Chapter In

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Chapter 3

Cross-Cultural Methods, Sites, and Variables

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When we began phase 2 of this project, we had the benefit of four years of experience working together in a large collaborative effort involving many diverse societies around the world. Much had been learned in phase 1 concerning what would be most theoretically interesting to investigate, what was feasible across sites, and what could go wrong. We were fortunate to be able to include the expertise of many of the original phase 1 field researchers (Abigail Barr, Jean Ensminger, Michael Gurven, Joseph Henrich, Natalie Henrich, Frank Marlowe, Richard McElreath, and David Tracer) and would add several new recruits to the final phase 2 team (Clark Barrett, Alex Bolyanatz, Juan-Camilo Cardenas, Edwins Laban Gwako, Carolyn Lesorogol, and John Ziker). Having the expertise of seasoned researchers was essential to the success of the project, which was considerably more complicated and required more coordination than we had mobilized in phase 1. It worked to the advantage of the project that many of the returning researchers also changed or added new research sites: Accra City for Barr, rural Missouri for Ensminger, and Yasawa, Fiji, for Joe and Natalie Henrich. Altogether, eleven of the fifteen sites studied in phase 2 were new sites. Importantly, however, we retained the Hadza (Tanzania), Tsimane' (Bolivian Amazon), and Au (New Guinea), where some of the more exciting findings of phase 1 had emerged. Together with the nine sites from phase 1 that were not revisited in phase 2, we now have game data from twenty-four sites (see photo 3.1 for a photograph of the phase 2 team and advisers).[1]

During phase 1, virtually all of us were inexperienced at running economic experiments, which made it difficult to anticipate the many and varied practical challenges we would face in the field. For example, merely acquiring sufficient change (large numbers of small bills or coins) and safely moving it were challenges in environments remote from banks and law enforcement. Most problematic in phase 1 was the failure to anticipate many of the logistical challenges that we would face. Overcoming these obstacles required some creative, on-the-fly "innovations" that, while creating problems with comparability and interpretation in phase 1, provided valuable insights when we set about designing testable hypotheses, tightening protocols, and more rigorously measuring key variables in phase 2.

After receiving our National Science Foundation grant, but before the bulk of the phase 2 experiments began, the team sat down together at a marathon workshop at the California Institute of Technology in 2002 to hammer out instructions and protocols that we thought could stand up to the logistical variations we would confront across our diverse sites. We also had the benefit of pilots that had been run in rural Missouri and among the Orma and the experiences of many on our original team who had run additional experiments on their own between the phase 1 and phase 2 projects. This workshop also served as a training exercise for the new members of the group. In

PHOTO 3.1 *The Phase 2 Research Team and Advisers at the California Institute of Technology*

Source: Photo by Stuart Plattner.
Note: 2004 (our postgame meeting), starting left: Bolyanatz, Cardenas, Gwako, Patton, Johnson, Harris, McElreath, Henrich, Ensminger, Marlowe, Barr, Wilson, Tracer, Gurven, Barrett, and Lesorogol.

this chapter, we detail the sampling strategy, site descriptions (including sociodemographic data), operationalization of the variables, game protocols, and scripts that made up the framework around which we coordinated the project.

SUMMARY GAME DESCRIPTIONS

Our core strategy centered on conducting three behavioral games across our diverse swath of societies. We ran three one-shot bargaining games: the dictator game (DG), the strategy method ultimate game (UG), and the third-party punishment game (TPG). In phase 1, we used a standard "direct elicitation" version of the ultimatum game; thus, using the strategy method, which elicited responses to all offers, permitted us to extend our previous work. The DG was added to provide a purer measure of fairness, without the threat of rejection that is present in the UG. As described later, we played the DG and UG back to back, using the same players in the same roles, with the DG always preceding the UG.[2] The TPG was played using different players in most cases. The TPG built naturally on the setup of the dictator and ultimatum games, giving another measure of fairness and a measure of a different kind of costly punishment.

In the dictator game, two anonymous players are told that a sum of money (the *stake*) has been allotted to them as a pair. The first player—player 1—can offer a portion of this sum to a second player, player 2, and offers are restricted to 10 percent increments of the stake. In the DG, each player is told the total size of the stake given to the pair, and each is paired with an anonymous player; player 1 has the job of deciding how the stake is to be divided between the two players. Player 2 is passive in this game and merely receives what is offered. In this one-shot anonymous game, a purely income-maximizing player 1 would offer 0 percent; thus, offers in the DG provide a measure of a kind of behavioral fairness that is not directly linked to reciprocity, reputation, or the immediate threat of punishment.[3]

In the ultimatum game, once again, two anonymous players are told that a sum of money (the stake) has been allotted to them as a pair, and that player 1 can offer a portion of this sum to player 2 (Güth, Schmittberger, and Schwarze 1982). In this case, however, player 2 can either accept or reject the offer. If player 2 accepts, the sum is divided in accordance with player 1's decision. If player 2 rejects, both players receive zero.

In phase 1, we played the UG as described. In phase 2, however, we applied the strategy method to player 2. Before hearing the actual amount offered by player 1, player 2 has to decide whether to accept or reject each of the possible offers, and these decisions are binding. If player 2 specifies that he or she will accept the amount of the actual offer, then he or she receives the amount of the offer and player 1 receives the rest. If player 2 specifies that he or she will reject the amount actually offered, both players receive zero. If people are motivated purely by income-maximization, player 2s will always accept any positive offer; knowing this, player 1s will offer the smallest nonzero amount.[4] Because this is a one-shot anonymous interaction, rejections of positive offers provide a measure of player 2's willingness to engage in costly punishment; we refer to this as *second-party punishment* in this chapter and the next.

Some experimental social scientists have proposed that the strategy method affects decision-making. Taking the UG as an example, the suggestion is that an individual who receives an offer of x and chooses to either reject or accept that offer might make a different decision if he or she is asked, "What would you do if you were offered x?" and x is one in an array of possible offers. However, empirical evidence is mixed on this claim. While Werner Güth, Steffen Huck, and Wieland Müller (2001), Andrew Schotter, Keith Weigelt, and Charles Wilson (1994), and Jeannette Brosig, Joachim Weimann, and Chun-Lei Yang (2003) found significant inconsistencies using different experimental designs, Timothy Cason and Vai-Lam Mui (1998), Jordi Brandts and Gary Charness (2000), and Robert Oxoby and Kendra McLeish (2004) found no inconsistencies. (Oxoby and McLeish used a protocol most similar to our own.) In a recent meta-analysis, Brandts and Charness (2011) found that the strategy method affects some types of decisions more than others. In particular, less punishment is observed when the strategy method is applied. This needs to be borne in mind when our data are compared to those from other studies. However, note that it does not undermine our endeavor, which is to make comparisons across individuals and societies using data that were collected with the same methods across each society. Indeed, the strategy method improves comparability, as it ensures that each individual placed in the responding role responds to the same set of *possible* stimuli. When responses are directly elicited, the actual stimulus applied to each responder varies in accordance with the distribution of offers made by proposers. Note also that in several cases we can compare our phase 1 "direct elicitation" approach with our phase 2 "strategy method" approach using samples drawn from the same populations.

We discovered during a pilot experiment in rural Missouri that player 2s tended to misunderstand the nature of the UG and engage in what appeared to be "demand" behavior. In other words, some players thought that they were actually influencing player 1's behavior by their

rejections. To drive home the fact that player 1 had already made the offer, we wrote player 1's offer on a piece of paper and placed it upside down in front of player 2. Then, as we ran through the eleven possible offers that player 1 might have made and elicited player 2's acceptance or rejection, player 2 was reminded that the actual offer made by player 1 was already marked on this piece paper (which would be flipped over as soon as player 2 made all of his or her responses to potential offers) and that his or her corresponding acceptance or rejection would be binding.

In our third game, the third-party punishment game, two players are allotted a sum of money (the stake), and a third player gets one-half of this amount. Player 1 must decide how much of the stake to give to player 2 (who makes no decisions). Then, before hearing the actual amount that player 1 allocated to player 2, player 3 has to decide whether to pay 20 percent of his or her allocation to punish player 1 across each of all possible offers; if player 3 pays to punish, 30 percent of the stake is deducted from the amount that player 1 kept for himself. For example, suppose the stake is $100 (so player 3 is initially allocated $50): if player 1 gives $10 to player 2 and keeps $90 for himself, and player 3 says she wants to punish player 1 for making this offer, then player 1 takes home $60 ($100 − $10 − $30), player 2 $10, and player 3 $40 ($50 − $10). If player 3 had instead decided not to punish an offer of $10, then the take-home amounts would be $90, $10, and $50, respectively. As in the UG, we applied the strategy method: we elicited responses from player 3 to the complete range of possible offers by player 1—again with the existing offer from player 1 to player 2 written on a piece of paper placed in front of player 3 as she made her decision.

In this anonymous one-shot game, a purely income-maximizing player 3 would never pay to punish player 1. Knowing this, an income-maximizing player 1 would always offer zero to player 2. Thus, an individual's willingness to pay to punish provides a direct measure of his or her taste for another type of costly punishment, *third-party punishment*.

The original TPG was designed by Ernst Fehr and Urs Fischbacher (2004). In their design, player 3s could *buy* as much punishment (fining) as they wished, given their budget constraint, paying one-third of a monetary unit for every monetary unit of the fine. Based on our experience conducting behavioral games among subjects with little or no education, we chose to simplify the game by limiting the fining options. Even with this change, of our three games, the TPG took the longest amount of time and the highest number of examples to achieve comprehension (see Henrich and Henrich, chapter 9, this volume, available at: http://www.russellsage.org/Ensminger). Scripts for these games can be found at the end of this chapter and at http://jee.caltech.edu/research/experimental-economics.

EXPERIMENTAL PROCEDURES

We standardized our protocols and scripts to ensure uniformity across sites in a number of important dimensions. First, as in phase 1, to encourage motivation and attention we standardized the stake at one day's wage in the local economy. This is much higher than the stake typically used in university labs. Second, using the method of "back-translation" (discussed later), all of our game scripts were administered in the local language by fluent speakers. Third, our protocol design restricted those waiting to play from talking about the game and from interacting with players who had just played during a game session. Fourth, we individually instructed each participant using fixed scripts, sets of examples, and preplay test questions. This guaranteed that all players faced the same presentation of the experiments and that they understood the game well enough to correctly answer two consecutive test scenarios. Fifth, researchers were required to obtain representative samples of participants from their communities. (Sometimes this led to all of the adults from a small community being involved.)

TABLE 3.1 *Samples Sites and Mean Market Integration*

Society	Market Integration (Percentage of Diet Purchased)	Society	Market Integration (Percentage of Diet Purchased)
Hadza	0%	Dolgan/Nganasan	63%
Au	1	Samburu	69
Tsimane'	7	Isanga	70
Yasawa	21	Orma	72
Shuar	22	Sanquianga	82
Sursurunga	24	Accra, Ghana	100
Gusii	28	Rural Missouri	100
Maragoli	43	Mean all MI1	46

Source: Authors' compilation based on author data.
Note: MI1 = Percentage of diet purchased in the market.

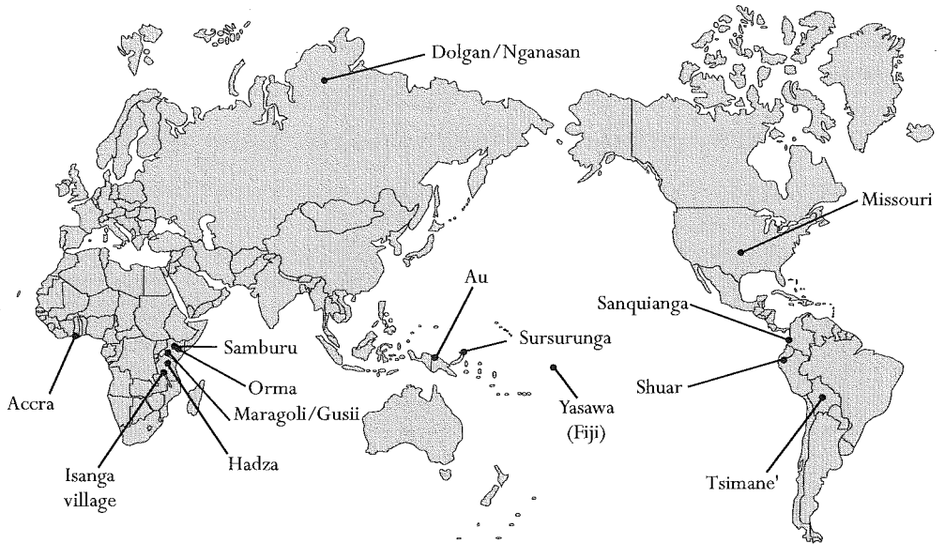
SITE SAMPLE SELECTION

In designing phase 2, we hypothesized (as in phase 1) that market integration would be a crucial variable in explaining fair-mindedness and punishment behavior. Thus, we were cognizant of needing variation in market integration as we attempted to build a sample; however, there was a considerable degree of opportunism in our selection of researchers. We needed seasoned researchers with particular scientific skills, and preferably with long-term field sites at which they would be capable of executing a complex protocol. We also needed researchers eager and available to undertake the research within a relatively tight time frame. These severely limiting constraints narrowed the candidates to a small number of anthropologists and an even smaller selection of economists. This resulted in a geographically unbalanced, but nevertheless highly diverse, sample of small-scale human societies.

