attend school for more than three years; almost all of the adult population is illiterate.

I carried out experiments with both nomadic and sedentary individuals, and I drew quite randomly from the adult population, including both men and women. The low level of education among this population raises special problems in terms of their comprehension of the experiments. Some other members of the cross-cultural group used formal quizzes of game comprehension to disqualify players who were not understanding the game. Joe Henrich (Henrich et al. n.d.) also rated his informants on the basis of his assessment of their comprehension (from one to three), though he did not find that this correlated with their offers. Some mechanism to disqualify those who are not understanding the game is highly recommended, as is the use of very simple games with those who are illiterate and possibly innumerate. Visual demonstrations with piles of coins may also be helpful.

Prior to beginning the experiments I held several large public meetings to explain the work in a few centrally located survey villages. These meetings were well attended by elders and young men, though very few women showed up, as is the norm. I explained that this work would be quite different from my previous work, and that it would involve playing "fun games for real money." I purposely said nothing in this open forum about the content of the experiments, so as not to steer behavior in any way. But I explained that these were games being carried out around the world to study economic decision making, and that they have been played many times in the United States and Europe. The discussion that ensued was one of great amusement at the "insanity" of Western ways. Most people seemed, both at this point and after the games were played, to interpret them in this light—that is, westerners "had money to throw away on such foolishness." Some seemed to have a true understanding of the nature of research and that this would somehow teach us something about human behavior. An alternative hypothesis that also floated around, perhaps never taken completely seriously, was that I wanted to provide aid to the community so I dreamt up this complicated scheme to provide an excuse to do so. One thing is certain: There was never any hesitation about

accepting the money, whatever the reason assumed to explain the windfall. This appears to have been the case in most of the sites now studied by anthropologists, though one researcher working in Mongolia (see Gil-White n.d.) encountered concern among the population that they were taking money from a poor student.

I explained that I would be approaching every household in each of five villages with a household economic and demographic survey very similar to those I had administered in the past. No household was required to participate either in this survey or in the games that would follow. I promised to try to invite at least one adult from each of the survey households to play a game.

Six native-speaking Orma research assistants with Form 4 education carried out the household economic surveys with 205 households in five villages. These surveys were extremely similar to ones I had carried out in 1978 and 1987. In addition, the fact that I have lived in the community for over four years and been visiting intermittently for 20 years certainly contributed to the ease of this surveying.

Village size ranged from 13 households in one nomadic village to 36 to 69 households in the four sedentary villages, with an average of 8.1 individuals per household, totaling 1,669 individuals in all. A three-generation genealogy was drawn for each household and individual demographic statistics for all household residents were gathered on relationship to head of household, age, sex, education, work, and income by source. Household-level data on migration history, length of residence in the community, and wealth of household were also elicited. Voluntary compliance with this survey was 100%. At least one individual from almost all surveyed households played one of the 144 games (262 players). Of those who made offers in the games, the mean age was 37.7 and mean education was 1.4 years. Mean household wealth, measured in cattle equivalents, was 19.8 and individual income averaged 665 Kenyan shillings per month.

Before turning to some of the more problematic issues facing experimentalists outside the laboratory, it is worth recording a few issues that one might expect to be problems, but in fact were not for this researcher. There was no resistance by the Orma to playing the games; on the contrary, people loved them—by the end they were imploring me to make arrangements to come back as soon as possible and play more games. This was generally the experience of the other researchers in the projects as well. Of course, the participants enjoyed the remuneration component of the games, but they also for the most part actually enjoyed the play itself and were intellectually engaged to an extent that I had not previously encountered in my earlier work. I received many jovial comments such as, "I will be spending years trying to figure out what this all meant."

While I began the games with concerns about logistics, these were ill-founded. Grass houses are not at all a hindrance to running games. In fact they were the perfect size for isolating small groups from one another during the course of play, and one research assistant seated by the door and another on the opposite wall were able to keep groups from talking about the game, exiting, or chatting with visitors. "Crowd control" turned out to be relatively simple even though people sometimes had to wait three hours to finish their play. When I explained that they could not talk about the game during the play, there was remarkably disciplined compliance. It is essential, however, that groups be monitored carefully once the game has been explained, as the consequences of collusion can be extreme.

