Chapter 12

Maragoli and Gusii Farmers in Kenya: Strong Collective Action and High Prosocial Punishment

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In an effort to capture the middle of the market integration spectrum, we included two modern farming communities in Africa in our cross-cultural world sample: the ethnically related Maragoli and Gusii of Kenya. Like many farmers in Kenya and other more developed countries on the continent, the Maragoli and the Gusii are well educated and highly diversified in their household economic strategies. In one marked respect, however, they are very different. The Maragoli are considerably less well endowed economically than the Gusii by virtually all measures.

The Maragoli and Gusii share a common ethnolinguistic ancestry, but there are stark differences in the contemporary economic situations of the two samples represented here. Although both ethnic groups inhabit relatively lush agricultural zones, the Maragoli suffer from extreme population density, and their land holdings are small (averaging 0.2 hectares); thus, many Maragoli have been forced off the land in search of better economic fortunes. Much of the Gusii community at large suffers exactly the same fate as the Maragoli, but the specific Gusii population represented here benefited from residing in the Nyansiongo resettlement area.

The colonial administrators had displaced the original occupants to create space for the white settlers, who brought large-scale farming in dairy cattle, tea, and coffee to the area. In 1962 the same authorities established a boundaries commission to formulate a strategy for returning the land to the Gusii because some of the white settlers were eager to leave before the country attained independence in 1963. At the time of independence, the Gusii who settled there were some of the most politically well connected and privileged under the colonial authorities; most of them were sons of the politically powerful during the colonial era. They were rewarded with large plots, and today they are still well endowed with land and enjoy a comfortable economic situation. They have large pieces of land that they use to produce food and cash crops. Most of them derive income from their farming activities sufficient to enable them to invest in both farming and nonfarming ventures.

Compounding these differences between the two ethnic groups in economic endowment is the fact that the Maragoli games were run during an exceptionally bad local drought in 2003, while the Gusii games were run in 2004, a year of favorable rainfall and improved local farming conditions. These stark differences in economic circumstances do generate different effects within and across these two societies when we look at the distribution of offers and the regression statistics. However, there is considerable similarity between the Maragoli and the Gusii compared to the rest of the cross-cultural sample.

As is common in many developing societies, both the Maragoli and the Gusii have high out-migration for urban employment. Perhaps in response to this high out-migration rate, women's groups and church groups in both communities have assumed great significance and become particularly strong and effective forms of collective action.

The most dramatic findings from these experiments are the high levels of prosocial punishment that we find in both societies. In both the ultimatum game (UG) and the third-party punishment game (TPG), the Maragoli and the Gusii have the highest levels of punishment of any of our cross-cultural sample, and in both games and both societies, this is the case by a fairly significant margin. What makes this particularly surprising is that neither society consistently demonstrates high offers in these games, nor in the dictator game (DG). In fact, in the DG both societies have mean offers below the mean of our cross-cultural sample. In the UG, the Maragoli have the lowest mean of all the societies we studied, but there were some extenuating circumstances for this game, which are addressed later. For the TPG, both societies' mean offers were above the mean for the entire cross-cultural sample, but they were not at the top of the distribution.

So why do we find such exceptional vigor in punishment behavior among the Maragoli and the Gusii? The explanations may lie in the ethnography of the sites. First, sharing in both societies has historically been tied to kin relations, and despite the relatively high level of market integration in both societies, as measured by education and integration into national wage and trading markets, these rural communities are still transitioning to new forms of organization that require that they depend on relationships with nonkin. This may account for the fact that offers in the economic experiments are not as high as we might expect for societies that seem to be highly market-oriented. But why then do they engage in such high prosocial punishment behavior? Successful collective action depends on the ability to monitor and discipline free riders. It is a reasonable deduction that this monitoring behavior has been internalized by the population, and that they brought this norm into the experimental situation in the form of readiness to punish nonsharing behavior in the economic experiments.

THE ETHNOGRAPHIC CONTEXT OF SHARING AMONG THE MARAGOLI

Maragoli is the home of the Avalogoli people (also known as the Logoli), who were originally known to the colonial government as part of the larger cultural linguistic Bantu group, and more specifically as the Bantu Kavirondo Tribe (Abwunza 1997). Maragoli villages are clan-based. Each clan is headed by a patriclan elder known as a "ligulu" ("maguru" in the plural). Some large clans are subdivided further and placed under the headship of different elders.

The Maragoli occupy an area of 198 square kilometers immediately north of the equator and on the eastern fringes of the Rift Valley's Lake Basin. The landscape is made up of intensely farmed smallholdings nestled among undulating hills and valleys with a vast network of brooks and streams. The soil, climate, and well-distributed annual rainfall (1,800 to 2,200 millimeters) provide a favorable environment for sedentary agriculture and mixed farming, which support a wide variety of cash and subsistence crops such as tea, maize, finger-millet, lentils, squash, avocados, pumpkins, cowpeas, sugarcane, sorghum, cassava, sweet potatoes, carrots, and French beans grown between the larger clusters of banana, mango, guava, and eucalyptus trees (Mutongi 2007). They also keep a number of different types of livestock. Maragoli women have always shouldered much of the responsibility for agricultural production (Verma 2001), and that remains the case today, especially in light of high rates of widowhood and the absence of men for wage employment.

The hut and poll taxes imposed by the colonial government, which all Kenyan households were forced to pay, created the need for cash and triggered male out-migration in search of wage labor.

This trend had a significant impact on gender relations within the household, with women taking up absentee men's roles (Verma 2001) and the number of female-headed households increasing. The Maragoli have also suffered some of the highest rates of widowhood in Kenya (Mutongi 2007, 4; Verma 2001). Ritu Verma (2001) found that fourteen out of thirty-nine women in her survey were widows, and two out of seven men were widowers. This is partially a result of the large Maragoli population and limited land, which in recent years have also contributed to the forced out-migration of men to urban centers in search of work; once in the cities, they face a host of dangers—car accidents, industrial accidents, and a variety of diseases. More recently, AIDS has created an overwhelming number of widow-headed households and is rapidly changing the nature of family relations in western Kenya. The same applies to the Gusii site. Today wage laborers in this area include teachers, civil servants, workers in the hospitality industries (hotels, tours, and so on), tea factory workers, religious leaders, bankers, shop attendants, watchmen, and housemaids.

Although the Maragoli are similar to many modern farming societies in Africa, they stand out in several respects. A number of studies (for example, Abwunza 1997; Bradley 1997; Crowley and Carter 2000; Republic of Kenya 1997) indicate that the Maragoli have historically had the highest fertility rate in Kenya; consequently, population density is very high, about 1,100 people per square kilometers. This undoubtedly helps in part to explain their disproportionate investment in education (mean level of education is 12.5 years among the sample) and a historically high incidence of labor migration to the large cities of Kenya. The Maragoli are also unusual in that almost all adults are trilingual—fluent in both Kiswahili and English (the language of the schools and government) as well as in a local Logoli dialect that is particular to their ethnic group. And finally, as noted earlier, the high percentage of widows and widowers is a consequence in part of the AIDS epidemic, which hit this area early and so hard that life expectancy has fallen to below fifty-five years (for a discussion of AIDS in Maragoli, see Korongo 2001).

The Maragoli practice both farming and animal husbandry, even though their high population density has led to a loss in grazing land and, consequently, to a decline in herds. The tiny plots limit cash-crop production; although the Maragoli are no strangers to cash crops, they tend to use their scarce land for home subsistence production.

Today the Maragoli engage in a range of diverse and multiple income-generating activities, from the production of food, cash crops, and trade in agricultural produce and livestock to the sale of used clothing, consumables, and pottery. In the rural area, wage labor positions are scarce. It is mainly the women who farm as men work or look for work in the wage labor sector, usually outside the area.

Maragoli benefits from close proximity to two major cities: Kisumu, the third-largest city in Kenya and the administrative headquarters of Nyanza Province (located on the shores of Lake Victoria); and Kakamega, the administrative headquarters of western Kenya (Verma 2001). This proximity to two urban centers provides access to a wide variety of agricultural and income-generating activities, including the sale of food and cash crops, trade in agricultural produce and livestock, and the sale of used clothing, consumables, pottery, and bricks.

The primary domestic unit among the Maragoli is the patrilineal extended family homestead (enyumba/mugutsi). Maragoli people continue to be organized around the principle of patrilineal descent, but the sharing behavior of the past has eroded considerably. Sharing pervaded the economic, political, and social spheres of Maragoli life in the past. Sharing with needy family and community members was esteemed as a paramount cultural virtue by the Maragoli. This spirit of compassion and reciprocity was exhibited during both informal and formal visits and during times of plenty as well as periods of shortages. Sharing extended outward from members of a household/family (inyumba/mugitsi) to more distant relatives and friends. The sharing obligation generally took the form of an animal (such as a bullock, cow, heifer, ox, goat,

sheep, or chicken) or a portion of a slaughtered animal, and less frequently a quantity of grain (eleusine or sorghum). Failure to honor sharing obligations resulted in strained relations or disputes among the relatives concerned. When relatives were unable to reconcile on their own, the matter was taken for arbitration before the council of the magura (the clan-elders; "liguru" in the singular) or, in lesser cases, before a group of relatives on either side.

In cases of economic, social, and political distress (for example, overdue school fees, crop failure, natural disaster such as a lightning strike, illness, or death), there was an expectation of significantly more sharing. Sharing was also expected during important celebrations (weddings, child-naming rituals, honoring the dead, circumcision, and so on). Sharing in these ways was an affirmation of kinship relations.

The sharing obligation also entailed making time to attend all rites and ceremonies performed on behalf of a member of one's own kin-group, even for those not actively participating in the activities. Maragoli people practiced reciprocal sharing obligations and claims to inheritance, which served to establish and maintain economic ties toward one's kin. Kinsmen shared the obligation of raising uvukwi (bride-wealth) and the resources needed for initiation ceremonies. The sharing obligation, the exchange of gifts, and hospitality were some of the major means of establishing and maintaining relationships. The nature and variety of forms of sharing and the number of people involved were viewed as an indication of the strength and scope of one's network.