It was never our objective to construct a globally representative sample of either individuals or communities. Our goal was to construct a sample that spanned the range of variation in institutions, such as the market, and in supporting institutions, such as the rule of law, as well as capturing different types of economic systems (foragers, herders, subsistence farmers, cash-cropping farmers, and so on). Given that our new formal measure of market integration—which was defined as the percentage of the daily caloric intake purchased in the market, as discussed later—would not be calculated for each site until after we had sent the researchers to the field, we had to rely on informed guesswork when designing the sample. This approach worked well: our sites nicely span the full range from 0 to 100 percent of daily caloric intake being purchased in the market. The mean level of market integration for each of our phase 2 sample sites, as measured by the percentage of calories purchased in the market, is shown in table 3.1. Given the constraints described earlier, this probably represents as good a distribution across the spectrum as we could have hoped to achieve in the absence of such measurements ex ante.

In our site selection, we also gave consideration to geographic and ethnolinguistic distributions, lest we confound our sample with an overrepresentation of unique geographical or cultural idiosyncrasies. As in phase 1, we achieved considerable geographic and ethnolinguistic dispersion (see figure 3.1). We have seven African societies, two Papua New Guinean, one Oceanic, one Siberian, three Latin American, and one rural North American. Africa has greater representation

FIGURE 3.1 *The Global Distribution of Our Populations*



Source: Authors' figure.

in this phase of the project, just as Latin America was more prominent in phase 1. However, our African cluster includes great diversity: one fully urban population (Accra), one peri-urban farming society (Isanga), two rural cash-crop farming societies (Maragoli and Gusii), two pastoral societies (Samburu and Orma), and one hunter-gatherer population (Hadza). Regrettably, given resource and time constraints, we were not able to find an appropriate experimenter for East Asia who was available during the required time frame.

In one significant respect, we went out of our way to alter the sample selection from the criteria discussed earlier. In phase 1, David Tracer (2003, 2004) produced an unusual finding among the Au and the Gnau of Papua New Guinea. In the ultimatum game, a number of people made offers of greater than 50 percent of the stake, and many of these offers were rejected. Tracer interpreted these findings as culturally consistent with the social norms of a New Guinea gifting society, where people attempt to put others in their debt by giving out unsolicited gifts. By refusing such high offers, the Au and the Gnau were reflecting internalized motivations or preferences associated with resisting such indebtedness. We found this result intriguing, though it ran counter to our overall market integration findings because the Au and the Gnau are not highly market-integrated, yet this practice led to quite high offers in the UG. The Au were retained in the sample during phase 2 of the project, and we decided to include another society from New Guinea—from the Melanesian island of New Ireland, part of Papua New Guinea—to see if similar patterns would emerge there as well. Consequently, Alex Bolyanatz (chapter 11, available at: http://www.russellsage.org/Ensminger) was recruited and ran experiments with the Sursurunga, who are located quite geographically far away from the Au, and are ethnically and

linguistically distinct as well, but who share this cultural "gift-giving" trait. This deviation from our overall sampling strategy paid off. Tracer replicated his earlier findings for the Au (see chapter 7, available at: http://www.russellsage.org/Ensminger), and Bolyanatz found that the Sursurunga behaved in the same unusual manner (chapter 11, available at: http://www.russellsage.org/Ensminger).

Since these two sites represent two out of our sample of fifteen, we significantly overrepresented Papua New Guinean societies in our world sample, and because findings there ran counter to our overall finding of a positive relationship between market integration and fairness, these two sites raised the bar required for us to statistically identify the relationship between market integration and fairness, though once again, we did do so (see chapter 4).

Our sites span the spectrum of human variation in market integration and degree of incorporation in modern states. Many of our small-scale societies are sufficiently remote that the formal institutions of the states in which they reside have minimal impact. For example, primary education is legally mandated in Kenya, but only one-third of school-age Orma girls attend school; female circumcision is also illegal in Kenya, but it is universally practiced among the Orma, as it is among many other Kenyan ethnic groups. In many of the remote populations we studied, the state has neither the will nor the institutional capacity to enforce its authority. Local norms and institutions still predominate in many of these societies, and these norms are reflected in the variation in behavior within the games that we see across societies. Table 3.2 summarizes the ethnographic characteristics of our sample societies.

SAMPLING WITHIN SITES

Some researchers already had censuses for their sites. Others had to generate them in order to draw a random sample of adult participants for the experiments. In deference to community norms of fairness, some researchers limited the draw to one per family until all families were included, and then allowed random selection of second family members. In societies where large numbers of residents were involved in inflexible work schedules that might preclude attendance, an effort was made to schedule games at times that would be convenient for more people. People were generally enthusiastic about participating in the study, and all but a few of the selected individuals participated. Overall, our samples are highly representative of the communities from which they are drawn (though among the Au many women declined; see chapter 7, available at: http://www.russellsage.org/Ensminger).

Foraging and Horticultural Societies

Not surprisingly, the societies in our study that are most remote from national institutions tend also to be those most reliant on subsistence production; they also tend to live in small communities and to represent very small ethnic groups. The Hadza of Tanzania (Marlowe, chapter 6, available at: http://www.russellsage.org/Ensminger) are our only purely foraging society: the population subsists on their own hunting and gathering production for most (90 percent) of their calories. Their camps average about thirty people and are quite nomadic, moving four to ten times per year. The Hadza do not practice a world religion.

Two of our other societies that rely on foraging are also dependent on horticulture for many of their calories, and to varying degrees they engage in some household-level cash-crop farming as well. The Au of New Guinea (chapter 7, available at: http://www.russellsage.org/

TABLE 3.2 *Ethnographic Summary of Societies in the Study*

Group	Nation/Region	Language Family	Environment	Economic Base	Residence	Researcher
Accra City	Ghana	Mixed	Urban	Wage work	Sedentary	Barr
Au	Papua New Guinea/Torricelli	Torricelli/Wapei	Mountainous tropical forest	Foraging/horticulture	Sedentary	Tracer
Dolgan/Nganasan	Russia/Siberia	Turkic/Samoyedic	Tundra-taiga	Hunting/fishing/wages	Semi-sedentary	Ziker
Gusii	Kenya	Ekegusii	Fertile high plains	Mixed farming/wage work	Sedentary	Gwako
Hadza	Tanzania	Khoisan/isolate	Savanna-woodlands	Foraging	Nomadic	Marlowe
Isanga	Tanzania	Bantu	Mountainous forest	Agriculture/wage work	Sedentary	McElreath
Maragoli	Kenya	Logoli	Fertile plains	Mixed farming/wage work	Sedentary	Gwako
Orma	Kenya	Cushitic	Semi-arid savanna	Pastoralism	Semi-nomadic	Ensminger
Samburu	Kenya	Nilotic	Semi-arid savanna	Pastoralism	Semi-nomadic	Lesorogol
Sanquianga	Colombia/Pacific Coast	Spanish	Mangrove forest	Fisheries (fish, clams, shrimp)	Sedentary	Cardenas
Shuar	Ecuador/Amazonia	Jivaroan	Tropical forest	Horticulture	Sedentary	Barrett
Sursurunga	Papua New Guinea/New Ireland	Austronesian	Coastal tropical island	Horticulture	Sedentary	Bolyanatz
Tsimane'	Bolivia/Amazonia	Macro-Panoan isolate	Tropical forest	Foraging/horticulture	Semi-nomadic	Gurven
United States, rural Missouri	United States/rural Missouri	Germanic	Prairie	Wage work	Sedentary	Ensminger
Yasawans	Fiji/Yasawa Island	Austronesian	Coastal tropical island	Horticulture/marine foraging	Sedentary	Henrich and Henrich

Source: Authors' compilation.

Ensminger) and the Sursurunga (chapter 11, available at: http://www.russellsage.org/Ensminger) of New Ireland (an island province of Papua New Guinea) are also our two "gifting" societies. The Au depend mostly on foraging and to a lesser degree on food produced in their small slash-and-burn gardens; they are a five hours' walk from the nearest market. But the Au do devote about 50 percent of their land to cash-crop farming and engage in some wage employment, demonstrating some of the complexities that begin to confound a simple categorization of even highly remote, small-scale societies. The Sursurunga also subsist primarily on swidden agriculture and also grow some cash crops, but unlike the Au, they purchase 24 percent of their foodstuffs in the market. A highway bisects many Sursurunga villages, so this population has easier access to a market center. Both the Au and the Sursurunga in our sample are close to 100 percent evangelical Protestant, though like most of our populations, their complex of supernatural beliefs and ritual practices represents a syncretic blend of indigenous beliefs with those brought by Christian missionaries.

The Tsimane' of Bolivia (Gurven, chapter 8, available at: http://www.russellsage.org/Ensminger), like the Hadza and the Au, depend on the market for little of their daily food. The Tsimane' still acquire about 30 percent of their food from hunting, fishing, and gathering and depend on swidden farming for almost all of the rest. The Tsimane' in our sample are 50 percent Catholic and 50 percent evangelical Protestant. The Shuar (Barrett and Haley, chapter 10, available at: http://www.russellsage.org/Ensminger), our second Amazonian population, have historically lived a lifestyle similar to that of the Tsimane', with low population density and household units loosely clustered in hamlets. This has recently changed considerably with the encroachment of roads and towns, and the current economic situation of the Shuar is very much in flux as greater access to markets has changed the local economic and settlement patterns. However, this process is far from played out: the Shuar still purchase only 22 percent of their food and depend on their own hunting, gathering, and horticultural production for the rest. Our Shuar sample is roughly 50 percent non-evangelical Protestant and 25 percent Catholic. The remaining 25 percent do not self-identify with Christianity and presumably maintain indigenous religious beliefs. They are one of our most religiously diverse samples.

The inhabitants of the island of Yasawa in the northwest corner of the Fijian archipelago complete our sample of forager/horticultural societies (Henrich and Henrich, chapter 9, available at: http://www.russellsage.org/Ensminger). Like the Shuar and the Sursurunga, Yasawans depend on the market for approximately one-quarter of their calories. The rest comes from fishing, horticulture (sometimes requiring slashing and some burning), and marine gathering. Yasawans are fairly isolated from national spheres of administration, including courts and police, and have their own local-level governing institutions (simple chiefdoms). Wage work tends to be scarce, though some opportunities for trading and employment in the tourist industry are present for those few with the requisite skills. Yasawans are roughly two-thirds non-evangelical Protestants (Methodists) and one-third evangelical Protestants (Assemblies of God), though their supernatural beliefs also include traditional ancestor gods and spirits.

Farming and Wage Work

Three African societies make up our sample of sedentary, non-slash-and-burn farming populations, with limited or no dependence on foraging. These populations are quite distinct in many other respects from the foraging and horticultural populations. They depend on the market to a much greater degree, and they are more highly educated. The Gusii and the Maragoli of Kenya (Gwako, chapter 12, available at: http://www.russellsage.org/Ensminger) both inhabit

productive agricultural zones that lend themselves to cash-crop farming. The Maragoli suffer from severe population pressure that has forced them to rely on education as a means toward wage employment, as the land cannot support future generations in agriculture. The Gusii in this sample are significantly richer than the Maragoli in all respects, and they also have high education levels. Because the land is highly productive, both groups purchase a relatively low percentage of their diet (28 and 41 percent, respectively) for such highly developed societies. Our Gusii sample is 100 percent evangelical Protestant, and our Maragoli sample is 100 percent non-evangelical Protestant.

The ethnically mixed residents of Isanga Village (McElreath, chapter 15, available at: http://www.russellsage.org/Ensminger) in Tanzania inhabit a peri-urban community. This community is only a mile from the regional capital of Mbeya, a major center of trade and commerce. Despite the peri-urban environment, most residents of Isanga still farm small plots that provide roughly 30 percent of their food needs. The rest is purchased in the market using money earned from their significant involvement in wage work and business activities. The Isanga sample is roughly 10 percent Muslim and 90 percent Protestant of mixed denominations.

Livestock Herders

Three populations make up our sample of societies that depend largely on livestock herding. All have histories of being nomadic, and all have similar levels of market dependence of around 70 percent, near the high end of our sample. Our Siberians are drawn primarily from two ethnic populations, the Dolgan and the Nganasan (Ziker, chapter 13, available at: http://www.russellsage.org/Ensminger), who historically were, respectively, reindeer pastoralists (who also hunted and traded) and reindeer hunters. Today they live a largely sedentary life in town and all depend on local hunting, fishing, trapping, and a combination of wage work and state-provided social security pensions. While the Dolgan are Russian Orthodox, the Nganasan maintain an indigenous set of religious beliefs.