All games were run jointly by a bilingual, native-speaking research assistant (the games' master) and myself. The school teacher I chose for this purpose was amazingly patient with "slow learners," has a reputation in the village for trustworthiness, and is known to be devoutly religious. Numerous native speakers were also used as monitors, but they were not in the room with individuals at the time offers were made. Given that the games' master is known to many of the individuals playing the games, I had him turn around at the time offers were made to ensure that only I had access to that information, thus enhancing anonymity. Some people gestured for him not to bother to turn or blurted out their offers before he could turn, and seemed quite unconcerned that he knew how they played.

Considerable effort was made to control many conditions of the experimental design across sites in order to have comparable data and be in the position to make claims about cross-cultural differences. The stakes were set at approximately one day's local casual labor wage, with a show-up fee of one-third of a day's wage for all sites. In the Orma case, this translated into games played for 100 shillings or roughly the equivalent of \$2; this was the local daily casual wage rate at the time. Each player received a show-up fee of 20 shillings at the very beginning of the game instructions. Limitations of small currency necessitated that I reduce the show-up fee to 20 percent of the daily wage. The show-up fee drove home the fact that they were playing for real money, and served as partial compensation to those who might not earn much in the games. Gathering sufficient small currency was a problem for a number of our researchers. It is not advisable to use IOUs, as these change the dynamic of the game and make people's pay-offs more public, as would be the case, for example, if they were exchanged in a local shop. Changing the "currency" to local goods may also change the play, as sharing norms and the visibility of pay-offs may vary, say, with payment in tobacco or tea. However, controlled experiments in which the pay-off currency is intentionally

manipulated may be extremely interesting for isolating the social context of diverse norms.

Each of the game texts was back-translated; that is, one native speaker translated it from English to the local language and another one, unfamiliar with the English text and the game, translated it back into English to ensure precision and clarity of meaning. All games were one-shot with no repeat play. Some members of our project were working with extremely small populations and had to use the same individuals to play more than one game. In cases such as this there are potential learning effects and also possibilities for collusion within the community. Reversing play order and checking for these effects is one strategy for testing the impact of such factors.

I was careful to do exactly what I promised in each game to ensure that people did not distrust my intentions and to facilitate understanding of the game. Feedback from trusted participants indicates that neither distrust of the experimenters nor fear of losing anonymity was a problem. In a small community where people will certainly compare notes and talk, any deceit on the part of the experimenter is likely to have lasting and unknown effects.

Efforts were made to be as systematic as possible in sampling, but because the games had to be played en masse there were biases toward availability. Given the enthusiasm that most people had for participating, however, this was less than one might expect. Young men who herd were definitely underrepresented, but those working on their farms chose to take time out from their field preparations rather than miss the game. Undoubtedly, those who travel more and happened to be away were slightly underrepresented, though if they missed one opportunity to play they were often called a second time. A major effort was made to include at least one adult from each household, and often both a man and a woman were included. Some games were played in the evening to capture those otherwise occupied during the day.

People were notified the night before a morning game that they could show up at a certain location to play. For the ultimatum and dictator games I usually called twenty people for this purpose. In small villages the group was split in two and held in grass houses. In the largest two villages where school buildings were available I ran through the game instructions with the entire group together. No one knew at this point whether they would be player one or player two. The game master read the instructions twice (in Orma) and I then demonstrated the play with a set of ten ten-shilling coins. I ran through a randomly generated series of hypothetical possibilities of play, including rejections in the ultimatum game. Each person in the room was then individually quizzed with a hypothetical example to test for comprehension. It is advisable not to allow questions while the

group is together, as these may be suggestive to the rest of the group and give others ideas about how to play the game. The group was then left with about three research assistants monitoring them with instructions that they could not discuss the game. Individual players were then brought in one by one to a separate room where only the game master and I were located. The order of play was determined publicly by drawing slips of paper from a hat with each player's name on it. This served to emphasize both the randomness in the order of play (which affected waiting time) and the assignment of roles. Once alone, we ran through the rules of the game again and all of the player's questions were answered until I was confident that the player understood the game. At this point they were told whether they were player one or player two. Player one made an offer by pushing whatever coins they wished to offer to one side of the table while the game master had his back turned. Once they had made their offer or declared their response to an offer, they were allowed to return home, but could not talk to any of those who had not already played the game. In the case of the ultimatum game, a second appointment time was set for first players to return, learn whether their offer had been accepted, and be paid if it was.