Sharing was most intense at the family level. The group of persons who regularly shared food in the family comprised the members of the nuclear family and those married sons and their wives who had not yet set up their own fireplace. Maragoli say, "Mwana wovo ni mugingi vo mgongo" (Your child is the supporting stick of your back). Good Maragoli children were also expected to share their resources with their parents. Offering financial support to parents on a timely and regular basis was one of the important ways in which children were judged. All parents and children were expected to share (to give and to receive), most particularly among those from umuliango gwitu (from our household) and from the same inyumba, or lineage. Sharing relationships within tsinyumba ("inyumba" in the singular) gave members a sense of security. The bond between the individual and the group provided the "good life": peace of mind, children, land, and cattle. The fulfillment of this bond necessitated sharing within the collectivity, and that was the Maragoli social safety net. This norm has also been noted among the Samia (Cattell 1997) and Tiriki (Sangree 1997) of western Kenya.

Much of the cash that was shared came from husbands, older children, parents, in-laws (parental and sibling), aunts ("mothers"), uncles ("fathers"), sisters and brothers (including cousins), and neighbors. Commodities were also shared with relatives, friends, and neighbors. A good reputation in the community was earned by giving, but also afforded one the right to draw upon the community when in need.

Sharing and informal hospitality were also very common among neighbors. Neighbors informally dropped in at each other's houses to deliver a share of freshly harvested maize, vegetables, tomatoes, and onions or even to obtain supplies like salt, sugar, or laundry soap. A guest who imposed on the hospitality of other people and failed to reciprocate was disliked, but rarely flatly refused food by his or her host. Food-sharing was also an indication of a fairly high level of food supply, which allowed people to display a significant degree of generosity. The Maragoli usually offered copious quantities of tea and porridge to visitors.

Sharing norms are different today, perhaps in part because of increasing scarcity associated with severe land shortage. It has been suggested that children increasingly neglect and even decline to share resources with their aging parents (Bradley 1997; for additional evidence of this trend in other western Kenya societies, see Cattell 1997; Sangree 1997). In recent times, Maragoli wives do not automatically share cash gained through trading and self-help activities even with

their husbands, although such demands are made. More commonly, they avoid these demands by immediately spending the cash on commodities like tea, sugar, utensils, and kerosene (Abwunza 1995, 1997). This is also an effective strategy to ensure that husbands do not use the household's scarce resources to buy alcohol. There is an assumption among Maragoli people that women "always" have cash, but that women selectively choose with whom and when to share their money. Even today women's self-images and reputations within the community are enhanced as the cash and commodities they voluntarily share circulate in their network of kin and nonrelations.

For economically poor individuals and families, remittances from relations are important to their well-being. In particular, older members recognize that their children may eventually care for them and that the types of relationships they have with their children, stepchildren, grandchildren, and daughters-in-law affect the types of resources and care they are likely to receive in old age. Consequently, they use the resources that remain in their control strategically to negotiate for care and resources in the future. For instance, older women continue to control banana plantations and the distribution of the products from them, such as intercropped vegetables, as well as the banana leaves and stalks used as green manure and fodder. They also control products from family woodlots and allocate livestock for ceremonial purposes. These resources are sometimes shared in a carefully calculated manner in order to gain access to food, labor, and inputs from grandchildren and daughters-in-law. Older women also continue to draw on resources from reciprocal sharing relationships maintained with their own married daughters and often call in unpaid debts pertaining to uvukwi (bride-wealth). Older women often care for grandchildren, and they use the sharing of this important labor input to negotiate other resources in return. The amount of sharing extended from children to their parents may also be determined by the extent to which they believe that their parents may curse or bless them. However, most Maragoli young people now view curses as "superstition" (Bradley 1997).

Maragoli people are nowadays increasingly less likely to engage in sharing with more distant kin owing to the drastic increase in the cost of living and the dwindling availability of productive resources. The high cost of food, clothing, school fees, health care, farm labor, farming inputs, commuting, and other livelihood expenses has made people more self-oriented than ever before. Sharing is no longer a predictable, secure, or stable source of money or productive resources, even within the family. People's personal economic circumstances at any given time might make them unable to share even with their own siblings and other immediate kin, causing them much pain and grief. Their ability to share might vary from day to day, through their life cycle, or during disasters that are beyond human control (such as flooding, drought, famine, or HIV/AIDS).

As traditional patterns of sharing among kin have declined, they have been partially replaced by strong church and women's organizations. The Maragoli are primarily Quakers, with a small number of Catholics. The Kenyan Quaker church was founded among the Maragoli in 1902 and still has its Kenyan headquarters there. The Maragoli people also turn to other types of relations and channels of access to resources, such as government welfare programs, politicians or other wealthy individuals, and theft. The fact remains, however, that the economic fortunes of the Maragoli are in major decline, and this has taken a toll on social norms of redistribution and reciprocity.

Bilateral sharing may have declined significantly among the Maragoli, but collective action has not. As mentioned, church groups are strong, as are Maragoli women's groups, which engage in a variety of predominantly economic activities: farming a variety of vegetables (including French beans for sale), providing agricultural labor, zero-grazing dairy farming, keeping poultry, sewing and embroidery, beekeeping, basketry and pottery-making, new and used clothing businesses, and food cooking stores (kiosks). Women's groups also participate in rotating credit associations and extend loans to each other at insignificant interest rates to pay school fees and medical bills, build semipermanent or permanent rental rooms, buy roofing iron-sheets, and

invest in fish and other small income-generating businesses. Some of them engage in choir activities for entertainment and hire themselves out to politicians and others to earn some money (for additional discussion about women's group activities in Maragoli, see Abwunza 1995; Makokha 1995; Mutoro 1997; Verma 2001).

THE ETHNOGRAPHIC CONTEXT OF SHARING AMONG THE GUSII

The Maragoli (Logoli) and the Gusii (also called the Abagusii or Kisii) share a common ethnic ancestry. Both are closely related to the Bantu-speaking Kikuyu, Meru, Akamba, Embu, Tende, and Kuria. According to Robert Ochieng (1974), the traditions of the Gusii people suggest that they originated from Misiri and were the same people as the Maragoli (Logoli), Kuria, and Suba. In their migration southward, overcrowding, epidemics, and drought led them to separate around Mount Elgon (Were 1967, 68). Linguists and historians have also noted linguistic, cultural, and traditional kinship between the Gusii, Maragoli, and Kuria. Careful reading of Gunter Wagner's (1970) book *The Bantu of Western Kenya, with Special Reference to the Vugusu and Logoli,* reveals similar kinship terms in both Gusii and Maragoli cultures. Some of these terms include "omwana" (a child of either sex in both cultures); "avako"/"abako" (Maragoli/Gusii kin terms for affinal relatives); "omukogoti"/"omokogoti" (Maragoli/Gusii kin terms for a last-born child of either sex); and "enyumba"/"enyomba" (Maragoli/Gusii kin terms for lineage). Shared linguistic origins and migration patterns suggest a common origin for the two societies.

The geographical home of the Gusii is Nyanza Province, approximately fifty kilometers east of Lake Victoria. The region lies in a highland equatorial climate. It receives rain almost throughout the year, with two major rainy seasons. The high and reliable rainfall supports food crops such as finger-millet, bananas, avocados, maize, cassava, sorghum, yams, beans, peanuts, potatoes, tomatoes, onions, carrots, and cabbages. Coffee, pyrethrum, sugarcane, and tea are grown as cash crops. In addition, all households keep several high grade dairy livestock. Sheep, goats, chickens, and bees are also kept for domestic use and commercial purposes. Like the rest of Gusii territory, little uncultivated land remains in the study site. The most important economic resource, and therefore the basis of economic development, is the high-potential agricultural land; the very fertile soils and abundant rainfall that is well distributed throughout the year render the Nyansiongo settlement scheme one of the most productive areas in Gusiiland. The proportion of cultivable land ranges between 70 and 80 percent (Håkansson 1991). Brick-making is widespread, as are basketry, pottery-making, and the manufacture of lyres and other musical instruments. Two of the best-known Gusii crafts—favorites in the tourist trade—are soapstone carvings and the beaded "Kisii stool."

Most Gusii live with population pressure comparable to that of the Maragoli. Like the Maragoli area, virtually every square inch of land in most of Gusii territory is used for cultivation and dairy farming; from this point of view, Gusii territory is one of the most "developed" agricultural areas in Kenya (Silberschmidt 1999). The Gusii also have extremely high educational attainment and out-migration, just like the Maragoli. By these measures, both groups have high market integration.

The Nyansiongo settlement scheme, the site for these experiments, is in Nyamira District, one of the Kenya highland areas in Gusiiland that was previously occupied by white farmers during the colonial era. After Kenya earned its independence, politically well-connected individuals were preferentially resettled in Nyansiongo after the white farmers vacated. The Nyansiongo settlement scheme is a high-potential agricultural area and relatively less densely populated than the rest of Gusiiland, which more closely resembles the situation in Maragoli.

Wilfred Subbo (2003) indicates that, overall, Gusii farmers in the Nyansiongo settlement have undergone significant socioeconomic transformations. They enjoy a higher standard of living

than they did in the presettlement area. They now have larger pieces of land that they utilize in the production of more food and cash crops. Farmers in the Nyansiongo settlement scheme invest their income in both farming and nonfarming ventures. The resettled farmers have to a large extent adapted to the new environment by leading lifestyles that tend to be urban-oriented (although they remain agrarian) and more individualistic. Farming has become a commercial activity. Most of the farmers in the Nyansiongo settlement scheme are classified as medium- to large-scale landholders; the largest parcel is two hundred acres (Omosa 1998). Many farmers in the Nyansiongo settlement scheme have great wealth accumulated from multiple sources. The fact that they are in a resettlement scheme means that neighbors are nonkin, and they have found new ways of building networks of support, such as the strong church and women's organizations.

Most Nyansiongo residents are Catholics and Seventh-Day Adventists. Membership in religious and nonreligious women's groups is highly valued, and the roots of women's groups (ebiombe) can be traced back to indigenous, gender-based labor groups that joined together for reciprocal labor on each other's farms. These group associations allow women autonomy and freedom to engage in their own economic investment and charity projects. Members provide crucial support in making wedding arrangements, carrying out initiation ceremonies, and coping during times of emergency, whether it is food shortage, major illness, or a business crisis. The groups are also a crucial source of extra labor at peak season, and they take care of urgent medical expenses when the support of men or husbands is not readily available. Women's groups also assist their members in establishing trading businesses, thus reducing women's dependence on men and high-interest bank loans. In fact, a good number of the maize mills in the area are owned and run by members of the women's groups. These associations are very popular in Nyansiongo because they encourage hard work via group effort and represent a way for members, the majority being women, to generate and save money outside their families. Their work on nonmembers' farms provides occasional wage labor for those not employed elsewhere.