Our other two pastoral societies come from Kenya, and their subsistence activities are similar, though their ethnolinguistic origins are completely different. The Samburu of Kenya (Lesorogol, chapter 14, available at: http://www.russellsage.org/Ensminger), who are closely related to the better-known Maasai, are Nilotic, while the Orma of Kenya are Cushitic and trace their origins to the Oromo of Ethiopia (Lesorogol and Ensminger, chapter 5). Both groups herd cattle, small stock, and small numbers of camels. Among both groups, many families today are largely sedentary, though their herds and young men are not. Families typically supplement their lifestyles by trading livestock, engaging in local and migratory wage employment, and running other local trading businesses. Both societies purchase approximately 70 percent of their calories. Like the Shuar, the Samburu are religiously diverse: 48 percent of our sample are Catholic, 14 percent are non-evangelical Protestant, and 34 percent practice their indigenous religion. The Orma made a 100 percent conversion to Islam early in the twentieth century.

The Extraction of Natural Resources

One of our societies, the Sanquianga of Colombia (Camilo-Cardenas, chapter 16, available at: http://www.russellsage.org/Ensminger), depends on extracting natural resources in the form of logging mangrove poles and harvesting shrimp, clams, and fish. The population is heavily involved in trading activities and purchases 82 percent of its daily calories. Despite this, the population is not particularly well educated or much involved in wage labor. This Afro-Colombian population actually resides inside what is now a national park, and as a consequence, there are increasing efforts on the part of the national government to regulate their activities. The Sanquianga are predominantly Catholic, and this is reflected in our sample: 74 percent are Catholic, 10 percent are Protestant Christian (predominantly evangelical), and the remaining 16 percent did not self-identify with any world religion.

Industrial Societies

We have two industrialized populations: one from an urban site in a developing country, and one from a rural site in the United States. Our sample from Accra, Ghana (Barr, chapter 17, available at: http://www.russellsage.org/Ensminger) is different from our other samples in that it is not drawn from a residential community but from the work communities in small firms in the city of Accra. The experiments were carried out in small firms among largely urban immigrants in an ethnically diverse, bustling city of 2 million inhabitants who are entirely dependent on the market for their subsistence and have ready access to public transportation, newspapers, radio, and television. However, the effects of government regulation on their wages and working conditions vary markedly depending on whether they are working for a formally registered company or a small, informal enterprise. The population of Accra is religiously diverse, and this is reflected in our sample: 46 percent are non-evangelical Protestant, 30 percent are evangelical Protestants, 10 percent are Catholic, 10 percent are Muslim, and 4 percent stated that they had no religion.

Our second fully market-integrated sample comes from rural Missouri in the United States (Ensminger and Cook, chapter 18, available at: http://www.russellsage.org/Ensminger). This sample was drawn from a town, with a population of 1,800, where virtually all families are known to each other. The town is in the heart of the Bible Belt, and our sample is all Christian. Despite their location, farming is actually a relatively rare form of livelihood; most depend on wage work or small business employment, and a few commute to large cities for work.

We also ran our experimental protocols on American undergraduates at Emory University (Henrich and Henrich, chapter 9, available at: http://www.russellsage.org/Ensminger). For comparability with our community-based samples, our DG and UG samples were drawn from residents of the same undergraduate dormitory (roughly the same size as many of our villages) in the same manner that we sampled from residential communities elsewhere. Note that we did not include this undergraduate sample (largely freshmen) in our synthetic cross-population analyses because the prosociality observed in behavioral experiments continues to develop through the university years and up to age thirty (Bellemare, Kröger, and van Soest 2008; Henrich 2008; Sutter and Kocher 2007). Mixing these socially immature individuals with our random samples of adults would confuse age-related developmental differences with other sources of variation. We have included them in this volume as a point of reference for our three games, since most other experimental work is done with Western undergraduates (Henrich, Heine, and Norenzayan 2010).

OPERATIONALIZING KEY VARIABLES

Our earlier work had led us to anticipate that we would not find significant effects for many common demographic variables that might be intuited as explanations of societal variation in fairness and punishment (Henrich et al. 2005), but we considered it important to test and control for such effects. The key variables that we wished to control for were age, sex, education, household size, wealth, and income. We hypothesized that behavior in the experiments would be related to

market integration, and based on Marlowe's findings (2004) and our phase 1 aggregate analyses (Henrich et al. 2005), we expected that community size might also play an important role, so we were careful to measure these variables for all of our sites.

Age, Sex, and Education

In some of our societies, age is not precisely known but can usually be estimated using well-established anthropological techniques, often in consultation with other community members who know relative birth orders and can relate these to known historical events or the births of individuals with known birth dates. We measured age in years. Sex was recorded for all participants by observation.

For education, some of our researchers interpreted years of education to mean the level completed, and others interpreted it as the total number of years attended (including repeated grades). Any difference here would create only a small discrepancy among sites owing to the small number of individuals who had to repeat grades. Since one year of formal education, measured either way, was not equivalent across sites, we standardized our education measures by subtracting the mean value of education in the population and dividing by the standard deviation in education for each population. This allowed us to make the best use of within-population variation.

Household Size, Wealth, and Income

We defined a household as a group of people who share in the household estate—that is, a corporate body of people who might or might not live together (including absent school children, for example), but who share some household accounts, and whose members are subject to some decision-making authority by the head or heads of household. The number includes absent members because such individuals may make future claims (for example, for land, livestock, school fees, or bride-wealth) on the estate. It might also include large extended families. For example, polygynous households are often under the decision-making authority of one person with the power to buy and sell land or livestock. Similarly, married sons might also be under the authority of such a person, as might the "retired" mothers and fathers of either the husband or wife (or wives). This measure is an integer number of individuals.

In addition to defining the variable household size (HS), the definition of the household had a bearing on our wealth measure, because we measured wealth at the household level. We calculated household wealth as a cash equivalent of all revenue-generating assets (other than human capital) owned by the household. Because of their complexity, these data were often collected from heads of households in separate surveys not administered on the day of the economic experiment. In some of our societies, such as the Hadza, very little property is privately owned and there are no cash-generating capital goods. In most of our societies, the bulk of household wealth is held in either land or livestock. However, some of our populations have a broad range of assets, from farm equipment to boats and rental property. We did not include the value of nonproductive assets—such as jewelry, radios, watches, houses, and household goods—in our computation of wealth.

In contrast to wealth, income data were collected for each individual who played a game, and it was each individual's income that we used in the regression analyses. Income was defined as the flow of revenue available to the individual from legal, illegal, formal, and informal sources. Each researcher attempted to get an estimate of annual income, taking into account the likely seasonal fluctuations.

Wealth and income are challenging variables to collect under the best of circumstances. We used the techniques of disaggregation by local categories and relevant time periods to be as inclusive as possible and to facilitate recall. We created local surveys that disaggregated all known sources of income and wealth and requested amounts in easily known time periods from local informants. Researchers then aggregated income sources on a weekly, monthly, or one-off basis into an annual figure. To verify accuracy we used a variety of standard ethnographic techniques, such as cross-checking informant reports by asking multiple informants the same questions (for example, independently asking fathers, mothers, sons, or daughters about the family's wealth). The fact that most of our researchers were longtime intermittent residents of these communities greatly facilitated the collection of accurate wealth and income data. Most of the income derived from wage work (casual and professional), trading profits, sale of home production, rental income, and remittances.

Community Population

For most of our societies, "community population" represents the size of the village in which the subjects playing the games reside. For the Hadza, these are not villages, but nomadic camps. For the Isanga, the relevant social community is a portion of the larger settlement area in which they reside. In the case of the workers in Accra, we concluded that neither the size of the small firms in which they worked (seventeen employees in the case of the smallest) nor the population of Accra (2 million) was analogous to village size in our other samples. Consequently, Accra was dropped from the regressions that tested the effects of community size.

World Religion

Those who professed belief in Islam, unspecified Christianity, Protestantism, evangelical Protestantism, Russian Orthodoxy, or Catholicism were coded as believers in a world religion. No other world religions appeared in our sample. Those who practiced an indigenous religion (all of the Hadza, many of the Samburu, most of the Nganasan, and a smattering from other groups) and those who professed no religion were coded as not being members of a world religion. One should bear in mind, however, that among most of our populations conversion to Christianity and Islam often involved a complex merging of supernatural beliefs and ritual practices that represents a syncretic blend of indigenous beliefs with those of world religions.

Market Integration

Pursuing the market integration hypothesis was one of our central goals in phase 2. In phase 1, we had to rely on a crude ranking based on the ethnographers' subjective estimates of market integration, and we found a remarkably strong statistical relationship between this ranking and UG offers. In phase 2, we aimed to substantially improve on the rigor of our market integration measure. The team agreed that the percentage of the diet purchased in the market (MI1) was probably the best measure of the degree of market integration, as it provided a clear measure of how much the group depended on market exchange for its basic subsistence. It is common for food expenditures in developing nations to make up 60 to 80 percent of a household's monthly expenditures, so measuring food expenditures is central to understanding market reliance. Salt, sugar, cooking oil, rice, and flour are often the first items purchased when cash becomes part of a local economy (Henrich 1997).

As a robustness check, and with a view to creating a composite variable, we also collected four other measures of market integration (MI2–5). However, it soon became apparent during the analysis that either they were redundant (MI2) or they varied insufficiently across our samples to be of use (M3–5). We discuss the pros and cons of these measures here for the benefit of other researchers.

MI1: The Percentage of the Diet Purchased in the Market To create this measure we carried out a consumption survey at all sites. Our locally constructed consumption surveys disaggregated all typical food consumption for the area and recorded quantities consumed by source (purchased versus home production) for the entire eating unit. Our format was a twenty-four-hour recall of all food consumed in the household, with follow-up questions confirming whether the day was typical, and if not, what a typical day looked like. If there were seasonal variations, multiple surveys were taken to create an average. These quantities were then converted into caloric equivalents, and the ratio of purchased versus homegrown caloric consumption yielded the percentage of market dependence.

We left it to the discretion of the researchers whether they carried out the consumption survey individually with each person playing the game or carried out approximately twenty random surveys of each community where games were played and created an average market integration measure for participants from that community. The use of a community average rather than an individual measure of MI1 is justified on both operational and theoretical grounds. Operationally, households should ideally be surveyed over time, as many sites experience cyclical or erratic short-term fluctuations in market access and dependence. This means that an individual household-level measure of MI1 at one point in time is affected by this kind of noise. Since the sample of households within a community better spanned these temporal fluctuations than did individual samples taken on the day of game play, a community average gives a more accurate picture of people's average level of dependence on the market. Theoretically, we were aiming for a measure related to norms, which is a group-level phenomenon.

This measure of market integration is a proxy for the institutional or normative environment within which people reside. It is intended to capture the degree of average dependence on the market, but we also expect that this measure captures many other institutional qualities, such as the strength of the rule of law that supports that level of market integration, which we did not directly measure. We expect that the norms we are seeking to identify are shared broadly in the community, and we have no prediction concerning how these will vary within communities. It is conceivable, however, that whole villages within an ethnic group vary significantly in their market dependence, as, for instance, might be the case if one village is near a road and a market center and another is remote from both. For example, among the cattle-herding Orma, Ensminger (2004) found significant differences in dictator game offers between villages based on level of market integration (those living a more nomadic subsistence lifestyle versus those living a more commercial, sedentary life). If researchers drew experimental subjects from different villages, those villages were surveyed separately for market integration and that variation was captured. In this volume, we use community averages of this variable in all the analyses because we deemed it to be theoretically the most appropriate.

MI2: The Game Player's Individual Income from Wage Labor, Rental Properties, and Trading Activities This measure included everything captured in our income variable, with the exception of income from home production, which we wished to isolate as a separate measure of involvement in the market. We originally identified wage labor and trading as important components of market integration that involve different market skills and perhaps

broader degrees of integration into market networks. As it turned out, MI2 was correlated 0.99 with income, which we did use as a control variable, making MI2 redundant. MI1 and MI2 are themselves correlated at 0.28.

MI3: Frequency of Wage Labor in the Last Month Each game player was asked how frequently he or she had participated in wage labor in the last month. Most participants reported no wage labor in the previous month, so we had insufficient variation to test the impact of this measure. Additionally, it is clear that distortions would be created in fully market-oriented societies, such as our Missouri sample, when we consider how it would have treated unemployed wage workers, retirees, and nonworking spouses. MI1 and MI3 are correlated at 0.41.

MI4: Trips to Market in the Last Seven Days This measure was proposed because it seemed plausibly associated with the level of market integration (Gurven 2004; Weber 1958), and we speculated that those who frequented marketplaces might be more attuned to the market. However, while this measure seemed to capture what we were going for in some sites, it did not work well to capture much of the phenomena of interest in many other sites. Whether people shop once a week or twice daily may be a function of cash flow, the division of labor in the household, or merely individual preference, as we suspect it is in developed societies. Those engaged in wage work, arguably the most market-integrated in our societies, may not be the individuals who do the shopping. MI4 is correlated with MI1 at 0.31.