While it would be even more ideal to bring together the group of twenty and then instruct them one by one to be absolutely sure that they did not talk about the game prior to play, this method took too long for this highly illiterate population. I compensated by using a lot of highly trained monitors to ensure that there was no discussion of the game.

Four individuals had to be eliminated from play because they did not understand the game. One was blind, one was deaf, and two were rather slow mentally. Once we were in private I paid them as if they had played and no one knew that they had actually not played the game.

One of the main differences between the studies represented in this project and those most often carried out in U.S. laboratories, is that we are running them in small communities where most people know one another or at least have a high probability of having future repeat dealings. There is also a high level of interrelatedness. This characteristic may affect play in a number of different ways. People who live in small communities may habitually share more in everyday life, they may have different conceptions of privacy and anonymity, and there are more serious problems associated with contagion of the population if games are played over time.

Even though one may guarantee anonymity, in a society in which little can be kept private, people may act habitually on the assumption that anonymity does not exist. However, it may also be the case that in societies with little privacy there is less concern about anonymity.

I have a bit of anecdotal evidence that bears on the anonymity question. About a week after the play was finished in one large village, I made

inquiries about what people knew about how other people had played. I was told that while some had told their close friends how they had played, others had not. They discussed the games in a general sense, but did not reveal their actual offers. A very close friend also approached me approximately a week after his wife had played the dictator game. The friend was curious how his wife had played because, "She won't tell me." Finally, three women who played the dictator game and kept the entire pot for themselves were so proud of the fact that they immediately ran into the village and told their neighbors. I also have little doubt that some Orma would not hesitate to lie about how they played, knowing full-well that there was no way anyone could challenge their assertion. Several close friends reported to me that the steps taken to ensure anonymity were obvious and that no one in the village was concerned about being found out.

I was especially concerned with the problem of contagion from the games once anyone in the village had played. People in small communities share information rapidly and freely within the community. These games raised a great deal of interest and it stands to reason that people talked about them. If one assumes that people talk, then those coming to play a game after the first round in a given village might have heard how the game was played and might also have heard discussion about the "proper way to play the game." I tried to get around these problems by calling large groups of people for a game and holding them all until the group was finished. I also moved from village to village as rapidly as possible to try to beat any news that might travel. Finally, I changed games and never announced which game people were being called for on any given day.

Despite these precautions, the problem of contagion is not to be taken lightly. When I returned in 2000 to run more games, I ran the dictator game again in one of the same villages where I had run it in 1998. While the first round of play went well, the village had clearly coordinated a strategy prior to my second round several days later. A number of young men in this village had coached the entire village to all play 50-50, and that is exactly what virtually everyone did. While this is a fascinating outcome, as there was no way to enforce this "norm," it has far different implications than it would had there been no coordinated response. The effect of this coordinated response was evident to me by the time the third player made an offer. Although these individuals had not previously played the game, none of them exhibited the usual strain associated with trying to understand a foreign task. People wished to hurriedly make their offer because they knew ahead of time exactly how they intended to play the game. Another member of our project, Abigail Barr (personal communication 2000), had an identical experience in Zimbabwe.

Some of the members of our cross-cultural project were not able to bring together large groups of players at one time and keep them isolated from one another until the play was finished. Joe Henrich (2000) for example, in the original study with the Machiguenga, had to go from house to house, given the dispersed nature of the population. This method increases the possibility that people will have been told about the game prior to playing it. However, in some situations there is no alternative. In such cases, one can test for play order effects to see if there is any effect of communication; in Henrich's case there was none.