Gift-giving is common among Gusii women's group members as a way of strengthening the bonds between them. Group members also use their network to identify trusted individuals to hire as agricultural laborers. The agricultural activities of women's groups include farming, poultry-keeping, fish-pod farming, dairy farming, zero-grazing, goat-keeping, firewood collection, charcoal, beekeeping, vegetable production and marketing, picking tea for pay, and napier grass production. Non-agricultural activities pursued by the women include paid and free choir performances, crafts, embroidery, knitting, basketry, pottery-making, tailoring, brick-making, and revolving loans (rotating credit associations).

Despite their common ethnic heritage, the Gusii of Nyansiongo are different from the Maragoli in several important aspects. Unlike the Maragoli, whose neighbors are kin, the Gusii of Nyansiongo live among nonkin. The amount of land at the disposal of each family at the Nyansiongo settlement scheme (averaging 7.6 hectares among those who participated in the games) is significantly larger than the average of 0.2 hectares held by the Maragoli participants. The Gusii are wealthier and have higher individual income than the Maragoli; one sees evidence of this economic difference in the Gusii's hybrid-grade dairy livestock and the wide variety of crops they cultivate for sale. In addition, their environment is rarely prone to drought; they enjoyed a good agricultural year in 2004, when these games were played.

There are many similarities between the Maragoli and Gusii in their history of sharing norms. Like the Maragoli, the primary domestic unit among the Gusii is the patrilineal extended family homestead (enyomba/omochie). In the past, sharing was organized primarily during visits and ceremonies, including, for instance, funerals, weddings, bride-wealth negotiations, religious functions, initiation rites, and naming ceremonies. Those who failed to participate in

sharing were usually ostracized and characterized as greedy. Thus, reciprocal sharing was always a virtue upheld by the Gusii, underpinning most social interactions and relationships.

Contemporary Gusii use sharing to overcome the worst effects of a risky market economy. Like the Maragoli, the Gusii are also organized around the principle of patrilineal descent. But given that the Gusii in this study have been resettled away from the bulk of their kin connections, they have been forced into new sharing networks (Orvis 1997). More nonkin are now beneficiaries of the Gusii sharing norms through their churches and women's groups.

For the wealthy and powerful, sharing provides a basis on which to build patronage for political, social, and economic purposes, although it can also drain resources away from more directly productive undertakings. For the highly vulnerable poor and the powerless, sharing serves as a safety net and slightly reduces the most extreme effects of poverty, although it does not fundamentally diminish socioeconomic stratification. The norms put pressure on even the most powerful to try to appear to fulfill their obligations to share and assist their less fortunate neighbors and kin. Individuals and families who refuse to share are considered greedy (nyandamwamu), especially when others desperately need help. Sometimes hostilities arise in the form of witchcraft (oborogi) accusations directed at the wealthy individuals who are unwilling to share their good fortune with the less fortunate members of society (LeVine 1963; Orvis 1997).

METHODS

We selected three Maragoli villages (Elwanda, Givundimbuli, and Jemovo) for this study because of the significant distance between them, which diminished the chance of pollution in the games. With the help of village elders, one public meeting was held in each of the selected villages to explain the objectives of the study. Specific information about the games was not disclosed at this point, though villagers were told that they would be invited to play games involving real Kenyan shillings.

As described earlier, Maragoli villages are clan-territorial. The patriclan elder (ligulu) at the head of each clan is recommended by clan residents and approved by sublocation assistant chiefs prior to embarking on the informal administrative roles of the position. Each elder keeps a list of households in his area. We started by updating the lists shared with us by the village elders.

We conducted household socioeconomic and demographic surveys in every household in the selected villages prior to inviting individuals to play the games. It was made clear that participation in the study was voluntary and that individuals were free to pull out at any point.

Six Maragoli undergraduate research assistants (four female and two male) and two Maragoli PhD anthropologists (university lecturers) administered the surveys. The survey forms and game protocols were translated into the local Logoli language and explained carefully to ensure comprehension. The high level of formal education in the research site enhanced comprehension of the survey questions and ultimately of the game protocols. In general, people were very cooperative.

The TPG was conducted in the village of Elwanda, and the DG and UG in Jemovo and Givundimbuli. We drew a four-generation genealogy for each household in the selected villages and gathered socioeconomic and demographic statistics for all household members on relationship to the head of household, age, sex, education, marital status, occupation, and income by source. Data pertaining to household wealth were also collected. The large number of households in each village made it impossible to ensure that at least one individual from each household participated in the games. However, no more than one individual player was drawn from any given household, and those who were invited to play were selected from a random sample of all household heads, with wives substituting in case of the absence of the husband. Given local norms, we could not avoid using the household heads if they were present and willing to play. People were invited to the game one day prior to play, and none of the invited households failed

to send a player. Overall, people were very excited and eagerly looked forward to participating in these games and making some money during a time of severe food shortage.

Finding large and spacious rooms for the games was nearly impossible in the villages. Requests to use church premises to play games in Maragoli were declined in two villages; consequently, one game was played in a church and the other two games were run in high school buildings on weekends. This worked very well to provide ample space for running the games, isolating groups of players, and keeping curious, nonparticipating village members out of the venue.

The two native-speaking Maragoli university lecturers assisted in conducting the games with the help of the two university undergraduate research assistants, who interviewed the players at the end of each play. The research assistants conducted the postgame interviews in a separate room, while those who had completed their postgame interviews waited in another room.

Each of the game texts was back-translated by the two native-speaking Maragoli university lecturers, who served as senior assistants. One of them translated game texts into Logoli, and the other translated them back into English before seeing the original English text. Only extremely minor discrepancies in translation arose, and these were resolved with discussion.

One serious incident affected the play of the DG and the UG among the Maragoli in one of the two villages where these games were conducted. In this village, the players were asked to arrive at 9:00 AM, but some showed up as early as 7:00 AM. It was a rainy market day, and although the church venue had been booked and contracted in advance, the elderly members of the church management committee, which oversaw the building, disagreed among themselves about how to share the fee paid for the use of the building. This disagreement contributed to a late start for the games because it delayed access to the building, which, combined with the very early arrival of some of the players, led to impatience midway through the games. In the course of play, a few players wanted to be paid prior to the completion of all games so that they could proceed to the market to buy some household items. In the end, they made the decision to stay for the remainder of the games and to be paid for all of them at the end, as required by the protocol. But there was clearly some unhappiness among some of the players in this village with how long the games were taking, and that may have affected their play in the UG. There were no similar delays in either the second DG/UG village or the village where the TPG was played. We return to this incident in the discussion of the experimental results.

All of the Maragoli games were played for a stake of 300 Kenyan shillings (approximately U.S.$4.62 in 2003), representing one day's minimum wage in Maragoli. Each player received 100 Kenyan shillings as a show-up fee at the beginning of the first game, but no additional show-up payment was made at the start of the second game.

The same players participated in the dictator game and the ultimatum game, and they played the same roles in each game, though they were paired with new partners. Game instructions were explained to the entire group, and all examples in the game protocols were used as illustrations to enhance comprehension. As soon as we were confident that the players understood the game, the players were left under the watchful eye of the research assistants, with strict instructions not to engage in any further discussion of the game. We wrote the names of individuals on pieces of paper, folded them, placed them in a bowl, randomly picked one at a time, and then invited each individual to come into the next room to play. Once the player was in the playing room, we explained the instructions again, using the examples listed in the game protocol to test for comprehension, and assigned the player his or her role. After the first play, players were moved to a third room to be kept isolated from those who had not yet played. The process was repeated for the second game. No payments were made until both games were completed.

We selected three distant Gusii villages (Ensakia, Matutu, and Nyandoche Ibere) to diminish the chances of pollution in the games. With the help of village elders, one public meeting was

held in each of the selected villages to explain the objectives of the study. Fine details about the games were not provided at this stage, though villagers were informed that they were going to play games involving real Kenyan shillings.

Gusii villages in the Nyansiongo settlement scheme are not organized along clan lines because settlers moved from different parts of the larger Gusii society. Villages are based on the arbitrary boundaries drawn by the assistant chief in consultation with the residents; villages are established for administrative convenience, and each is identified by major geographical features (rivers, valleys, hills) and headed by an omotureti (elder; "abatureti" in the plural). Villages are not permanent entities: they are subdivided whenever the membership becomes too large or when disagreements among residents necessitate a split in order to ensure peaceful coexistence. Each elder is recommended by residents of the administrative unit and approved by sublocation assistant chiefs and location chief prior to discharging their mandate. Elders are required to keep an updated list of households in the area. We started by updating the lists shared with us by the village elders.

As with the Maragoli, we conducted household socioeconomic and demographic surveys in every household before inviting individuals to play the games. We told invitees in advance that participation in the games was voluntary and that they were free to withdraw without any hard feelings on our part.

Six native-born Gusii postsecondary school research assistants (three female and three male) and one male university sociology graduate student helped with conducting the surveys and running the games in this site. The survey forms and game protocols were translated into the local Ekegusii language and explained carefully to ensure comprehension. The high level of formal education in the research site enhanced comprehension of the survey questions and ultimately of the game protocols. In general, people were very cooperative.

Again we gathered socioeconomic and demographic statistics for all household members—relationship to head of household, age, sex, education, marital status, occupation, and income by source—as well as data pertaining to household wealth. We assigned random numbers to each household and randomly drew numbers to invite households to participate in the games. Wives need their husband's consent to attend such events; in this case, partly out of curiosity, husbands (when present) often opted to represent their household. When husbands were not present—either because the household was female-headed or because the male household head was absent for off-farm business or employment—women were sent instead.

Invitations were made one day prior to play, to minimize pollution, and the games were conducted at one Catholic and two Seventh-Day Adventist churches. These structures gave us plenty of space to run the games and isolate groups of players. Keeping non-invited people off the premises was also very easy, as they tended to keep off church premises when requested to do so.

One native Ekegusii-speaking assistant conducted the games with me, and the sociology graduate student interviewed the players at the end of each play. Two assistants conducted postgame interviews in a separate room, while those who had completed their postgame interviews waited in another room under the watchful eye of another assistant.