MI5: Frequency of Trading Goods for Purchase and Resale in the Prior Month This measure was designed to capture and isolate trader activity as distinct from the consumption of traded goods or the trading of one's own labor. The number of people in our sample involved in such activities was relatively small across our sites, and all the more so when we surveyed only the prior month. This yielded a heavily skewed distribution with a strong mode at 0 percent, which made this an ineffective variable. The correlation between MI1 and MI5 is −0.006.

The formal protocols and survey instruments that we used to operationalize all of these variables are available at Jean Ensminger's website: http://jee.caltech.edu/research/experimental-economics. These materials include the worksheets we used to calculate market integration, wealth, and income.

Calculating Minimum Acceptable Offers

For our measures of punishment, we collected a vector of rejection and punishment decisions from each player 2 in the UG and each player 3 in the TPG. For the purposes of analysis, we converted each of these vectors into a single number capturing the minimum acceptable offer (MinAO). An MinAO is the lowest offer—between 0 and 50 percent—that a person will accept, conditional on that person demonstrating consistent acceptance preferences for higher offers. For example, if a player states that he or she will reject (UG) or punish (TPG) an offer of 0, but then accept 10 through 50, their MinAO is set at 10. If an individual accepts all offers (that is, does not reject in the UG or punish in TPG) up to and including 50 percent, his or her MinAO is set at 0. If the individual rejects or fines offers of 0 percent through 40 percent but accepts 50 percent, his or her MinAO is 50. For players with more than one switch from accept to reject (for example, reject 0, accept 10, reject 20 . . .), we did not calculate an MinAO. We also ignored players who rejected all offers from 0 to 50.

Four percent of player 2s in the UG (eighteen participants) and 10 percent of player 3s in the TPG (thirty-four participants) chose strategies inconsistent with this definition (for example, rejecting 0, accepting 10, rejecting 20 . . .). Overall, we calculated the MinAO for 387 out of 405 player 2s in the UG and 305 out of 339 player 3s in the TPG. The majority of UG player 2s and TPG player 3s for whom MinAOs could not be calculated chose to reject or punish all offers up to and including 50 percent. These players were concentrated among the Hadza and Sursurunga for the UG and among the Maragoli for the TPG (for further details and discussions, see chapters 6, 11, and 12, available at: http://www.russellsage.org/publications/experimenting-social-norms).

Table 3.3 summarizes the mean demographics of our sample by society.

GAME PROCEDURES AND PROTOCOLS

Announcing the Games

Circumstances differed from site to site, but most researchers held a public meeting to announce the beginning of the games. We were careful in these meetings not to describe the games, but merely to inform people that they would be randomly invited to participate. Players were told nothing about the experiments before coming except that (1) their participation was completely optional, (2) they would have an opportunity to obtain some money, and (3) the whole process would take several hours.

Informed Consent

We knew in advance that many of the participants would be illiterate and would not be able to read descriptions of the research or sign consent forms. So in place of these procedures, at the start of each session the participants were told that if at any point they became uncomfortable with any aspect of the games they were being asked to play, they would be free to leave, and that if they did so, they could retain their show-up fee (discussed later).

No-Shows and Unbalanced Numbers of Players

We had very few no-shows, as the populations in all of our sites were eager to play the games, both out of intellectual curiosity and to earn money. However, sessions often involved numbers of participants that were not multiples of the number of players in the games because of the occasional no-show or because of the few players who had to be disqualified because they did not pass the pregame tests. When this imbalance occurred, a participant was randomly picked and his or her decisions were used in the payoff calculations of more than one of the participants in the oversubscribed roles. The researchers chose this approach because all were of the opinion that turning away invited players, who might have walked many miles to participate, was unfair. It did mean that a tiny fraction of our subjects effectively played twice. (Their offers had two recipients.)

Collusion

We knew from our collective experiences that collusion within closely knit communities was a potential risk in these kinds of experiments. In experiments independent of this project that were run between phases 1 and 2, two members of our research team observed collusion

TABLE 3.3 *Mean Demographics, by Society*

Society	Market Integration	World Religion	Female	Age (Years)	Education (Years)	Household Size	Income (U.S. Dollars)	Wealth (U.S. Dollars)	Community Population
Accra	100%	96%	31%	36	10.5	2.7	$720	n.a.[b]	n.a.[a]
Standard deviation				(11.3)	(4.0)	(1.9)	(741)		
N	177	176	176	176	176	176	176		
Au	1%	100%	17%	38	3.3	5.5	$41	$89	309
Standard deviation				(11.7)	(3.2)	(2.1)	(143)	(52.6)	(46)
N	145	145	145	78	145	135	120	120	145
Dolgan/Nganasan	63%	60%	53%	38	9.7	4.7	$1,262	n.a.[b]	612
Standard deviation				(12.1)	(2.2)	(2.1)	(1,288)		(0.0)
N	59	40	59	59	57	59	59		59
Gusii	28%	100%	47%	45	11.9	n.a.[b]	$1,520	$6,008	4,063
Standard deviation				(9.7)	(2.5)		(676)	(1,358)	(727)
N	140	140	140	140	140		140	140	140
Hadza	0%	0%	43%	37	1.2	3.4	$0	$0	43
Standard deviation				(15.0)	(2.0)	(2.0)	(0.0)	(0.0)	(25)
N	116	116	116	116	116	114	116	116	116
Isanga	70%	99%	53%	37	7.6	5.9	$204	$153	1,500
Standard deviation				(12.1)	(2.3)	(2.1)	(310)	(174)	(0.0)
N	100	100	100	100	100	100	100	100	100
Maragoli	43%	100%	46%	46	12.5	7.2	$1,193	$1,951	3,843
Standard deviation				(8.4)	(1.2)	(1.7)	(494)	(373)	(1,148)
N	140	140	140	140	140	140	140	140	140
Orma	72%	100%	68%	39	0.0	8.7	$106	$1,447	125
Standard deviation				(13.0)	(0.0)	(3.7)	(168)	(1,781)	(32)
N	38	38	38	37	38	37	38	38	38
Samburu	69%	66%	56%	38	1.4	8.7	$359	$2,463	2,000
Standard deviation				(14.6)	(2.8)	(4.8)	(386)	(3,113)	(0.0)
N	123	117	117	117	117	120	117	121	123
Sanquianga	82%	84%	60%	38	4.0	6.8	$1,853	$2,400	1,931
Standard deviation				(15.4)	(3.0)	(2.9)	(2,419)	(4,728)	(400)
N	156	155	156	155	156	156	156	156	156

(Table continues on page 62)

TABLE 3.3 *Continued*

Society	Market Integration	World Religion	Female	Age (Years)	Education (Years)	Household Size	Income (U.S. Dollars)	Wealth (U.S. Dollars)	Community Population
Shuar	22%	76%	41%	39	6.2	6.1	$737	$5,962	498
Standard deviation				(16.1)	(3.7)	(2.2)	(956)	(5,877)	(1,410)
N	49	49	49	47	47	49	49	49	49
Sursurunga	24%	100%	51%	36	6.7	5.5	$278	$5,024	186
Standard deviation				(13.4)	(2.9)	(2.3)	(479)	(5,679)	(23.4)
N	124	124	124	124	124	124	124	124	124
Tsimane'	7%	100%	53%	35	3.6	7.7	$128	$454	314
Standard deviation				(15.4)	(3.6)	(4.0)	(207)	(291)	(131)
N	146	146	146	146	135	145	71	65	146
U.S./rural Missouri	100%	100%	59%	47	13.7	2.9	$24,085	$115,757	1,813
Standard deviation				(17.5)	(2.1)	(1.2)	(18,792)	(180,875)	(0.0)
N	82	82	82	82	82	81	82	82	82
Yasawa	21%	100%	51%	38	8.4	6.9	$1,159	$424	109
Standard deviation				(15.3)	(2.3)	(3.2)	(1,112)	(510)	(22.4)
N	105	105	105	104	105	105	103	101	105
Total	46%	87%	47%	39	6.9	5.8	$1,958	$9,135	1,410
Standard deviation				(13.9)	(5.0)	(3.3)	(6,773)	(52,040)	(1,487)
N	1,733	1,678	1,693	1,621	1,678	1,541	1,591	1,352	1,523

Source: Authors' compilation based on author data.

[a]The mean community size for the Accra sample reflects the mean firm size where the games were played. Accra has a population of 2 million. We considered neither the firm size nor the city size to be equivalent to the community size in our other sites, so the Accra sample was dropped from the analyses of community size.

[b]Wealth data were not collected in Accra or for the Dolgan/Nganasan. Household size data were not collected among the Gusii.

among some participants in large villages when they ran several identical experiments over successive days in the same village. However, they never observed collusion between villages. The good news is that when villagers began to collude, behavior in the games converged to fair play so dramatically and universally that it was immediately apparent to the experimenters that the games had been corrupted. Further, instead of appearing confused, unsure, tentative, or struggling to understand the game during the training, players announced immediately how they wished to play, and there was nearly complete compliance with the collusion, so the usual variation in offers vanished. In these cases (not part of phases 1 or 2 of this project), some young village activists had organized the population and told everyone to play fifty-fifty in the ultimatum game. There was nothing subtle about it; the demeanor of the players changed in a manner that was instantly transparent to the experimenters. The fact that virtually everyone complied with the collusion is interesting in itself. In these cases the games were terminated, the data were thrown out, and all experiments ceased in the affected villages. We suspect that not all small-scale societies are equally susceptible to this sort of community collusion, but we deemed it a serious concern and took the lessons of those experiences to heart when we set up the phase 2 protocols.

To minimize the risk of collusion, the ideal solution is to play each game on only one day in each community and to keep all participants either isolated or unable to communicate about the game for the duration of the actual play. But given the sample sizes we required in phase 2 and the length of play, it was not possible to complete all games in one day. We weighed the risks of collusion against the problems of using more than one community to complete the sample. Sometimes community effects can be high, so we agreed to try to use one community for all of the DG and UG games. To minimize the likelihood of collusion we did not inform players on the first day that there would be more games, and we endeavored to provide the shortest possible notice to those who were randomly selected to play on subsequent days; these individuals were notified of their invitation either the evening before the game or the morning of the game. We detected no signs that collusion was a problem. Furthermore, checks on order of play in the overall data set revealed no signs of order or day effects (though see chapter 9 for a day effect not linked to collusion, available at: http://www.russellsage.org/Ensminger).

Session Protocol

All invited participants were told where and when to show up for a session. Where possible, we used community structures like schools; otherwise, we used clusters of local homes. Local research assistants were employed to control the logistical flow once the games began, to monitor the groups to prevent discussion of the games, and to conduct the requisite surveys. Those players who had completed playing the game or games were allowed to depart if they were finished and had been paid. Those who had undertaken only part of their roles in the games, but not all, were assigned to a separate waiting area so that they could not interact with those waiting to begin play. Participants were allowed to talk among themselves, but they were monitored and not permitted to talk about the games.

Back-Translation of Scripts

Each researcher had to have the game scripts translated into the appropriate local language. Researchers used the method of back-translation to obtain the best possible game translation. This involved having one bilingual assistant with no knowledge of the game translate the game instructions into the local language, and then having a second assistant translate it back, thus

PHOTO 3.2 *The Third-Party Punishment Game*

Source: Photo by Robert Boyd.
Note: Joe Henrich administers the third-party punishment game in the Village of Teci on Yasawa Island, Fiji.

identifying any problems in the translation. This process is iterated until all translation problems are resolved. See the end of this chapter for the English version of the scripts.

GAME ADMINISTRATOR

All game instructions were read out by native speakers unless the project researcher was fluent in the local language (see photo 3.2). If a local interpreter was used, he or she was asked to turn around when offers were made so that no local individuals had knowledge of the players' offers. This helped guarantee the participants' anonymity, as promised by the researchers.

The Show-up Fee

Before the games began, the participants were all given a "show-up" fee, paid in cash at a rate of approximately 20 to 25 percent of one day's wage in the local economy. In some sites, because of the vagaries of currency denominations, these percentages diverged slightly. It was made clear to the participants that this money was strictly for their *participation* in the games and was not part of a game. Participants who failed to pass the required tests of game understanding were allowed to keep the show-up fee—which made it somewhat easier to reject them if the need arose.

Stakes

The game stakes were set at roughly one day's wage in the local community—that is, the rate ordinarily paid for casual wage labor work if it was available. For rural Missouri, this amounted to $50 to be divided between player 1 and player 2 in each game, while in many of the developing societies the stakes were in the range of $2. Because stakes had to be divisible by ten, some sites wound up with stakes that were marginally higher or lower than the daily wage rate. In many of our societies, casual wage work was hard to come by, so if anything, our stakes were effectively more valuable than one day's casual wage. We know of no societies in our sample where people did not desire cash for something, be it tobacco, beads, salt, cooking oil, knives, sugar, cloth, cattle, or shotgun shells.