Some Early Findings: The Effects of Market Integration

One of the findings from our cross-cultural study of fifteen societies (Henrich et al. n.d.) is that the societies represented in the study have means and modes in the ultimatum game that are below those for developed societies. Indeed, one of the hypotheses that holds across these less developed small-scale societies is the positive relationship between market integration and offer size in the ultimatum game. While the cross-cultural evidence alone justifies a closer look at this relationship, it is also worth pursuing studies of intracultural variation in societies that have significant variation in market involvement. The Orma of East Africa is one such society.

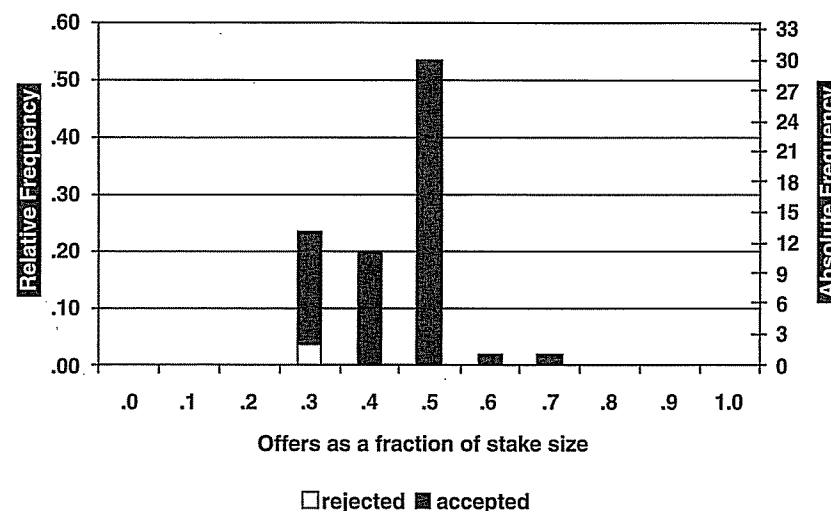
To most people the notion that individuals in market societies might be more fair-minded seems counterintuitive. However, the argument is not without its supporters (Hirschman 1982). Nor, I would argue, is it entirely implausible. If one posits fair-mindedness as a signaling device to build reputation, it is conceivable that the pay-off for a good reputation is greater in a market economy than in a nonmarket economy. Among other things, the signaling value in a market may be higher because of the greater flow of information, which corresponds in part to the higher population density of market populations.

The Ultimatum Bargaining Game

It was Henrich's (2000) study of the ultimatum bargaining game among Machiguenga Indians that served as a pilot for this project. The Machiguenga made low offers and these were not refused. I also expected the Orma to make very low offers and for there to be almost no refusals. I was half right (see figure 3.1). Orma mean offers were a high 44 percent (exactly in line with the U.S. range), far higher than the 26 percent mean offer observed in the Amazon. Orma behavior departed from the U.S.

pattern, however, in the distribution. In the United States it is common to have low offers (below 25 percent), though there is a significant rejection rate in this range (Camerer n.d.). For the Orma the lowest offer out of 56 games was 30 percent, and there were only two refusals among the 13 who received 30-percent offers. It may be significant that the only two rejecters were both educated men from rather wealthy families. It is difficult to make much of this, but the role of such individuals as the "defenders" of social norms in society is so important that it bears further investigation. Notably, there is anecdotal evidence from a variety of the research sites reported in the larger study that rejecters in some of them also bear these characteristics (personal communication from Joseph Henrich 2000).