Each of the game texts was back-translated by the research assistants. Two of them translated the text into Ekegusii, and another pair translated it back into English before seeing the original English text. Only insignificant discrepancies in translation were noticed, and we managed to iron them out in an open discussion among the entire research team.

Each player received 100 Kenyan shillings as a show-up fee at the beginning of the first game, but no additional show-up payment was made at the start of the second game. The same players participated in the DG and the UG and played the same roles in each game, though they were paired with new partners. Game instructions were explained to the entire group, and all examples in the game protocols were used as illustrations to enhance comprehension. As soon

as we were confident that the players understood the game, they were left under the supervision of the research assistants and given strict instructions not to discuss the game any further. We wrote the names of individuals on pieces of paper, folded them, placed them in a bowl, randomly picked one at a time, and invited the individual selected to come into the next room to play. Once the player was in the playing room, we explained the instructions again using the examples listed in the game protocol to test for comprehension, and assigned the player a role. After the first play, the player was moved to a third room to be kept isolated from those who had not yet played. The process was repeated for the second game. No payments were made until both games were completed.

Among the Gusii, the stake size was reset to 1,000 Kenyan shillings (approximately U.S.$14.28 in 2004) to reflect the higher standard of living and wage rates in this wealthy area. There were no deviations from the standard protocol. In the processing of the experimental results, however, the household size data for Gusii were inadvertently overwritten, and the analyses presented here use the number of children for both societies instead of household size.

POPULATION DEMOGRAPHICS AND MARKET INTEGRATION

Many of the socioeconomic differences between the Maragoli and Gusii subject populations described here are easily grasped in table 12.1 and in the histograms in figures 12.1 to 12.7.

There is nothing remarkably different about the age distribution, sex distribution, educational attainment (slightly higher for Maragoli), number of children (higher for Gusii), or village size that differentiates the Maragoli players from the Gusii players. But the economic differences between the two populations stand out. Whatever variable we consider: land holdings, livestock holdings, income, wealth, wage labor, or percentage of land in cash crops, the Gusii players were far better endowed than their close ethnic relatives, the Maragoli. This difference is particularly dramatic in figure 12.6, in which we see that the wealth distribution of the two societies barely overlaps, making the richest Maragoli equivalent to the poorest Gusii. It is also notable that while 53 percent of the Maragoli had no wage work whatsoever, only 22 percent of the Gusii had no wage work, and among the Gusii, women (78.8 percent) were equally as likely as men (75.7 percent) to have wage work, while the Maragoli women (30.8 percent) were only half as likely as men (61.3 percent) to have wage work.

Despite the relative poverty of the Maragoli, they share with the Gusii many of the attributes that we associate with a highly developed market economy: high rates of secondary school education, a long history of cash-cropping, and out-migration to urban centers for wage work. One must bear in mind when examining these player demographics that they are not representative of the Maragoli and Gusii populations as a whole, but rather, of those who have remained on the land in these rural farming communities while many household members are absent in the towns.

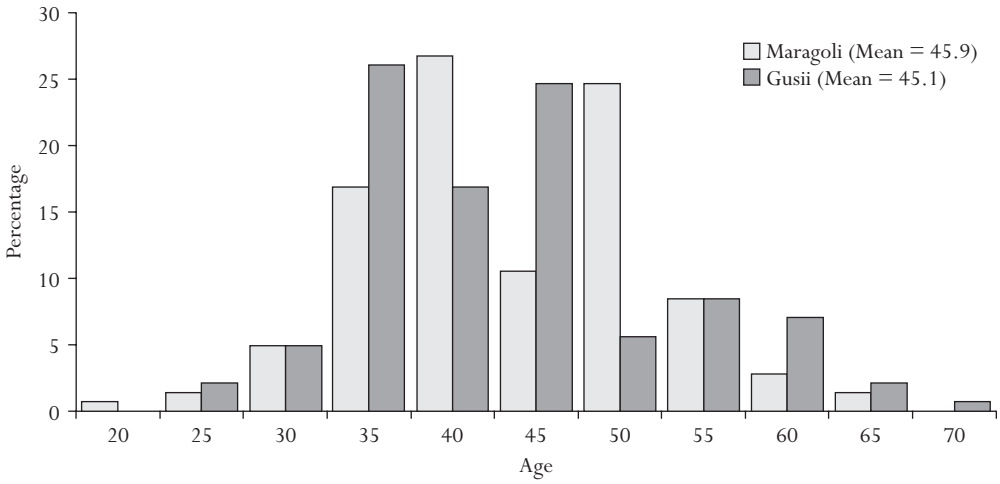
Given the obvious signs of considerable interaction in the market economy, it is surprising to see such low mean measures of our primary market orientation variable (percentage of diet purchased in the market) for these two societies: 43 percent for the Maragoli, and 28 percent for the Gusii. In both cases, the low market integration is a function of their reliance on home food production, and in this sense, it correctly captures the fact that these individuals are rural residents still tied in many ways to their rural roots and values. Even the Gusii, who are also major cash-crop producers—to which they devote 37 percent of their ample holdings—still consume home farm produce, which explains how such developed farmers wind up with so low a score by this measure of market integration. Because of the more ample land holdings of the Gusii relative to the Maragoli, and perhaps also because of the Maragoli's depressed production due to drought for the year they were surveyed, we find the Marigoli ranked higher in market integration than the Gusii.

TABLE 12.1 *Demographic Differences Between Maragoli and Gusii Players*

	Maragoli (Mean) N = 140	Gusii (Mean) N = 140	Maragoli Standard Deviation (for Continuous Variables)	Gusii Standard Deviation (for Continuous Variables)	Wilcoxon Difference of Means
Market integration (percentage of calories purchased)	42.9	28.0	8.62	5.12	0.000***
Age	45.9	45.1	8.38	9.70	0.204
Female percentage (dummy)	46.4	47.1			0.905
Education in years	12.5	11.9	1.20	2.55	0.011**
Number of children	6.1	6.8	1.76	2.07	0.008**
Village population	3,843.0	4,063.0	1,148.00	727.00	0.729
Income (in U.S. dollars)	1,193.0	1,520.0	494.00	675.00	0.000***
Wealth (in U.S. dollars)	1,951.0	6,008.0	373.00	1,357.00	0.000***
Land (in hectares)	0.2	7.6	0.08	1.73	0.000***
Livestock	2.8	4.1	0.88	0.83	0.000***
Wage labor (days per month)	11.5	18.4	12.41	10.76	0.000***
Wage labor (percentage of men with some wage)	61.3	75.7			0.061*
Wage labor (percentage of women with some wage)	30.8	78.8			0.000***
Percentage of land in cash crops	3.9	36.7	3.33	6.45	0.000***

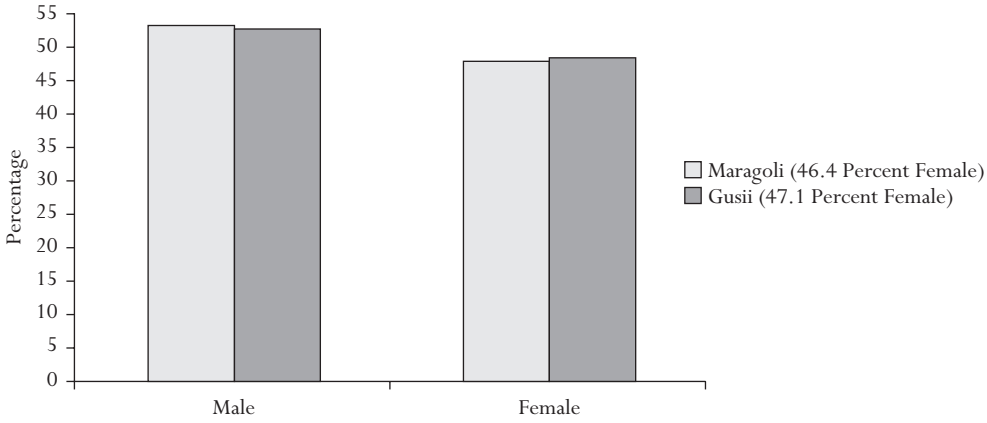
Source: Author's calculations based on author data.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$

FIGURE 12.1 *Maragoli and Gusii Players' Age Distribution*



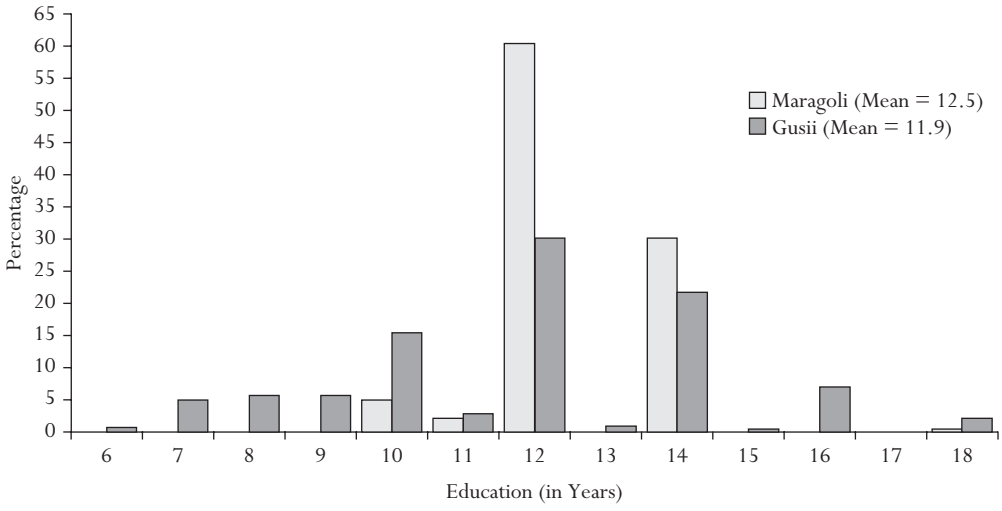
Source: Author's calculations based on author data.