Teaching Examples

In both teaching and testing the participants, researchers used actual coins and paper currency to illustrate the game (see photos 3.2 and 3.3). This visual presentation of the arithmetic of the games made it possible for people with limited or no arithmetic skill to still understand the game. If necessary, players could manipulate piles and count coins or bills during decision-making and testing. Specific teaching examples were scripted in the written protocols. Analyses show that the number of examples a player required did not predict decisions (see chapter 4).

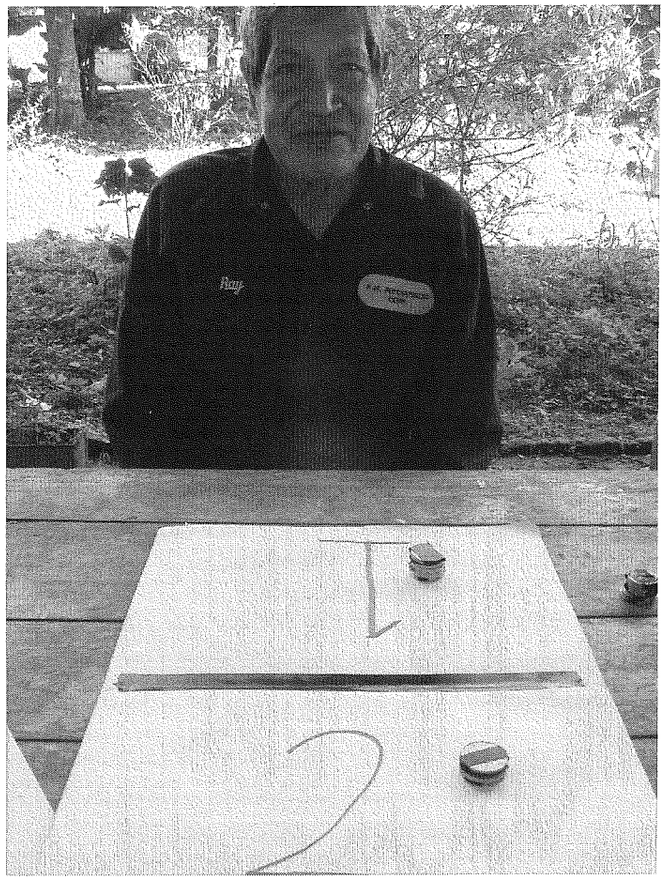
Why Play the Dictator Game and Ultimatum Game in One Session?

In most of the societies, two types of session were run. First, the DG was conducted, followed by the UG. Ideally, the two games would have been conducted during separate sessions involving different randomly drawn subject samples (although the fact that they were not is exploited in the analysis relating to some predictions). However, we knew that in several of the smaller societies we would not have had enough subjects for all these sessions. Choosing to combine two of the games in a single-session design was preferred to allowing the researchers to reuse subjects repeatedly in active roles. We considered varying the order in which the DG and UG were played across sessions. However, doing so could have reduced comparability across societies. By fixing the order of the games, we maximized comparability. We also took into account that we already had UG results from many small-scale societies (phase 1), which provided us with a means to check whether the ordering influenced the results (more on this later). Finally, since the DG is much easier to understand compared to the UG (see chapter 9, available at: http://www.russellsage.org/Ensminger), the DG-then-UG ordering was of pedagogic value, a consideration that needs to be given considerable weight when working with unschooled subjects.

Game Logistics for the Core Games

Once all players had arrived, the game area was secured by the experimental team from the eyes and ears of nonparticipants, a show-up fee was paid (20 to 25 percent of the stake/one day's wage), and participants publicly and randomly selected an ID number from a container that determined their order of play and, unbeknownst to them until they were about to make their decisions, their role (player 1, player 2, or player 3) in the games. The public random draw was meant to convey clearly that order and role assignment were random.

PHOTO 3.3 *The Ultimatum Game Among the Tsimane'*



Source: Photo by Michael Gurven.
Note: Coins were taped together to make 10 percent increments of the total stake.

The game script was then read to the whole group (see photo 3.4). The script included the following points: (1) participation was purely optional and people were to feel free to leave at any time; (2) people's decisions were entirely private, except to the lead experimenter, who would not tell anyone (because most of our researchers were long-term fieldworkers in these locales, players' trust in them was high); (3) all games would be played only once; (4) players were not to discuss the game for the duration of play (research assistants monitored the group for compliance); and (5) all the money was real, and people would receive payment to take home at the end of the session. The description of the experimental situation was followed by a fixed set of examples, which were illustrated to the group by visually moving bills or coins in the local currency.

After the instructions were read to the group, individual players were brought one by one into a separate area, where the game instructions were reread and more examples were

PHOTO 3.4 *Preparing for Game Instruction*

Source: Photo by Jeffrey Winking.
Note: Mike Gurven shown preparing the Tsimane' for game instruction.

given. Again, examples were illustrated by moving cash on a table or cloth with a line separating player 1's and player 2's allocations. If the player confirmed that he or she understood the game, and the experimenter agreed, they were given test questions that required them to state the amount of money that each player would receive under various hypothetical circumstances. Players had to correctly answer two consecutive test situations to pass and be allowed to participate in the experiment. (This actually required that four correct amounts be stated for the DG and UG, and six correct amounts for the TPG.) If a player could not do the required arithmetic, he or she was permitted to manipulate the money according to the hypothetical examples, and then count the money in each pile to answer; thus, everyone had to have the ability to count to ten. After passing this test, players were told their role in the actual game (whether they were player 1, player 2, or player 3) and were asked to make the required decision(s). If a research assistant was present, he or she had to turn away so as not to observe the actual decisions.

As in most behavioral experiments, all participants knew everything about the experimental game except who was matched with whom. Our script specified that players were to be matched with another person or persons from the same community, but made clear that no one would know who was matched with whom. The script also made clear that the game would be played only once.

In our DG-UG sessions, players first played the dictator game and then played the ultimatum game. Player 1s in the DG kept their role in the UG. The inert player 2s in the DG, *before finding out what they received in the DG,* assumed the role of player 2 in the UG. Players in the TPG were by design, and most often, a fresh sample that had not participated in the prior two games. The TPG was usually done weeks later, and in some societies, the TPG research was done in a different village from the DG and UG.

If one is concerned about the effects of placing a dictator game before an ultimatum game, consider five things. First, as previously noted, this procedure was carried out uniformly across sites, thereby enhancing our ability to make comparisons across sites. Second, as noted with regard to rejections in the UG, the second player in the UG was inert in the DG and had yet to learn his DG offer. Third, in the sites included in both phase 1 and phase 2 of the project, the UG data generated in phase 2 using this approach are comparable to the UG data generated in phase 1, in which the UG was the first and often the only game played. Third, the relationship between UG offers and market integration described in this volume replicates our prior finding using data from the UG without a preceding DG. Finally, in a control with university students in the United States, the UG findings are quite similar to typical UG findings in the literature that were conducted without a preceding DG (chapter 9, available at: http://www.russellsage.org/Ensminger).

Typical Game: Day 1

The goal for day 1 was one long session with the *same* twenty to thirty players playing both the dictator game and the strategy method ultimatum game. The DG always came first (often in the morning) and was followed by the UG (usually in the afternoon). Each player assumed the role of either player 1 or player 2 in both games. Two holding areas were set up: one for players who had not played the current game, and one for those who had finished but were either being held for the next game or waiting for payment.

For the DG, people were gathered together, paid the show-up fee, given the explanation of the game in a group, and brought individually into the gaming area. The random order of play was demonstrated overtly by picking names from a container. Players were told up front that they would be paid for this game after completing the next game.

After the DG offers were made, but before player 2s were informed of their offer, and before any players had been paid, the UG was run. Researchers often supplied food and drink to keep players comfortable. At the beginning of the UG, players were told that this was an entirely different game and that they would be playing with a different person. Again, researchers overtly established a new random order of entry into the gaming area. After everyone finished playing both games, all players were brought in one by one for payment for both games.

Typical Game: Day 2 and Day 3

On days 2 and 3, researchers repeated the same procedure as on day 1. The minimum goal was thirty pairs total from each site, so our estimates suggested that the games would run for two or three days; we had a strong preference for the games lasting only two days (fifteen pairs per day), to avoid collusion.

We believed that our postgame questions had the potential to generate framing effects, so we agreed to administer them only after the last DG-UG session, and only if we were not planning to run the TPG game in that village. Postgame questions were sometimes administered after all the games were completed.

PHOTO 3.5 *The Third-Party Punishment Game Among the Au*

Source: Photo by Rachel D. Foreman.
Note: David Tracer shown administering the third-party punishment game among the Au of Papua New Guinea.

Third-Party Punishment

Typically, the third-party punishment game was performed either in different communities from the UG and DG or three or more weeks later with different participants from the same communities. Our goal was to have thirty trios for the TPG from each site. Researchers aimed to use mostly fresh players who had not played any of the prior games. For some researchers, this could be done only by using separate communities from within the same site for the TPG. For those running short of fresh players, it was acceptable to substitute repeat players for player 2 (who are passive in this game). Thus, the TPG required a minimum of sixty fresh adults in one village, plus thirty repeat players. In a few sites, some repeat players also had to be used in the role of player 1 or player 3, owing to small population sizes.[5] Photo 3.5 shows the TPG being played among the Au in Papua New Guinea.

Exceptions and Problems

This section reviews the main divergences from the common protocol, but for more detail refer to each of the chapters for full details. The rural Missouri sample was a pilot test site for this project early in the process, and what we learned there informed our final protocols.

Consequently, there were some important deviations there from the procedures and protocol used at all the other sites. First, the DG and the UG were run with different samples in Missouri, and in separate sessions rather than in one long session. Second, the UG in Missouri was run with the strategy method, but we did not elicit responses for offers above 50 percent. Finally, the decision to include the TPG also followed the Missouri games, so these data are also missing for Missouri. The Orma DG was also not run in a double session with the UG. It was run prior to, but in conjunction with, a double-blind DG (chapter 5). In two of the sites we use in the comparative analysis—Accra and Dolgan/Nganasan—we were unable to collect wealth data. For this reason, we ran our regression analyses first with wealth included, and then, if wealth was not an important predictor, we dropped wealth to bring in these two sites and demonstrate that the effects held either way.

After publishing a journal article on these data (Henrich et al. 2010), Gwako discovered that the household size data for the Gusii were corrupted, so this variable is missing for the Gusii. We have now rerun our analyses by both dropping the Gusii and dropping the household size variable. Overall, this strengthens our major findings, though it does mean that the analyses presented in chapter 4 differ slightly from those found in earlier publications. None of the substantive conclusions have changed.

Among the Tsimane', several methodological anomalies are potential causes for concern (chapter 8, available at: http://www.russellsage.org/Ensminger). In one case, players received game instructions late in the day and had to be sent home; they returned the next day to actually play. In the second case, a game was administered on a Sunday directly after a church service. As a check, we have rerun all of our baseline regressions for UG, DG, and TPG offers, as well as for all offers together, and the UG and TPG minimum acceptable offers, excluding the Tsimane' (see chapter 4). These checks reveal no qualitative divergences from our baseline findings, with two exceptions. First, the *p*-value for the coefficient on market integration in the baseline regression for UG offers weakens to 0.13 when the Tsimane' are dropped. Second, the *p*-value for the coefficient on world religion in our baseline DG offer regression improves from 0.079 to 0.02.

Although we felt it was important to perform these checks, we emphasize that independent of these analyses, there are several reasons to believe that these procedural anomalies had little impact on the Tsimane' data. First, both the DG and UG findings are consistent with prior work using these experiments among some Tsimane' villages, though with different protocols (Gurven 2004; Gurven and Winking 2008; Gurven, Zanolini, and Schniter 2008, see also chapter 8, available at: http://www.russellsage.org/Ensminger). Second, prior work by different researchers among a very similar Amazonian population yielded quite similar UG findings (Henrich 2000; Henrich and Smith 2004). Third, we would expect these methodological anomalies to drive offers up, rather than down, and yet the Tsimane' tend to make extremely low offers in all three games. Preplay communication, which might have occurred when players went home for the night, typically drives offers up, based on much previous work with typical subjects (Ostrom, Gardner, and Walker 1994) as well as on the experiences of two of our own researchers in work prior to this project (as discussed earlier in the collusion section). Similarly, given our findings and work in psychology (Shariff and Norenzayan 2007), we would assume that attendance at a Catholic church service prior to playing ought to increase offers, if anything. In short, there is little reason to suspect that these anomalies affected play; if they did, there is reason to suspect that those effects worked against our market integration hypotheses.

Among the Au, we have a distorted sex ratio in the sample. Although the researcher (David Tracer) tried to get female participation, Au society is quite male-dominated, and the men insisted that they play rather than the females (see chapter 7, available at: http://www.russellsage.org/Ensminger).