Figure 3.1. Distribution of offers in the ultimatum game (N=56, stake size=100 Kenyan shillings)



In my post-play interviews with players, almost every player who offered 40 or 50 percent indicated that they did so because of fairness. In the formal interview immediately after the play, no one owned up to being strategic or fearing that a lesser offer would be rejected. Furthermore, virtually every responder indicated that he or she would have accepted an offer of even 10 percent, the lowest possible short of zero. While the fairness explanation was consistent with the willingness to accept low offers, I was still suspicious of proposers' motivations for giving high offers. I sought out a few reliable informants that I knew I could trust to fill me in

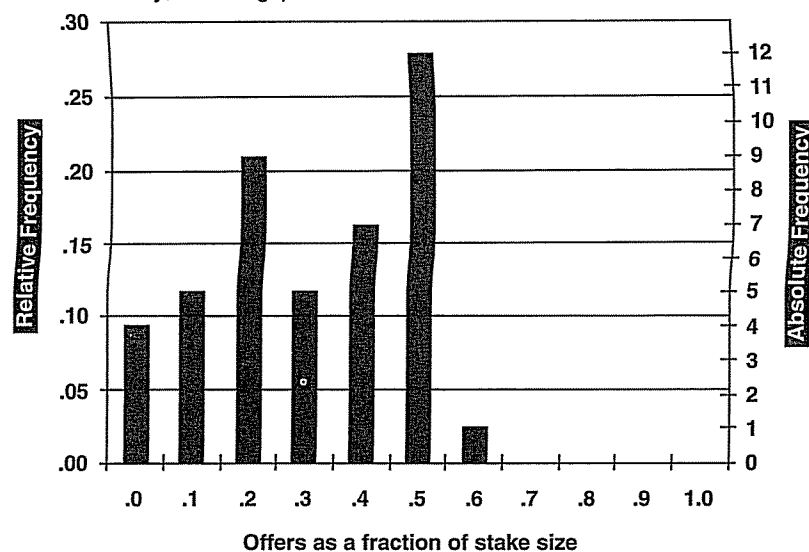
on "the talk in the village." The "talk" revealed that people were *obsessed* with the possibility that their offer might be refused, in spite of the fact that they thought (correctly) that it was unlikely that people would refuse even a small offer. But very few wanted to take such a chance.

While we cannot differentiate fairness from strategic risk-aversion in the ultimatum bargaining game, the dictator game does facilitate this disaggregation.

The Dictator Game

The Orma mean offer for the dictator game was 31 percent (see figure 3.2). While this is high for comparable experiments from the developed world, which range from 20 to 30 percent, it is not far out of bounds and is significantly lower than their offers of 44 percent in the ultimatum game. What is different in the Orma case is the distribution of offers. While it is common to find 30 to 40 percent of players taking all of the pot in the United States and Canada, one finds a much smaller percentage of purely self-interested players among the Orma (9 percent). The number playing for fairness, at 40 to 50 percent, is about the same for the Orma and U.S. samples. Thus, while there are two modal strategies in the developed world—pure fairness and pure self-interest—there is less consensus among the Orma. In other words, behavior is not driven by a dominant or by two

Figure 3.2. Distribution of offers in the dictator game (N=43, stake size=100 Kenyan shillings)



competing norms. The bulk of the distribution for the Orma falls between pure self-interest and pure fairness.

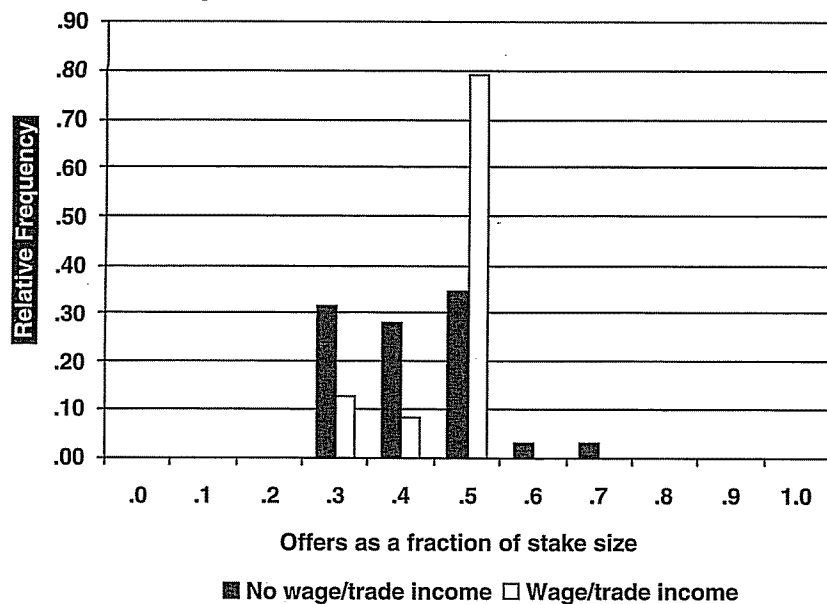
The Effects of Wage/Trade Income in the Ultimatum and Dictator Games