FIGURE 12.2 *Maragoli and Gusii Players' Sex Distribution*



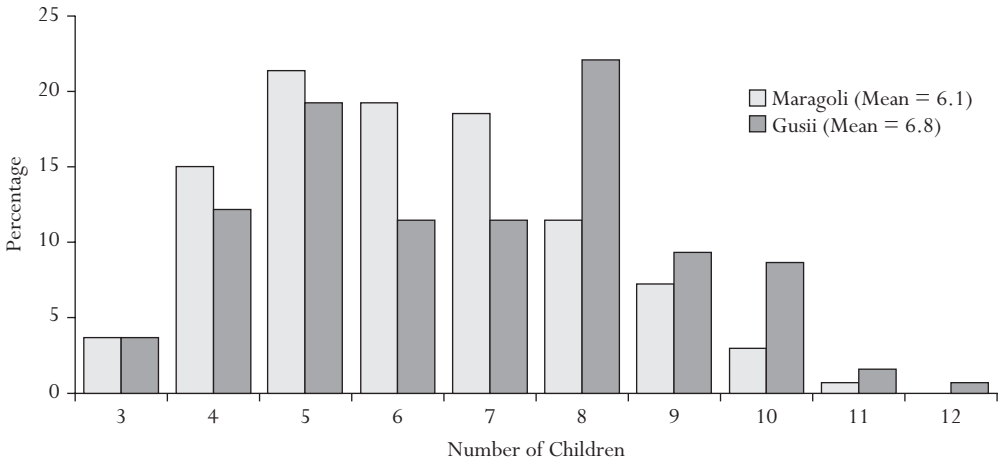
Source: Author's calculations based on author data.

FIGURE 12.3 *Maragoli and Gusii Players' Education*



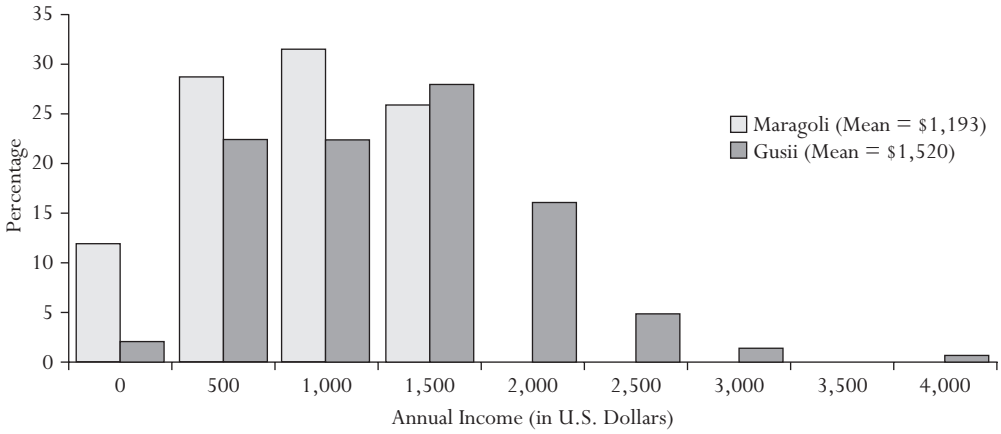
Source: Author's calculations based on author data.

FIGURE 12.4 *Maragoli and Gusii Players' Number of Children*



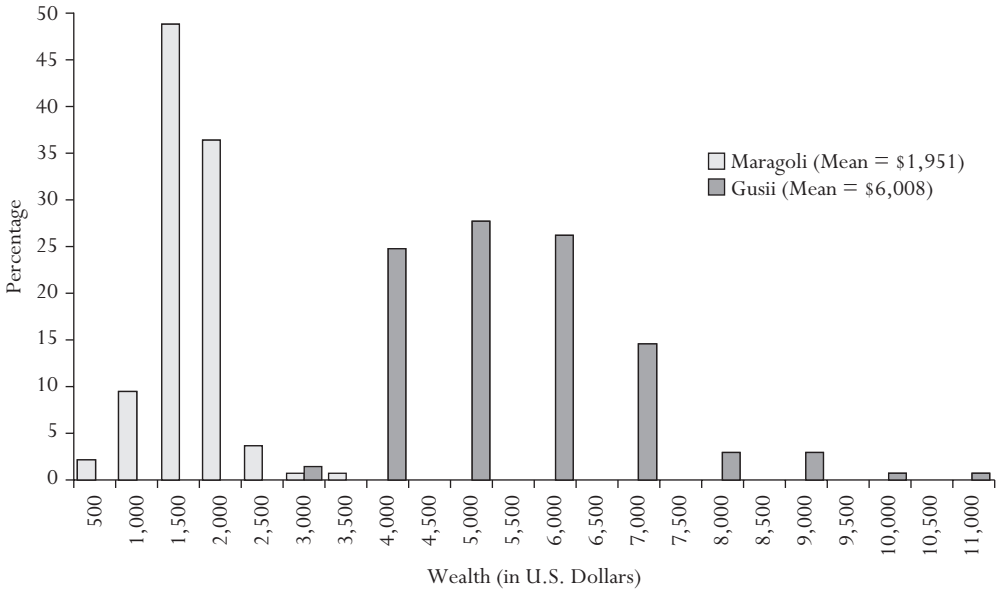
Source: Author's calculations based on author data.

FIGURE 12.5 *Maragoli and Gusii Players' Annual Income*



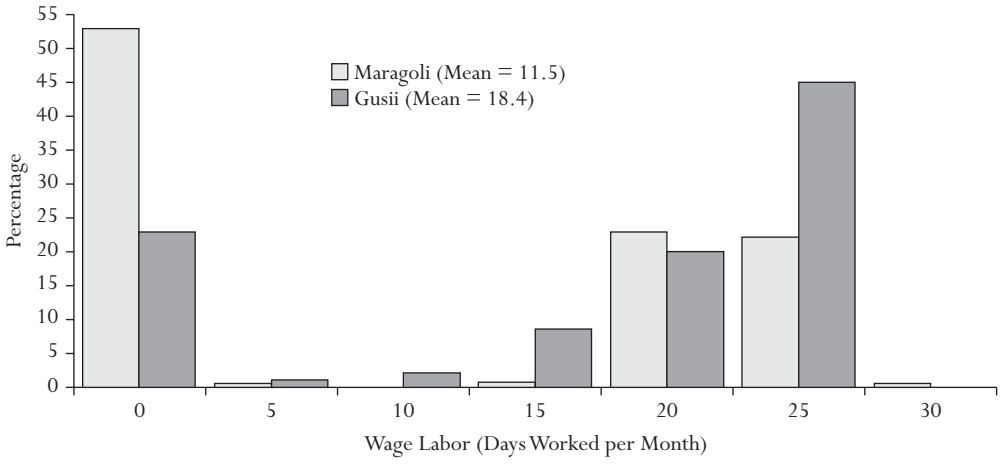
Source: Author's calculations based on author data.

FIGURE 12.6 *Maragoli and Gusii Players' Wealth*



Source: Author's calculations based on author data.

FIGURE 12.7 *Maragoli and Gusii Players' Wage Labor*



Source: Author's calculations based on author data.

RESULTS

Here we summarize the results of the DG, UG, and TPG offers and the punishment behavior in the UG and the TPG. The results for both societies are discussed together for each game.

Dictator and Ultimatum Game Offers

Figures 12.8 and 12.9 present the data on offers in the DG for the Maragoli and the Gusii, respectively. While the means for the two populations are not significantly different, the distributions are strikingly so. The Gusii show one of the tightest distributions that we see in the overall sample. The Maragoli have highly dispersed offers and are remarkable for the four hyper-fair offers at 60 percent, all of which came from women. When asked in the postgame interview to explain why they played the way they did, these four replied: "Always good to give more," "Just wanted to be generous," "In order to be blessed," and "To benefit others." These answers are consistent with people who intentionally gave more than 50 percent.

Figures 12.10 and 12.11 present the data for player 1 offers in the UG. Once again, we find that there is remarkably low variance in the Gusii UG offers, as was the case with their DG offers, though the mean has shifted upward. Although the Gusii distribution for both games is unusually homogeneous, there is nothing particularly unusual about the movement of the mean moderately upward in the UG.

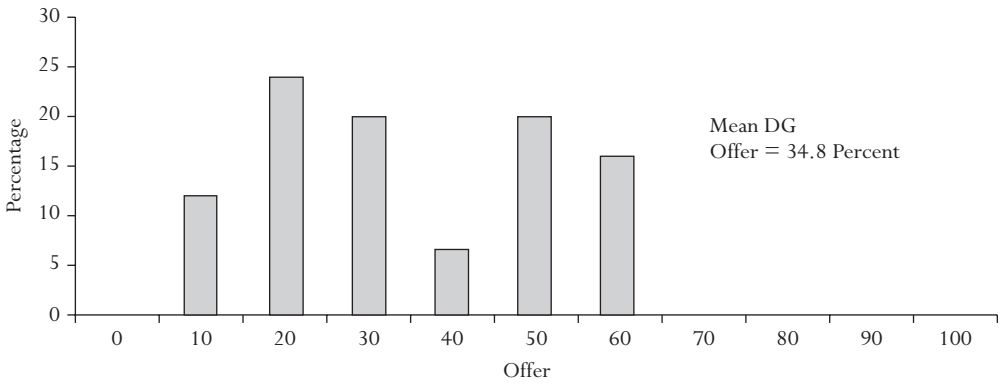
The Maragoli UG offers exhibit the same high variance as their DG offers, but the mean has shifted markedly downward, which is highly unusual and requires some deliberation. In the DG, there were four players who made hyper-fair offers of 60 percent. In the UG, those same players reduced their offers to 10, 20, 30, and 40, yielding DG/UG game means of 35, 40, 45, and 50. We reported earlier that their postgame explanations for these offers emphasized the value of generosity. In contrast, their postgame explanations for their much lower offers in the UG showed a different motivation: the player who switched to 10 said that she "needed money to buy things"; the one who switched to 20 said, "Guess I thought about my needs"; the one who switched to 30 said, "I felt I should keep more;" and the one who switched to 40 said of her offer in the DG, "I was being generous." Given that the norm in the DG was about 35 percent, the average play of these players was still on the high side of the DG mean if we average over both games.

Figure 12.12 offers some insight into to the pattern of play at the individual level among the Maragoli. It shows their DG offer (lighter bar) followed by their UG offer (darker bar) so that we can see which way individual players were moving.