In all but one of our sites (Hadza), the game scripts were read to the group before people were brought to play privately and instructed again in accordance with the script. Among the Hadza, instructions were given only in the privacy of a Land Rover, where the games were administered to avoid eavesdropping (chapter 6, available at: http://www.russellsage.org/Ensminger).

The Order of Supplemental Games

By design, those running supplemental games finished all core games (DG, UG, TPG) before playing any of the supplemental games. If there was village talk about the games, we wanted to be sure that the core games were as uncorrupted as possible. Our supplemental games included double-blind DGs (chapter 5), contextualized games that "dressed up" the game with locally relevant details (chapter 11, available at: http://www.russellsage.org/Ensminger; Lesorogol 2007), and a trust game combined with a social network analysis (Barr, Ensminger, and Johnson 2010).

PRINCIPLES AND LESSONS FOR COLLABORATIVE PROJECTS

Collaborative projects of this kind are extremely difficult to execute, especially for researchers from disciplines, like cultural anthropology, that have few precedents in recent decades and no norms for collaboration in joint projects. Interestingly, large collaborations were far more common among earlier generations of anthropological researchers. In the twentieth century, a tradition of collaboration grew out of Harvard University, which spawned the Ramah Project (1936 to 1945), the Comparative Study of Values in Five Cultures (1949 to 1955) and the Chiapas Project (beginning in 1955). But these projects were structured more as coalitions of scholars working on a similar topic or in a similar geographic region than as teams attempting to implement a controlled protocol across sites. Perhaps the best anthropological example of an effort to implement a controlled protocol cross-culturally is yet another Harvard effort, the Six Cultures Project (Whiting 1963). Another example from the early 1960s was a collaboration of psychologists and anthropologists in which the strength of five visual illusions was tested in fifteen diverse societies (Segall, Campbell, and Herskovits 1966). Such large collaborative efforts in cultural anthropology died out in the subsequent decades.

Since we believe collaborative projects are crucial for advancing our understanding of human behavior, and because our project has recently inspired others to pursue similar efforts, we thought it would be useful to offer some thoughts on running such projects, as well as some of the principles that guided our work. We proffer these suggestions with humility because we still stand far from our ideal vision of a team approach to cross-cultural, transdisciplinary research that integrates diverse methods, including both experimental and ethnographic techniques. We hope future efforts of this sort might learn from both our insights and our mistakes.

The Power of Ethnography

In developing the two phases of our project, it was important to us that our research integrated ethnographic and experimental approaches. The approach we did not want to take—or to encourage—was the quick and dirty deployment of prepackaged experiments in strange and exotic places without the ethnographic experience to guarantee that they would be understood

and administered correctly and that the results would be interpreted within the context of the local economic situation, cultural beliefs, and history. With this priority, we recruited ethnographers and economists who were seasoned fieldworkers, some of whom brought as much as thirty years of familiarity with the population with whom they would run the economic experiments. At our conferences, each fieldworker presented his or her own analyses of the data informed by his or her extensive knowledge of the local cultural context. Each researcher then produced a chapter for each phase of the project. Ethnography and experiments are complementary sets of tools for understanding human behavior and psychology. A lot less commitment is required, however, to run a battery of experiments than to do great long-term qualitative and quantitative ethnography, so we worry about a tendency to drop the latter in favor of the former.

Balancing Team Diversity and Unity of Scientific Purpose

Our team is intellectually diverse. Over the two phases of the project, our teams included both cultural and biological anthropologists, as well as development economists, formal economic theorists, and experimental economists. Two of our anthropologists also had positions at various points in psychology departments. Our team of fieldworkers was made up mostly of anthropologists but also included Abigail Barr and Juan-Camilo Cardenas, both economists with extensive field experience. In terms of theoretical perspectives, the teams included economic anthropologists, game theorists, behavioral economists, human behavioral ecologists, evolutionary psychologists, and dual inheritance researchers. Though our teams were dominated by Americans, they also included a Mexican, Colombian, Canadian, Brit, and Kenyan. We also had researchers of quite different levels of experience, ranging from emeritus professors to senior graduate students. This age variation allowed the project to develop its own talent as our graduate students in phase 1 became full professors by the end of phase 2.

As important as diversity is, unity of scientific purpose is perhaps more important. Despite the intellectual diversity of our research team, everyone agreed that the systematic collection of quantitative data is central to understanding human behavior and that experiments are an important part of that endeavor. And since everyone also shared a roughly economic-evolutionary framework for thinking about explanations, we may not always have agreed on what the important hypotheses were, or how to frame them, but we did generally agree on what a sensible question was, on the kind of research strategy necessary to address it, and on the need for rigorous scientific method to evaluate knowledge claims. This commitment to scientific method was the overriding glue that held us together through all the push and pull associated with our otherwise diverse scholarly traditions.

Building a Team

For a project like this, it is important to select researchers who are capable of being team players. Cultural anthropologists are generally acculturated to a "lone ranger" model of both research and scholarship, and they are trained and incentivized to pioneer new territories and to tear down others' work (via critique) as much as to build on the foundations of others and cooperate in teams. Working within the confines of an explicitly scripted protocol may not come as naturally to cultural anthropologists as it does to seasoned laboratory scientists or, indeed, to laboratory-based experimental economists. Add to that the inevitable challenges of unforeseen circumstances in wildly varying field sites and the potential for "maverick" on-the-fly innovations can torpedo the best-laid plans for scientific controls. Thus, collaborators should be selected with extreme care.

Attrition

Project organizers should expect and plan on attrition on the order of 30 percent of the researchers who originally sign on. We lost researchers in both phases for a variety of reasons. Some people dropped out for personal reasons or because of competing professional responsibilities, others could not access the populations they had planned to work with, and still others were unable to deliver on commitments or to comply with agreements and had to be asked to leave. Project organizers need to be tough enough to make these decisions for the integrity of the project and the benefit of the group as a whole.

A Flexible Proposal with a Strong Backbone

Our experience suggests that it is important to have a strong plan for research to guide the operationalization of key variables, but also to leave room for the team members to have input and to help develop the methods, protocols, and scripts so that mid-experimental corrections and solo innovations to get around field-specific obstacles are minimized. At the beginning, however, one can be too flexible. It may sound appealingly democratic to create an open-ended project that the team jointly develops, but we are skeptical about how well this works in practice. Committees that reach the size of this team (fifteen, plus advisers) become incapable of reaching closure on key decisions. But swinging too far toward top-down, ex ante design does not allow the team members to improve the project, or adapt it to accommodate all field circumstances.

A Plan for Authorship, Authorship Order, and the Use of the Data

We recommend a formal discussion early on that spells out sensitive issues such as rules for co-authorship and control of the data prior to its migration into the public domain. Since fields like anthropology and psychology do not have solid norms for running collaborative projects and lack the hierarchies that often dictate these issues in scientific laboratories, it is easy for researchers to operate with contradictory rules of thumb. These agreements should be written down and agreed to early in the process, even though they will not become relevant until after data collection is complete, which may be years in the future.

Financial Incentives

Getting individual researchers to deliver their data sets, supporting documentation, and drafts for joint publications on schedule is one of the more difficult parts of this kind of endeavor. We used financial incentives, and they worked extremely well. Those who did not manage to meet the deadlines associated with the first financial payouts were the most likely to drop out of the project, and it was better for the project that these departures occurred early.

Organization and Documentation Is Critical

A massive amount of clerical, logistical, and administrative work backstops a project of this sort. The ideal solution is to have a postdoctoral scholar or administrative aide assigned to the project full-time. However, this will not carry the project through the long period of publication once the original grants have expired, and that is a time when the need for database management, web support, and logistical support is as great as ever. These demands should not be underestimated,

as they have the potential to overwhelm the organizers and slow the process of bringing the project to publication.

A Different Organizational Structure

Though we have not used it in either phase of this project, we have some thoughts about a different organizational structure for a project of this sort. We would not wish to dispense with the valuable contributions that only seasoned ethnographers can bring to experimental design, implementation, and critical contextual analysis, but it would be worth trying this model with the addition of a single experiment administrator who travels around to all of the research sites and jointly administers the actual experiment in each site with the ethnographers. This might be a postdoctoral scholar, for example, with extensive experience running field experiments. This design would have the advantage of controlling for the experimenter and helping to minimize slight differences in experimental implementation that might otherwise not even be known to the rest of the team.[6] This model would add new challenges, particularly in schedule coordination, but we suspect that it offers potential for better scientific control.

In the next chapter, we move to our synthesis of the major empirical findings from phase 2 of the Roots of Human Sociality Project.

APPENDIX A: SESSION INSTRUCTIONS AND SCRIPTS

Introductory Comments and Instructions for All Sessions

[At the start of every session, the participants are instructed not to ask questions during the group training and informed that they will have a chance to ask questions once they are alone with the game administrator. These introductory comments and instructions are given at the start of each session. Please note that this appendix has not been edited and appears exactly as it appeared during all sessions.]

Thank-you all for taking the time to come today. Today's games may take 2 to 3 hours [*adjust where necessary*], so if you think you will not be able to stay that long let us know now. Before we begin I want to make some general comments about what we are doing here today and explain the rules that we must follow. We will be playing some games with money. Whatever money you win in the games will be yours to keep and take home. *[researcher's name]* will be supplying the money. But you should understand that this is not *[researcher's name]* own money. It is money given to her by the *[researcher's university]* to use for research. This research will eventually be part of a book; [*optional:* it is not part of a development project]. These games are part of a scientific research project involving many researchers like *[researcher's name]* and people from many different societies.

Before we proceed any further, let me stress something that is very important. Many of you were invited here without understanding very much about what we are planning to do today. If at any time you find that this is something that you do not wish to participate in for any reason, you are free to leave regardless of whether we have started the game or not.

We will be playing two *[one, if it is a third party punishment session]* games. We are about to begin the (first) game. It is important that you listen as carefully as possible, because only people who understand the game will actually be able to play. *[If providing group explanation:]* We will run through some examples here while we are all together. You cannot ask questions or talk while here in the group. This is very important. Please be sure that you obey this rule, because it is possible for one person to spoil the game for everyone. If one person talks about the game while sitting in the group, we will not be able to play the game today. Do not worry if you do not completely understand the game as we go through the examples here in the group. Each of you will have a chance to ask questions in private to be sure that you understand how to play.

Before we begin the first game I am going to pass out $2 to each of you to thank-you for coming today. This money is not part of the game, it is yours to keep.

Script for the Dictator Game Group Training

This first game is played by pairs of individuals. Each pair is made up of a Player 1 and a Player 2. Each of you will play this game with someone from this community. However, none of you will know exactly with whom you are playing. Only *[researcher's name]* knows who plays with whom, and she/he will never tell anyone. *[researcher's name]* will provide $10 to each pair of players. Player 1 must decide how to divide this money between him or herself and Player 2. Player 1 must allocate between $0 and the total $10 to Player 2. Player 2 takes home whatever Player 1 allocates to them, and Player 1 takes home whatever he or she does not allocate to Player 2.

We will now run through 5 examples to show you how the game might be played:

1. Here is the $10. Imagine that Player 1 chooses to allocate $9 to Player 2. Then, Player 2 will go home with $9 and Player 1 will go home with $1 ($10 minus $9 equals $1).
2. Here is another example. Imagine that Player 1 chooses to allocate $2 to Player 2. Then, Player 2 will go home with $2 and Player 1 will go home with $8 ($10 minus $2 equals $8).
3. Here is another example. Imagine that Player 1 chooses to allocate $5 to Player 2. Then, Player 2 will go home with $5 and Player 1 will go home with $5 ($10 minus $5 equals $5).
4. Here is another example. Imagine that Player 1 chooses to allocate $7 to Player 2. Then, Player 2 will go home with $7 and Player 1 will go home with $3 ($10 minus $7 equals $3).
5. Here is another example. Imagine that Player 1 chooses to allocate zero to Player 2. Then, Player 2 will go home with zero and Player 1 will go home with $10 ($10 minus zero equals $10).

We will now call each of you in turn to play the game. You will meet with *[researcher's name]* and *[assistant's name]* in private. They will explain the game again and ask you to work through a couple of examples to be sure that you understand. Then they will tell you whether you are Player 1 or Player 2 and you will play the game for real. Please do not talk about the game while you are waiting.

Remember, if anyone talks about the game we will have to stop the game.

Script for One-on-One Meetings with Players in the Dictator Game

*[**Notes:** With individual players the researchers and assistants worked through the examples and test questions with real notes and coins on a flat surface with a line drawn on it demarking the areas assigned to Players 1 and 2. Each of the examples presented below was presented either as an example or used as a test question as required. If more test questions were needed the researcher or assistant began again with the first example above. The script below is written assuming that 6 more examples were given, 3 presented as test scenarios, i.e., the subjects were asked questions about the amounts the subjects would take home. The 11 examples/tests – 5 above, 6 below – cover the full set of possible choices for Player 1.]*

This game is played by pairs of individuals. Each pair is made up of a Player 1 and a Player 2. Each of you will play this game with someone from this community. However, none of you will

know exactly with whom you are playing. Only *[researcher's name]* knows who plays with whom, and she/he will never tell anyone. *[Researcher's name]* will provide $10 to each pair of players. Player 1 must decide how to divide this money between him or herself and Player 2. Player 1 must allocate between $0 and $10 to Player 2. Player 2 takes home whatever Player 1 allocates to them, and Player 1 takes home whatever he or she does not allocate to Player 2.