The most significant and potentially interesting finding to come out of this set of games has to do with differences between those who earn income other than from the sale of their own livestock and those who do not. Wage/trade income in this context includes: casual wage labor, civil service employment, profits from trade in livestock or other products that are not one's own, digging stones at a local quarry for sale to builders, or production of handicrafts for sale. The argument for excluding income from household stock sales is to better highlight the difference between those who engage directly in market exchange beyond the marketing of surplus production from their subsistence herds, and those who do not. This distinction also allows for the disaggregation of wealth and income effects. Income from livestock sales is far more closely correlated with wealth (measured in livestock) than is the income measure used here. Income, absent one's own stock sales, is not at all correlated with wealth, as many of those who are driven to market their labor do so because they cannot support themselves from subsistence livestock production or sales from their herds.

In the ultimatum and dictator games, the presence or absence of wage/trade income is a highly significant predictor of offer size. In the figures below for each game, we see that those with wage/trade income clearly favor 50-50 splits in both games. While 50 percent offer half in the dictator game, nearly 80 percent do so in the ultimatum game. These norms are in dramatic contrast to the absence of any such spike among those without such income. Indeed, what is striking about those without income is that there is clearly no normative tendency whatever, nor do we find the bimodal pattern so typical in developed societies where both pure selfishness and pure altruism compete to form two modes. Mann-Whitney rank-sum tests were run on each of these games individually and on the sum of both games together. In the ultimatum game (N=56; no income=32, positive income=24), the Mann-Whitney is significant at the 0.022 level. In the dictator game (N=43; no income=25, positive income=18), the Mann-Whitney is significant at the 0.017 level. If one lumps together the offers in both games (N=99; no income=57, positive income=42), the Mann-Whitney is significant at the 0.001 level.

This result is certainly consistent with the notion that people are learning in the market that fair-mindedness is rewarded. I have suggested that among those selling either their labor or their goods, there may be a higher

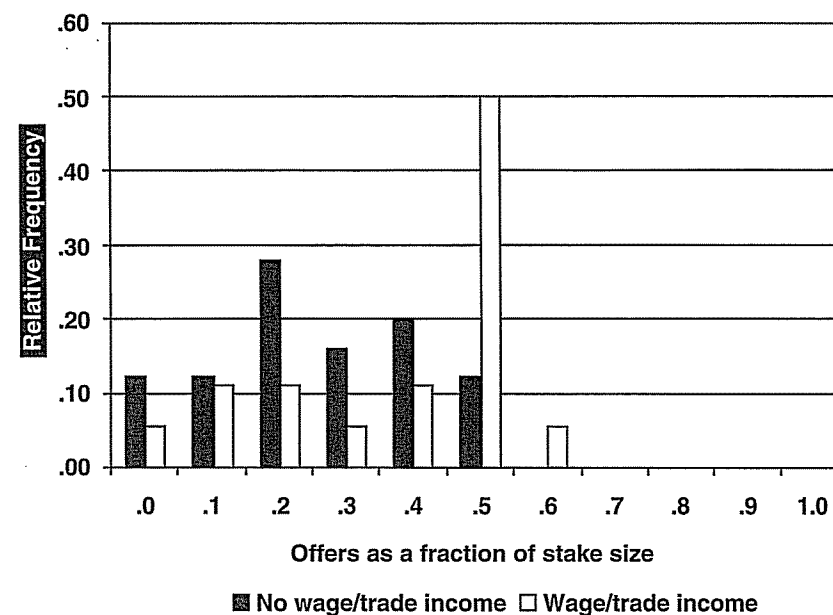
Figure 3.3. Distribution of offers in the ultimatum game by no wage/trade income (n=32) and positive wage income (n=24), stake size=100 Kenyan shillings



premium placed upon reputation and that one way of signaling a good reputation is to behave fair-mindedly.