Figure 12.12 gives us some evidence that players tended to use their UG offer to move the mean of their DG/UG offers closer to the group DG mean (35 percent): sixteen of the twenty-five players (64 percent) used their UG offer to move the average of their DG/UG play in the direction of the DG mean. We find that seven of the players who were below the DG mean (in table 12.12, numbers 2, 3, 5, 6, 7, 8, and 9) increased their UG offer. Of the high DG players, nine reduced their UG offer to move closer to the DG mean (numbers 16, 17, 18, 19, 20, 22, 23, 24, and 25). Only five players changed their offer to move away from the DG mean, while four players played the same in the DG and the UG.

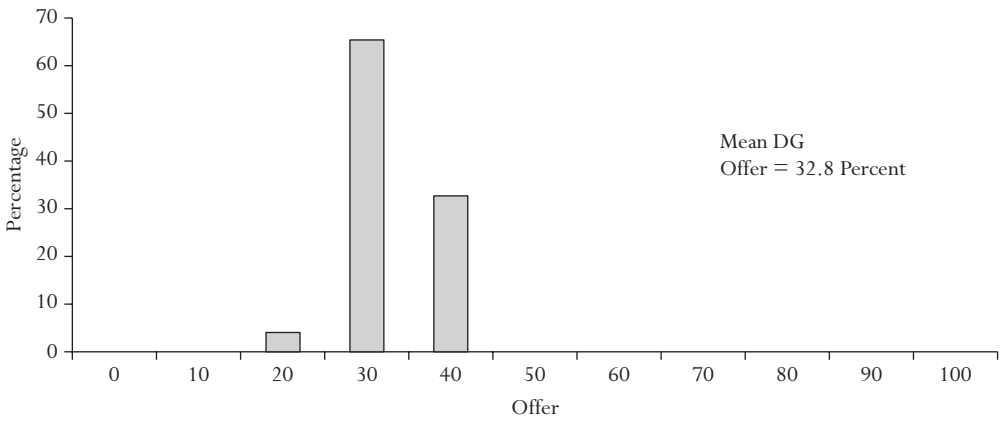
Why so much movement among the Maragoli players in the DG and the UG? Recall from the discussion of the game logistics that in one village there was a long delay in start time for the players, who got impatient during the period between the DG and the UG. Most of the drop in the mean between the DG and the UG came from this village. For these ten players, the DG mean was 45, considerably higher than the mean for the two villages that played, which was

FIGURE 12.8 *Maragoli Dictator Game Offers (N = 25)*



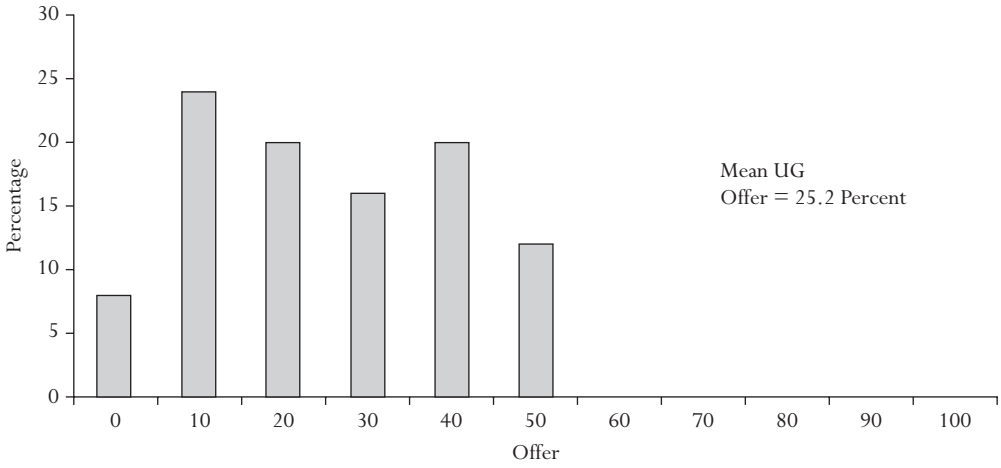
Source: Author's calculations based on author data.

FIGURE 12.9 *Gusii Dictator Game Offers (N = 25)*



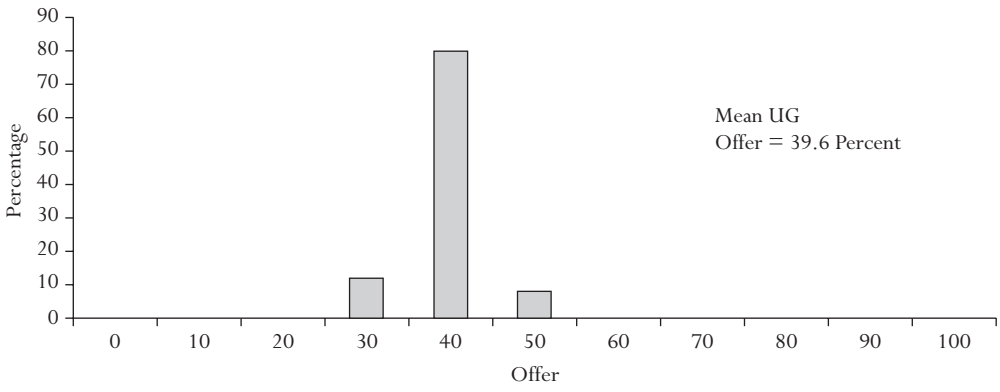
Source: Author's calculations based on author data.

FIGURE 12.10 *Maragoli Ultimatum Game Offers (N = 25)*



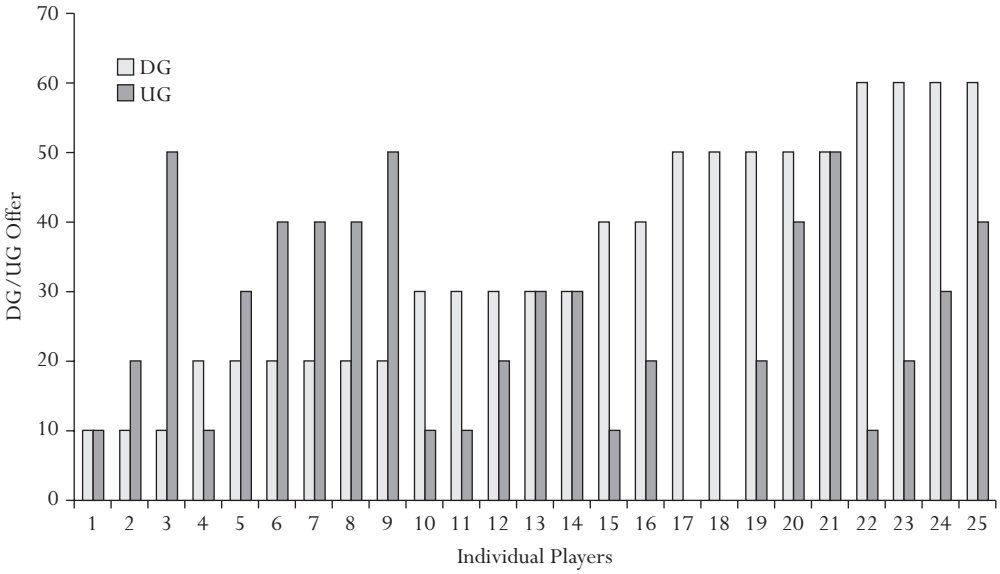
Source: Author's calculations based on author data.

FIGURE 12.11 *Gusii Ultimatum Game Offers (N = 25)*



Source: Author's calculations based on author data.

FIGURE 12.12 *Dictator Game and Ultimatum Game Offers by Individual Maragoli Players*



Source: Author's calculations based on author data.

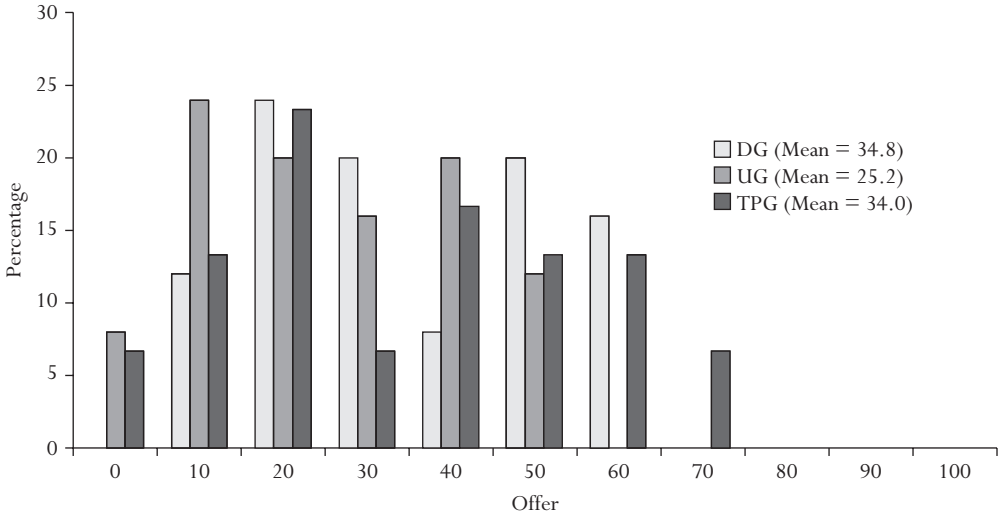
34.8. The UG mean dropped to 23 in this village, even lower than the overall UG mean of 25.2. It is impossible to know exactly what drove these wild swings in individual behavior in this one village. All four of the hyper-fair DG offers of 60 percent were also in this village. It is possible that the delayed start to the games angered the players to the point that they felt entitled to more resources by the time they played the UG and thus reconsidered their generous behavior in the DG, which appears to have exceeded the local norm. Only one out of ten players in the village that had a delayed start increased their offer in the UG, while seven out of fifteen players from the other village did so.

Third-Party Punishment Game Offers

The TPG was run in a different village from the DG and UG among both the Maragoli and the Gusii. Figures 12.13 and 12.14 show the TPG offers alongside the DG and UG offers for each society.