Here are some more examples:

1. Imagine that Player 1 chooses to allocate $10 to Player 2. Then, Player 2 will go home with $10 and Player 1 will go home with zero ($10 minus $10 equals zero).
2. Here is another example. Imagine that Player 1 chooses to allocate $4 to Player 2. Then, Player 2 will go home with $4 and Player 1 will go home with $6 ($10 minus $4 equals $6).
3. Here is another example. Imagine that Player 1 chooses to allocate $6 to Player 2. Then, Player 2 will go home with $6 and Player 1 will go home with $4 ($10 minus $6 equals $4).
4. Suppose that Player 1 chooses to allocate $1 to Player 2. In this case, how much will Player 1 go home with? [$9] And how much will Player 2 go home with? [$1]
5. Now try this one. Suppose that Player 1 chooses to allocate $8 to Player 2. In this case, how much will Player 1 go home with? [$2] And how much will Player 2 go home with? [$8].
6. Now try this one. Suppose that Player 1 chooses to allocate $3 to Player 2. In this case, how much will Player 1 go home with? [$7]. And how much will Player 2 go home with? [$3].

[*For Player 1s*] You are a Player 1. While I (or *[assistant's name]*) turn(s) away, please divide this money into two piles and push the amount that you wish to go to Player 2 over the line. Finally, point to the amount that you wish to allocate to Player 2. [*Wait until they have made their offer then say . . .*] You must now wait while the rest of the players, one of whom will be your Player 2, finish playing the game. Then we will play another game. *[Researcher's name]* will pay you for both games [*point to the pile to demonstrate the amount*] after we finish the second game. Remember that you cannot talk about the game while you are waiting to play the second game. [*The player is then guided to the holding location separate from those who have not yet played.*]

[*For Player 2s*] You are a Player 2. Player 1 has allocated a sum of money to you. After we finish playing the second game I will pay you what Player 1 has allocated to you [*Do NOT at this time tell them what player 1 has offered them.*] For now I need you to wait until everyone has finished playing this game. Remember that you cannot talk about this game while you are waiting to play the second game. [*The player is then guided to the holding location separate from those who have not yet played.*]

Script for the Ultimatum Game Group Training

We are now ready to begin playing the second game. Let me remind you that you may not ask questions or talk while you are here in the group. You will have an opportunity to ask questions in private when you meet with *[researcher's name]* to play the game. This is *not* the same game that you just played, so be sure to listen to the instructions carefully.

This second game is played by pairs of individuals. Each pair is made up of a Player 1 and a Player 2. Each of you will play this game with someone from this community, but it will not be the same person you played with in the first game. As before, none of you will know exactly with whom you are playing. Only *[researcher's name]* knows who plays with whom and she/he will never tell anyone.

[Researcher's name] will provide $10 to each pair of Players. Player 1 must decide how to divide this money between him or herself and Player 2. Player 1 must offer between $0 and $10 (the total) to Player 2. Player 1 then has to wait while his or her offer is presented to Player 2. *Before hearing* the offer made to them by Player 1, Player 2 has to state whether he or she would accept or reject each of the possible offers between $0 and $10 that Player 1 could have made. If Player 2 has stated that he or she would accept Player 1's offer, then Player 2 gets the amount of the offer and Player 1 gets the remainder. If Player 2 has stated that he or she would reject Player 1's offer, then neither Player receives any money from this game.

We will now run through some examples to show you how the game might be played:

1. Here is the first example. Imagine that Player 1 offers $9 to Player 2. Now, before hearing about this, Player 2 has stated that he would reject an offer of $9 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 might have made, but we will not worry about that now.) Because Player 2 said he would reject $9, Player 1 goes home with nothing and Player 2 goes home with nothing.
2. Here is another example. Imagine that Player 1 offers $9 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $9 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 might have made, but we will not worry about that now.) In this case, Player 1 goes home with $1 ($10 minus $9 equals $1) and Player 2 goes home $9.
3. Here is another example. Imagine that Player 1 offers $2 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $2 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 might have made, but we will not worry about that now.) Because Player 2 said he would accept this offer, Player 1 goes home with $8 ($10 minus $2 equals $8), and Player 2 goes home with $2.
4. Here is another example. Imagine that Player 1 offers $2 to Player 2. But now, before hearing about this, Player 2 has stated that he would reject an offer of $2 from Player 1. (Player 2 also stated whether he would accept or reject each of the other possible offers that Player 1 could have made, but we will not worry about that now.) In this case, Player 1 goes home with nothing, and Player 2 also goes home with nothing.
5. Here is another example. Imagine that Player 1 offers $5 to Player 2. Now, before hearing about this, Player 2 has stated that he would reject an offer of $5 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now.) Because Player 2 said he would reject an offer of $5 from Player, Player 1 goes home with nothing and Player 2 goes home with nothing.
6. Here is another example. Imagine that Player 1 offers $5 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $5 from Player 1. (Player 2 has also stated whether they would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now.) In this case, Player 1 goes home with $5 ($10 minus $5 is $5) and Player 2 goes home with $5.
7. Here is another example. Imagine that Player 1 offers $7 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $7 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now.) Because Player 2 said he would

accept an offer of $7, Player 1 goes home with $3 ($10 minus $7 equals $3). And Player 2 goes home with $7.

8. Here is another example. Imagine that Player 1 offers $7 to Player 2. But now, before hearing about this, Player 2 has stated that he would reject an offer of $7 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 might have made, but we will not worry about that now.) In this case, Player 1 goes home with nothing, and Player 2 goes home with nothing.

9. Here is another example. Imagine that Player 1 offers $0 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $0 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now.) Because Player 2 said he would accept $0 from Player 1, Player 1 goes home with $10 ($10 minus zero is $10) and Player 2 goes home with nothing.

10. Here is another example. Imagine that Player 1 offers $0 to Player 2. But this time, before hearing about this offer, Player 2 has stated that he would reject an offer of $0 from Player 1. (Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now.) In this case, Player 1 goes home with nothing and Player 2 goes home with nothing.

We will now call each of you in turn to play the game. You will again pick a number from this hat to determine the order in which you will play the game. You will again meet *[researcher's name]* (and *[assistant's name]*) in private. They/she/he will explain the game again and ask you to work through a couple of examples to be sure that you understand. You can ask them any questions about the game. Then they/she/he will tell you whether you are Player 1 or Player 2 and you will play the game for real.

Remember, if anyone talks about the game we will have to stop the game.

Script for One-on-One Meetings with Players in the Ultimatum Game

*[**Notes:** With individual players the researchers and assistants worked through the examples and test questions with real notes and coins on a flat surface with a line drawn on it demarking the areas assigned to Players 1 and 2. Each of the examples presented below was presented either as an example or used as a test question as required. If more test questions were needed the researcher or assistant began again with the first example above. The script below is written assuming that 6 more examples were given and 6 test questions asked. The 22 examples/test questions — 10 above, 12 below — cover the full set of possible choice combinations.]*

This second game is played by pairs of individuals. Each pair is made up of a Player 1 and a Player 2. Each of you will play this game with someone from this community, but it will not be the same person that you played with in the first game. As before, none of you will know exactly with whom you are playing. Only *[researcher's name]* knows who plays with whom and she/he will never tell anyone. *[Researcher's name]* will provide $10 to each pair of Players. Player 1 must decide how to divide this money between him or herself and Player 2. Player 1 must offer between $0 and the $10 (the total) to Player 2. Player 1 then has to wait while their offer is presented to Player 2. *Before hearing* the offer made to them by Player 1, Player 2 has to state whether he or she would accept or reject each of the possible offers between $0 and $10 that Player 1 could have made. If Player 2 has stated that he or she would accept Player 1's offer, then

Player 2 gets the amount of the offer and Player 1 gets the remainder. If Player 2 has stated that he or she would reject Player 1's offer, then neither Player receives any money from this game. Here are some more examples:

1. Imagine that Player 1 offers $10 to Player 2. Now, before hearing about this, Player 2 has stated that he would reject an offer of $10 from Player 1. Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now. Then Player 1 goes home with nothing and Player 2 goes home with nothing.

2. Imagine now that Player 1 offers $10 to Player 2. But this time, before hearing about this, Player 2 has stated that he would accept an offer of $10 from Player 1. Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now. Then Player 1 goes home with nothing ($10 minus $10 equals zero (nothing)) and Player 2 goes home with $10.

3. Imagine that Player 1 offers $4 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $4 from Player 1. Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now. Then, Player 1 goes home with $6 ($10 minus $4 equals $6). And Player 2 goes home with $4.

4. Imagine again that Player 1 offers $4 to Player 2. Now, before hearing about this, Player 2 has stated that he would reject an offer of $4 from Player 1. Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now. Then, Player 1 goes home with nothing. And, Player 2 goes home with nothing.

5. Imagine that Player 1 offers $6 to Player 2. Now, before hearing about this, Player 2 has stated that he would reject an offer of $6 from Player 1. Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now. Then Player 1 goes home with nothing and Player 2 goes home with nothing.

6. Imagine that Player 1 offers $6 to Player 2. Now, before hearing about this, Player 2 has stated that he would accept an offer of $6 from Player 1. Player 2 has also stated whether he would accept or reject all the other possible offers that Player 1 could have made, but we will not worry about that now. Then Player 1 goes home with $4 ($10 minus $6 equals $4). And Player 2 goes home with $6.

Test question formats:

1. Suppose that Player 1 offers $1 to Player 2 and that, before hearing about this, Player 2 has stated that he would accept an offer of this amount. In this case, how much will Player 1 go home with? [$9] And how much will Player 2 go home with? [$1].

2. And what if, before hearing about this, Player 2 has stated that he would reject an offer of this amount. In this case, how much will Player 1 go home with? [nothing] And how much will Player 2 go home with? [nothing]

3. Now try this one. Suppose that Player 1 offers $8 to Player 2 and that, before hearing about this, Player 2 has stated that he would accept an offer of this amount. In this case, how much will Player 1 go home with? [$2] And how much will Player 2 go home with? [$8].

4. And what if, before hearing about this, Player 2 has stated that he would reject an offer of this amount. In this case, how much will Player 1 go home with? [nothing] And how much will Player 2 go home with? [nothing]

5. Now try this one. Suppose that Player 1 offers $3 to Player 2 and that, before hearing about this, Player 2 has stated that he would reject an offer of this amount. In this case, how much will Player 1 go home with? [$0] And how much will Player 2 go home with? [$0]

6. And what if, before hearing about this, Player 2 has stated that he would accept an offer of this amount. In this case, how much will Player 1 go home with? [$7] And how much will Player 2 go home with? [$3]

[For Player 1s] You are a Player 1. While I (or *[assistant's name]*) turn(s) away, please divide this money into two piles and push the amount that you wish to offer over the line. Finally, point to the amount that you wish to offer to Player 2. [*Wait until they have made their offer then say . . .*] You must now wait while the rest of the players finish playing the game. *[Researcher's name]* will present the offer you have made to Player 2 and we will find out if it is accepted or rejected. Later we will call you back to let you know whether the offer was accepted and pay you what you are owed for each game. [*The player was then guided to the holding location separate from those who have not yet played.*]

[For Player 2s] You are a Player 2. The offer that Player 1 has made to you is written on the slip of paper in front of *[researcher's name]*. Before *[researcher's name]* turns the slip over and shows Player 1's offer to you, tell me which of the following offers you would accept and which you would reject. These decisions will determine what you actually receive once we see what Player 1 has offered you. Please note that you will not get a chance to change your mind after the slip has been turned over. [*Occasionally, when it seemed necessary, the players were given the following reminder . . .*] Remember that Player 1's offer is right there on that slip of paper [*slip in front of researcher pointed at*]. Nothing you decide now can change what is written there.

1. If Player 1 offered you $10 and kept $0 for him or herself would you accept or reject?
2. If Player 1 offered you $9 and kept $1 for him or herself would you accept or reject?
3. If Player 1 offered you $8 and kept $2 for him or herself would you accept or reject?
4. If Player 1 offered you $7 and kept $3 for him or herself would you accept or reject?
5. If Player 1 offered you $6 and kept $4 for him or herself would you accept or reject?
6. If Player 1 offered you $5 and kept $5 for him or herself would you accept or reject?
7. If Player 1 offered you $4 and kept $6 for him or herself would you accept or reject?
8. If Player 1 offered you $3 and kept $7 for him or herself would you accept or reject?
9. If Player 1 offered you $2 and kept $8 for him or herself would you accept or reject?
10. If Player 1 offered you $1 and kept $9 for him or herself would you accept or reject?
11. If Player 1 offered you $0 and kept $10 for him or herself would you accept or reject?