While the data presented here on the relationship between market exchange and fairness are statistically strong and intriguing, they should not in any respect be accepted as definitive. Further examination of the relationship in this and other societies is warranted, and especially studies which incorporate large variation in market integration, such as that found among the Orma. We also need multiple measures of market involvement to flesh out the robustness of this phenomenon. In a new dataset I am attempting to pick apart the measure of market integration and test for information effects in the form of travel outside the village, exposure to newspapers and radios, and a variety of individual-level demographic variables. These and other big questions would greatly benefit from anthropological insight and a large number of carefully controlled experiments across the diverse societies we typically study. There is much work to be done and we are barely in the first inning of an exciting methodological frontier for anthropology. The rewards in the form of better understanding of social norms and the evolution of altruism and cooperation are arguably profound.

Figure 3.4. Distribution of offers in the dictator game by no wage/trade income (n=25) and positive wage income (n=18), stake size=100 Kenyan shillings



Conclusions and Theoretical Applications

Many social scientists accept that human behavior is partially driven by narrow economic self-interest and partially by social norms that yield more cooperative outcomes (Ostrom 1998). But we actually know very little empirically about the circumstances that drive one over the other, or the distribution of such behaviors across human diversity—both longitudinally in an evolutionary sense and cross-sectionally in the contemporary world. We would like to know more, and preferably in a systematic fashion that translates well across the diversity of extant societies. Economic experiments offer a rigorous method to do just that. Early findings already suggest that there appears to be more fair-minded or altruistic behavior in developed societies than in less-developed small-scale societies, though this result will need to be replicated many more times. We also note, however, that “pure self-interest” is a relatively uncommon norm in small-scale societies. While it seems acceptable in some societies to take 80 percent in a dictator game, it is not at all common to take 100 percent, as has been observed in laboratory experiments with U.S. undergraduates.

The pattern of offer distribution within societies should eventually tell us a great deal about the degree of homogeneity of social norms across societies. Sometimes we see clear and strong modes, sometimes we see bimodal distributions indicating competing norms. To date, we understand very little about the nature of the differences in individuals that account for these distributions. In fact, we don't even know whether such behavior is stable across the same individuals, indicating people have "types" (such as "cooperative" or "altruistic") versus situational differences that explain behavior based upon need at the moment or even emotions.

Given the degree of attention now focused upon the role of social capital, and especially trust, in the course of development (see Knack and Keefer 1997; Putnam 1993; and Zak and Knack 1999), economic experiments have much to offer here as well. While the direction of causality may still elude us, it would be interesting to at least know whether we find higher levels of trust in societies associated with good governance rather than corrupt governance.

Economic experiments also offer a unique opportunity to measure socially beneficial "punishment" behavior such as we see in the ultimatum game. This and other experiments being developed by Fischbaker and Fehr (n.d.) offer the opportunity to identify individuals who are prepared to pay a price to support the "common good" by punishing the behavior of individuals who are perceived to have violated social norms, even if there was no personal injury to the punisher. The evolutionary trajectory of such behavior is an intriguing theoretical question with obvious relevance to the effectiveness of social cooperation and economic development.

Finally, anthropology has a great deal to contribute to the field of experimental economics. We bring a diversity of cases that cannot be matched in the developed world. We also are more likely to work with representative samples rather than university undergraduates, arguably a very poor choice for examining economic preferences that are meant to be representative of their own societies. We are also much more apt to be in a position to collect accurate and oftentimes longitudinal demographic data on the game participants. Perhaps our largest contribution will be the ethnographic context that we bring to the interpretation of the data, including background ethnographic understanding of the social norms that may underlie or explain offer distributions. In short, experimental economics in the hands of anthropologists offers great promise to a number of disciplines and theoretical investigations.

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