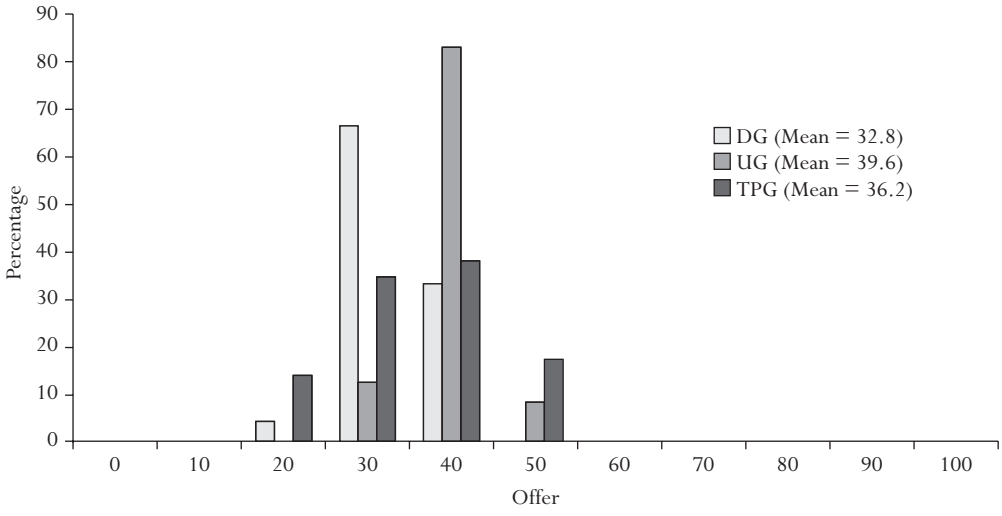
The most striking characteristic of the TPG offers among the Maragoli is the presence of hyper-fair offers; four made offers of 60 percent, and two made offers of 70 percent. Hyper-fair offers in the TPG are extremely unusual. Their responses in the postgame interviews to the question of why they played the way they did give some insight into their thinking: "Good to be generous in order to be blessed"; "Sharing with others generously is very rewarding"; "I felt like the other person might need more money than me"; "I think I was very generous"; "Those who give more are blessed more in other ways"; and "Did not feel as needy as my neighbors." These responses are consistent with people who intentionally gave more than a "fair" offer (defined as 50 percent), and they reflect the heavy influence of religion, which is consistent with the deep religious convictions of the area.

FIGURE 12.13 *Maragoli Offers in the Dictator Game, the Ultimatum Game, and the Third-Party Punishment Game*



Source: Author's calculations based on author data.

FIGURE 12.14 *Gusii Offers in the Dictator Game, the Ultimatum Game, and the Third-Party Punishment Game*



Source: Author's calculations based on author data.

Among the Gusii, we find a more dispersed distribution of offers than was the case for Gusii offers in both the DG and the UG, and the mean falls slightly from the UG, which is also typical. We turn now to the rejection data for the UG and the TPG.

Punishment Behavior in the Ultimatum Game and the Third-Party Punishment Game

In figures 12.15 and 12.16, we find the expected income for each offer level based on the rejection data for each society. In the darker bars, we have plotted the mean rejection data from player 2s in the UG who said that they would reject a given offer level. In the lighter bars, we have plotted the mean fining data from player 3s in the TPG who said that that they would use 20 percent of the stake to fine player 1 for that offer to player 2. The lines on the graph represent the expected income derived by calculating the probability of rejection at that offer level.

The most striking thing about the Maragoli rejection behavior is the almost unprecedented fining in the TPG of 50 percent offers (six individuals) and one 60 percent offer. The data raise the possibility that the players did not understand the game, but all of them passed the game test questions, and given the very high education level of this society, lack of understanding seems like an unlikely explanation. One possibility is that the participants were effectively "opting out" of the play. Of the seven individuals involved, their responses to the question "What did this game remind you of in real life?" reveal some evidence of this. Two of the players replied that the game reminded them of "gambling," and another player responded, "Discourage dependence on free things." In this religiously conservative Quaker society, such responses may have meant that the player was opting out. Two others replied that the game made them think of "being grateful and sharing what you have," and the other two responses were, "How poverty makes us not share," and, "Not willing to share even free money." At least three of these responses communicate strong disapproval and may be consistent with people who were using their behavior to express disapproval of the game.

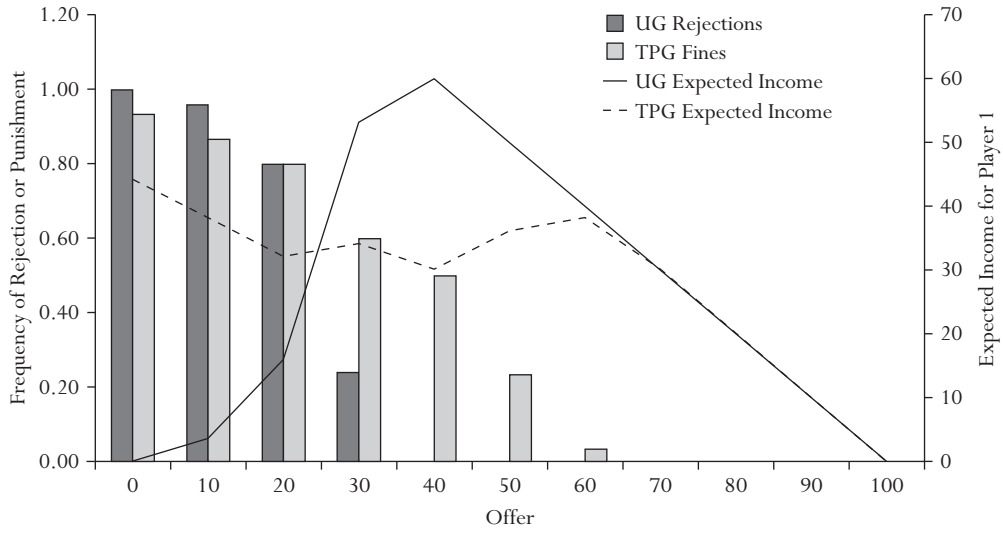
The Maragoli did not come close to hitting the income-maximizing offer (IMO) in either the UG or the TPG. In the UG, only 20 percent of offers matched the IMO of 40. In the TPG, only 7 percent of offers matched the IMO of 0. Among the Gusii, fully 80 percent of UG offers were right on the IMO of 40. For the Gusii, however, the IMO for the TPG was 50 percent, and only 18 percent of Gusii offers were this high. With the exception of Gusii behavior in the UG, it appears that both societies have a higher preference for prosocial punishment than they do for prosocial offers. For example, while 80 percent of Maragoli player 2s in the UG punished 20 percent or less, 52 percent of Maragoli UG offers were of 20 percent or less.

Examining Within-Group Variation in Regression Analyses

In this section, we examine each of the offers (in the DG, UG, and TPG) as the dependent variable in a regression model, while investigating the predictive power of six socioeconomic variables that could be expected to have an impact on player behavior: age, sex, education, income, wealth, and number of children.

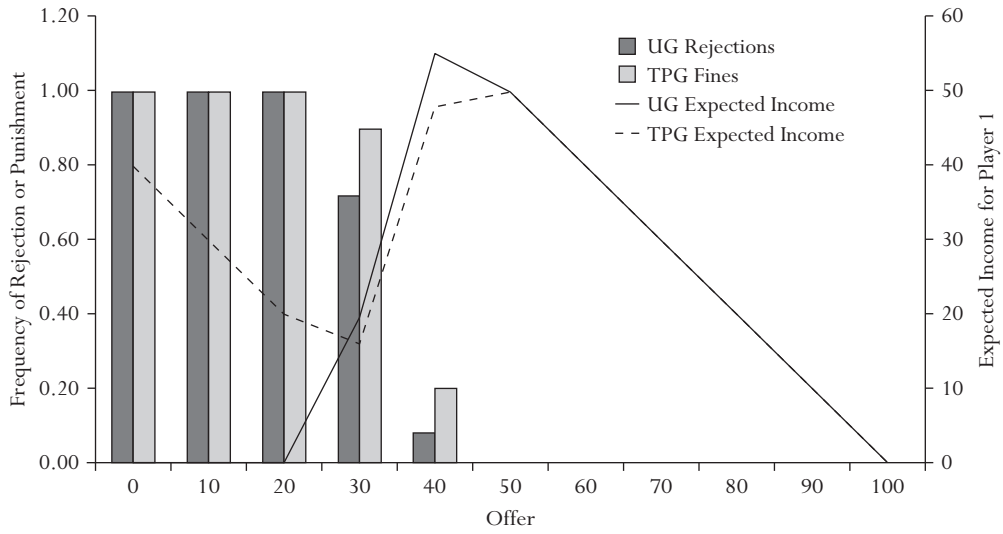
The within-society variation revealed in the regression results is not consistent across sites, but it may be connected to the significant economic differences between the societies reported earlier. Among the Maragoli, who faced significantly dire economic circumstances at the time of these games due to drought, we find that wealth was positively correlated with DG offers and carried a high coefficient. For every additional U.S.$1,000 in wealth, DG offers increased by 9

FIGURE 12.15 *Maragoli Expected Income in the Ultimatum Game and the Third-Party Punishment Game*



Source: Author's calculations based on author data.

FIGURE 12.16 *Gusii Expected Income in the Ultimatum Game and the Third-Party Punishment Game*



Source: Author's calculations based on author data.

TABLE 12.2 *Linear Regressions of Dictator Game Offers for the Maragoli and the Gusii*

	Maragoli (1)	Maragoli (2)	Gusii (1)	Gusii (2)
Age	0.781		−0.118	
	(0.414)*		(0.152)	
Female (dummy)	9.267		−4.265	
	(8.346)		(2.423)*	
Education	−0.701		−0.519	
	(1.892)		(0.429)	
Income (U.S. $1,000)	−7.220		6.148	
	(9.900)		(2.189)***	
Wealth (U.S. $1,000)	12.503	9.182	−4.570	−1.800
	(5.186)**	(4.981)*	(0.940)***	(0.654)***
Children	−8.018	−5.198	0.468	
	(2.417)***	(1.962)**	(0.603)	
Constant	33.347	49.627	63.719	44.821
	(34.775)	(14.716)***	(11.141)***	(4.466)***
Observations	25	25	25	25
Adjusted R-squared	0.329**	0.184**	0.498***	0.253***

Source: Author's calculations based on author data.
Note: Robust standard errors are in parentheses.
*significant at 10 percent level
**significant at 5 percent level
***significant at 1 percent level

(see table 12.2). Children were negatively correlated with DG offers, and this may reflect the fact that those with more mouths to feed felt pressed in bad times to make low offers and reserve more for their children. Several players mentioned economic need in their postgame explanations for why they played the way they did; those who offered 10 or 20 percent responded: "Needed the money"; "Need most of the money to buy food"; "I badly needed all the cash"; "Needed most of the money for personal use"; "Got it first, hence should keep more"; "Fair amount, as I needed the money"; "I needed most of the money to buy some things"; "Always good to share free things"; and "Needed more of the cash." All but two of these seven explanations emphasize economic need, consistent with the dire times for the Maragoli at that moment.