[*Researcher's name*] will now show you what Player 1 offered you. [*Slip of paper turned over to reveal offer.*] You stated that you would accept/reject an offer of this amount. So, your winnings from this game will be $ . . . . . .You have now finished playing the second game. Please go to the waiting area and as soon as everyone has finished playing I will call you all back one by one to be paid for both games.

[Once everyone had played the ultimatum game, each player was called for one final one-on-one meeting during which they were paid what they were owed for both the dictator and the ultimatum games. The players were shown how much they earned in each of the games separately. The order in which they were called was randomized. Local assistants turned around when the payments were handed over.]

Script of the Third Party Punishment Game Group Training

There are three players in this game—Player 1, Player 2, and Player 3. All three players are from this community. None of you will know exactly with whom you are playing. Only *[researcher's name]* knows who is to play with whom and she/he will never tell anyone else. *[Researcher's name]* will provide $10 to Player 1 and Player 2 as a pair. Player 1 must decide how to divide this money between him or herself and Player 2. Player 1 must allocate between $0 and the total $10 to Player 2 and keep the rest for himself/herself. Player 2 takes home whatever Player 1 allocates to him or her, but Player 1 has to wait until Player 3 has played before finding out how much money he or she gets to take home. Player 3 is given $5. ***Before*** hearing how much Player 1 has sent to Player 2, Player 3 has to consider each of the possible amounts that Player 1 could have allocated to Player 2 and, for each possible amount, has to decide whether he or she wants to: 1) Pay $1 out of their $5 to subtract $3 from the money Player 1 kept for him or herself (this would mean that Player 3 would go home with $4); or 2) Pay nothing, i.e., keep their full $5, and leave things unchanged. Here are some examples:

[As in the dictator and ultimatum games, the examples were worked through with real coins or notes.]

1. Suppose Player 1 allocates $7 to Player 2, and keeps $3 for him or herself. Now, before hearing what Player 1 has allocated, Player 3 states that he or she would pay $1 to subtract $3 from Player 1 if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or do nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with nothing ($10 minus the $7 (given to Player 2) minus $3 equals $0). Player 2 goes home with the $7 from Player 1. And, Player 3 goes home with $4 ($5 minus $1 equals $4).

2. Here is another example. Again suppose Player 1 allocates $7 to Player 2, but this time Player 3 states that he would "do nothing" if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $3 ($10 minus $7 equals $3). Player 2 goes home with the $7 from Player 1. And Player 3 goes home with $5.

3. Here is another example. Suppose Player 1 allocates $5 to Player 2. And before hearing this, Player 3 states that he would pay $1 to subtract $3 from Player 1 if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $2 ($10 minus the $5 (given to Player 2) minus $3 equals $2). Player 2 goes home with the $5 from Player 1. And, Player 3 goes home with $4 ($5 minus $1 equals $4).

4. Here is another example. As before, suppose Player 1 allocates $5 to Player 2, but this time Player 3 states that he would "do nothing" if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $5

($10 minus $5 equals $5). Player 2 goes home with the $5 from Player 1. And Player 3 goes home with $5.

5. Here is another example. Suppose Player 1 allocates $2 to Player 2. And Player 3 states that he would pay $1 to subtract $3 from Player 1 if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $5 ($10 minus the $2 (given to Player 2) minus $3 equals $5). Player 2 goes home with the $2 from Player 1. And, Player 3 goes home with $4 ($5 minus $1 equals $4).

6. Here is another example. Again, suppose Player 1 allocates $2 to Player 2, but this time Player 3 states that he would "do nothing" if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to have $3 taken away or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $8 ($10 minus $2 equals $8). Player 2 goes home with the $2 from Player 1. And Player 3 goes home with $5.

We will now call each of you in turn to play the game. We will explain the game again and ask you to work through a couple of examples to be sure that you understand. Then we will tell you whether you are Player 1, Player 2, or Player 3 and you will play the game for real.

Script for One-on-One Meetings with Players in the Third Party Punishment Game

*[**Notes:** With individual players the researchers and assistants worked through the examples and test questions with real notes and coins on a flat surface with lines drawn on it demarking the areas assigned to Players 1, 2 and 3. Each of the examples presented below was presented either as an example or used as a test question as required. If more test questions were needed the researcher or assistant began again with the first example above. If required further examples and test questions could be drawn from a pre-ordered list.]*

There are three players in this game—Player 1, Player 2, and Player 3. All three players are from this community. None of you will know exactly with whom you are playing. Only *[researcher's name]* knows who is to play with whom and she/he will never tell anyone else. *[Researcher's name]* will provide $10 to Player 1 and Player 2 as a pair. Player 1 must decide how to divide this money between him or herself and Player 2. Player 1 must allocate between $0 and the total $10 to Player 2 and keeps the rest for him or herself. Player 2 takes home whatever Player 1 allocates to them, but Player 1 has to wait until Player 3 has played before finding out how much money he or she gets to take home. Player 3 is given $5. ***Before*** hearing how much Player 1 has sent to Player 2, Player 3 has to consider each of the possible amounts that Player 1 could have allocated to Player 2 and, for each possible amount, has to decide whether he or she wants to: 1) Pay $1 of their $5 to subtract $3 from the money Player 1 kept for him or herself (this would mean that Player 3 would go home with $4; or 2) Pay nothing, i.e., keep their full $5 and leave things unchanged. Here is another example:

1. Here is an example. Suppose Player 1 allocates $1 to Player 2. Player 3 states that he would pay $1 to subtract $3 from Player 1 if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $6 ($10 minus the $1 (given to Player 2) minus $3 equals $6). Player 2 goes home with the $1 from Player 1. And, Player 3 goes home with $4 ($5 minus $1 equals $4).

2. Here is another example. As before, suppose Player 1 allocates $1 to Player 2, but Player 3 stated that he would "do nothing" if Player 1 does this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $9 ($10 minus $1 equals $9). Player 2 goes home with the $1 from Player 1. And Player 3 goes home with $5.

3. Here is another example. Suppose Player 1 allocates $6 to Player 2. Player 3 states that he would pay $1 to subtract $3 from Player 1 if Player 1 were to do this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $1 ($10 minus the $6 (given to Player 2) minus $3 equals $1). Player 2 goes home with the $6 from Player 1. And, Player 3 goes home with $4 ($5 minus $1 equals $4).

4. Here is another example. As before, suppose Player 1 allocates $6 to Player 2, but this time Player 3 states that he would "do nothing" if Player 1 does this. (Player 3 also states what he would do (pay $1 to subtract $3 or pay nothing) if Player 1 allocates other possible amounts, but we won't worry about that now.) In this case, Player 1 goes home with $4 ($10 minus $6 equals $4). Player 2 goes home with the $6 from Player 1. And Player 3 goes home with $5.

Now, can you answer these questions?

1. Imagine that Player 1 allocates $4 to Player 2 and that Player 3 states that he would pay nothing and leave things unchanged if Player 1 were to do this. How much does Player 1 go home with ($6)? How much does Player 2 go home with ($4)? How much does Player 3 go home with ($5)? How much are Players 1 and 2 given initially?

2. But what if Player 3 states that they would pay $1 to subtract $3 from Player 1 if Player 1 allocates $4 to Player 2. How much does Player 1 go home with ($3)? How much does Player 2 go home with ($4)? How much does Player 3 go home with ($4)?

3. Imagine that Player 1 allocates $0 to Player 2 and that Player 3 states that he would pay nothing and leave things unchanged if Player 1 does this. How much does Player 1 go home with ($10)? How much does Player 2 go home with ($0)? How much does Player 3 go home with ($5)?

4. But what if Player 3 states that they would pay $1 to subtract $3 from Player 1 if Player 1 allocates $0 to Player 2. How much does Player 1 go home with ($7)? How much does Player 2 go home with ($0)? How much does Player 3 go home with ($4)?

[*For Player 1s*] You are a Player 1. You are playing with a Player 2 and a Player 3 who are from this community. While I (or *[assistant's name]*) turn(s) away, please divide this money into two piles and push the amount that you wish to allocate to Player 2 over the line. Finally, point to the amount that you wish to go to Player 2. [*Wait until they have made their offer then say . . .*] You must now wait while the rest of the Players finish playing the game. We will find out what your Player 3 does. When everyone has played, we will call you back, explain what happened and pay you your winnings. [*The player was then guided to the holding location separate from those who have not yet played.*]

[*For Player 2s*] You are a Player 2. You are playing with a Player 1 and a Player 3 who are from this community. Player 1 has allocated a sum of money to you. After everyone has finish playing the game I will pay you what Player 1 has allocated to you. For now I need you to wait until

everyone has finished playing this game. [*The player was then guided to the holding location separate from those who have not yet played.*]

[*For Player 3s*] You are a Player 3. You are playing with a Player 1 and a Player 2 who are from this community. The allocation that Player 1 has made to Player 2 is written on the slip of paper in front of *[researcher's name]*. Before *[researcher's name]* turns the slip over and shows Player 1's offer to you, you must tell me whether you would:

a) pay $1 to subtract $3 from Player 1's allocation, or

b) pay nothing and leave things as they are.

For each of the possible allocations Player 1 could have made to Player 2. These decisions will determine what Player 1 and you actually receive once we see what Player 1 has done. Please note that you will not get a chance to change your mind after the slip has been turned over.

1. So, if Player 1 allocated $0 to Player 2 and $10 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
2. If Player 1 allocated $1 to Player 2 and $9 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
3. If Player 1 allocated $2 to Player 2 and $8 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
4. If Player 1 allocated $3 to Player 2 and $7 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
5. If Player 1 allocated $4 to Player 2 and $6 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
6. If Player 1 allocated $5 to Player 2 and $5 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
7. If Player 1 allocated $6 to Player 2 and $4 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
8. If Player 1 allocated $7 to Player 2 and $3 to him or herself would you pay $1 to subtract $3 from Player 1's allocation or pay nothing to leave things as they are?
9. If Player 1 allocated $8 to Player 2 and $2 to him or herself would you pay $1 to subtract from Player 1's allocation or pay nothing to leave things as they are? (see note below)
10. If Player 1 allocated $9 to Player 2 and $1 to him or herself would you pay $1 to subtract from Player 1's allocation or pay nothing to leave things as they are? (see note below)
11. If Player 1 allocated $10 to Player 2 and nothing to him or herself would you pay $1 to subtract from Player 1's allocation or pay nothing to leave things as they are? (see note below)

[Note relating to 9 to 11 above: If Player 3 chose to fine in any of these cases, the following statement was made . . .] So, if we subtracted $3 from Player 1, instead of Player 1 going home with some money from the game, we would have to go and ask Player 1 to give us some money [*the amounts involved and the math are explained*]. The university that is funding these games has forbidden *[researcher's name]* from doing that. So, what we will do instead is give Player 1 nothing from the game.

[*Occasionally or when it seems necessary give them the following reminder . . .*] Remember that Player 1's offer is right there on that slip of paper [*slip in front of researcher pointed to*]. Nothing you decide now can change what is written there.

[Once the game is finished the players are called to one-on-one meetings in random order and paid.]

NOTES

1. This precise total (twenty-four) depends on the definition of "site." Some researchers in phase 1 drew samples from two ethnic groups in the same geographic region. For example, two ethnic groups, the Achuar and Quichua, live intermixed in the same village in the Ecuadorian Amazon; we counted this as one site. Meanwhile, in Mongolia, Francisco Gil-White compared Mongols and Kazakhs, who live in different locations; this counted as two sites. Whether we added ten or eleven new sites in phase 2 additionally depends on whether one counts our U.S. site as new. In phase 1, we used an experiment done with UCLA graduate students as our U.S. site. In phase 2, we performed experiments with nonstudent adults in rural Missouri (Ensminger and Cook, chapter 18, available at: http://www.russellsage.org/Ensminger_Chapter18.pdf).
2. Only in Missouri, which was a pilot for this study, were the UG and DG run on different samples. Among the Orma, there was a DG, but no UG (Lesorogol and Ensminger, Chapter 5).
3. Strictly speaking, the DG, which was designed by Daniel Kahneman and his colleagues (1986) and conducted for the first time using real incentives by Robert Forsythe and his colleagues (1994), is not a strategic game, as only one player is active.
4. This is true as long as people sometimes (even rarely) make mistakes or are heterogeneous (and other people know this). There are lots of irrelevant and implausible Nash equilibria in this game if one assumes that decision-makers are all error-free decisionmakers.
5. The only site with more than a few repeat players in the TPG was Fiji. In chapter 9 (available at: http://www.russellsage.org/Ensminger_Chapter9.pdf), Henrich and Henrich analyze the behavior of their repeat players relative to their first-time players and find no hint of a difference.
6. Benedikt Herrmann, Christian Thoni, and Simon Gächter (2008) have used this model effectively with a diverse student sample.

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