The Gusii made highly homogeneous offers across all games, so we did not expect that much would turn up when we examined within-society variation. As discussed earlier, the Gusii are far better endowed economically than the Maragoli, and they also played the games during a normal economic year, as opposed to the drought year when the Maragoli played. Among the Gusii, we find the opposite impact of wealth on offers, though the size of the coefficient (1.8) is much lower (table 12.2). Although income is highly positively significant in model 1 for the Gusii, it is not robust, and it drops from significance once other insignificant variables are removed from the regression. The same is true for gender, with women making lower offers than men, but when the insignificant controls are dropped, the effect disappears. We revisit this in the discussion of the combined DG/UG offers. Inclusion of the DG offer as a predictor in the UG regression did not yield a significant result.

Unfortunately, the regression analysis for the Maragoli UG yields no significant results or clues that might shed light on the mysterious drop in offers from the DG (table 12.3). Similarly, given the low variation in offers among the Gusii, we did not expect to find highly significant within-society variation, and we did not. The statistical significance on the result for women's lower offers disappears when the other insignificant variables are dropped from the model.

TABLE 12.3 *Linear Regressions of Ultimatum Game Offers for the Maragoli and the Gusii*

	Maragoli (1)	Gusii (1)
Age	−0.355	0.229
	(0.521)	(0.135)
Female (dummy)	4.008	−3.644
	(7.512)	(1.937)*
Education	2.799	0.108
	(2.605)	(0.449)
Income (U.S. $1,000)	9.277	1.554
	(12.821)	(2.164)
Wealth (U.S. $1,000)	−4.614	−1.648
	(7.496)	(1.122)
Children	0.452	−0.891
	(3.245)	(0.556)
Constant	4.221	43.991
	(40.04)	(9.487)
Observations	25	25
Adjusted R-squared	0.157	0.339

Source: Author's calculations based on author data.
Note: Robust standard errors are in parentheses.
*significant at 10 percent level

Given the problems encountered in the DG and UG among the Maragoli and the suspicion that playing the UG after the DG may have affected player 1s' UG offers in the second game as a result of the delayed start in one village, here we combine the offers from both the DG and the UG to consider whether the Maragoli were playing to average their offers across both the DG and the UG (table 12.4).

In this combined analysis, we confirm the effect of children in depressing offers among the Maragoli, as discussed earlier, and the effect of both gender and wealth in depressing Gusii offers. The lower offers among Gusii women are more clearly demonstrated in the combined DG/UG analysis than they were earlier. The female Gusii players indicated that they would donate their earnings from participating in the games to their women's groups. Their ultimate goal was to raise enough funds to build and equip a milk cooling plant for use by members and nonmembers for a nominal fee, especially when poor road conditions made the daily collection of milk impossible. Some of the Gusii explained that they were conservative in their offers in order to save cash for their women's group contributions. The amount of cash they contributed to their group accounts influenced the bank loans approved for them by Equity Bank, Family Bank, and Cooperative Bank (large banks with branches across the country). In the long run, they believed that they gained more by channeling funds to their women groups. Further, the intentions of the very wealthy may not be what they appear. Although wealth was negatively correlated with offers, the richer Gusii women are more commonly members of women's charity groups; if they were committed to redirecting their earnings to charity, they may have had no compunction about taking more in the game. Unlike the poorer women, they did not plan on keeping their earnings for their personal use. For the wealthy Gusii, participation was viewed as fun rather than as an opportunity for individual personal financial gain.

The regression results for the TPG offers do not fall in line with any of the DG or UG results. The negative correlation between offer and education for the Maragoli is strong, but it is not robustly supported by other games. Among the Gusii, the income result disappears when the other insignificant variables are dropped from the model (table 12.5).

TABLE 12.4 *Linear Regressions of Combined Dictator Game and Ultimatum Game Offers for the Maragoli and the Gusii*

	Maragoli (1)	Maragoli (2)	Gusii (1)	Gusii (2)
Age	0.213		0.056	
	(0.289)		(0.113)	
Female (dummy)	6.638		−3.955	−2.779
	(4.692)		(1.621)**	(1.420)*
Education	1.049		−0.205	
	(1.406)		(0.372)	
Income (U.S. $1,000)	1.029		3.851	
	(8.444)		(1.874)*	
Wealth (U.S. $1,000)	3.945		−3.109	−1.561
	(3.873)		(0.882)***	(0.508)***
Children	−3.783	−2.274	−0.212	
	(1.642)**	(1.282)*	(0.474)	
Constant	18.784	43.737	53.855	
	(23.905)	(8.118)***	(8.456)***	
Observations	25	25	25	25
Adjusted R-squared	0.225	0.109*	0.474***	0.349***

Source: Author's calculations based on author data.
Note: Robust standard errors are in parentheses.
*significant at 10 percent level
**significant at 5 percent level
***significant at 1 percent level

TABLE 12.5 *Linear Regressions of Third-Party Punishment Game Offers for the Maragoli and the Gusii*

	Maragoli (1)	Maragoli (2)	Gusii (1)
Age	−0.104		−0.062
	(0.722)		(0.487)
Female (dummy)	−0.315		0.563
	(9.964)		(3.842)
Education	−9.862	−7.500	0.756
	(4.781)**	(3.554)**	(1.158)
Income (U.S. $1,000)	5.397		−7.540*
	(12.810)		(3.824)
Wealth (U.S. $1,000)	−15.700		1.877
	(22.717)		(1.822)
Children	2.026		0.760
	(3.031)		(1.604)
Constant	176.476	130.000	23.323
	(89.586)	(46.224)***	(24.020)
Observations	30	30	30
Adjusted R-squared	0.178	0.129**	0.103

Source: Author's calculations based on author data.
Note: Robust standard errors are in parentheses.
*significant at 10 percent level
**significant at 5 percent level
***significant at 1 percent level

Examining Prosocial Punishment Behavior

The most dramatic finding in this set of games is the degree to which the Maragoli and the Gusii engage in prosocial punishment behavior in both the UG and the TPG. We can measure this by calculating the mean offer that is the minimum acceptable offer (MinAO) to player 2s in the UG (no rejection) and player 3s in the TPG (no fining). Both societies have the highest MinAOs of all societies in our cross-cultural sample. On the UG, it is 30 for the Maragoli and 38 for the Gusii. On the TPG, it is 40 for the Maragoli and 41 for the Gusii. Even if we throw out the seven highly unusual cases of fining of fair and hyper-fair TPG offers among the Maragoli, they still average an MinAO of 33. Unfortunately, the regression analyses (tables 12.6 and 12.7) offer little insight into what is going on.

Recall that both the Maragoli and the Gusii are highly religious, and that church and women's groups are active in an amazing array of successful economic and cooperative endeavors. I have argued that the existence of these groups may have suppressed offers in all three games because women and the rich may have preferred to donate their winnings to these highly effective groups rather than give high offers in the games. But then why the high prosocial punishment? One possible explanation is that societies that have become so successful in collective action and sustained settlement in large villages depend on strong internalized norms for punishing free riders. The Maragoli and the Gusii have the highest village size of any of our populations, and this is the key variable that correlates with high punishment in our cross-cultural sample. If this is the case, then players may have brought this punishment norm into the game and used it extremely aggressively. What we cannot explain from the data is why the offer levels were so out of synch with the aggressive punishment.

CONCLUSIONS

The Maragoli and the Gusii represent modern farmers in Africa: they are highly educated, and they have high rates of migration off the farms and into urban centers for employment. They share common ethnic ancestors, but differed significantly in their economic circumstances at the time of these experiments. The Maragoli, with their tiny plots of land, were severely economically stressed from drought at the time of the experiments. Not only do the Gusii have significant land holdings and considerable on- and off-farm investments, but they were enjoying a normal agricultural season at the time of the experiments. Both societies are deeply religious and participate in a broad range of successful commercial and charitable cooperative groups.

In the DG and UG offers among the Maragoli, we find evidence that is consistent with their dire economic circumstances. The only significant variable in the regressions is the number of children, which is negatively correlated with offers. Those who had more mouths to feed may have felt a need to take more money from the games. Further support for this thesis comes from the postgame interviews, in which many respondents mentioned economic need.

Among the economically secure Gusii, we find a different pattern. Women and the rich were less generous than others in the combined DG/UG offers. Although this is post hoc reasoning, one plausible explanation is that these rich women who were heavily invested in highly successful church and charity women's groups may have preferred to retain their earnings and invest them in these groups, where they had a chance to multiply the benefits and contribute even more to charity. That explanation is consistent with statements from the women participants regarding their plans.

The most interesting findings from the Maragoli and Gusii games are the dramatically high levels of prosocial punishment among both groups for both the UG and the TPG. They were the highest punishers among our cross-cultural sample. Though speculative, one explanation for this strong punishment behavior could be that it stems from a religious tradition that emphasizes punishment

TABLE 12.6 *Linear Regressions of Minimum Acceptable Offers in the Ultimatum Game for the Maragoli and the Gusii*

	Maragoli (1)	Gusii (1)	Gusii (2)
Age	0.104	0.071	
	(0.249)	(0.359)	
Female (dummy)	1.357	2.543	
	(4.179)	(3.143)	
Education	0.503	0.826	0.741
	(2.593)	(0.650)	(0.407)*
Income (U.S. $1,000)	−1.762	−1.833	
	(9.359)	(3.162)	
Wealth (U.S. $1,000)	7.599	−0.416	−1.404
	(8.821)	(1.501)	(0.546)**
Children	1.291	−0.312	
	(1.638)	(1.099)	
Constant	−1.467	31.467	38.024
	(30.721)	(17.077)*	(5.688)***
Observations	25	25	25
Adjusted R-squared	0.157	0.292	0.233 **

Source: Author's calculations based on author data.
Note: Robust standard errors are in parentheses.
*significant at 10 percent level
**significant at 5 percent level
***significant at 1 percent level

TABLE 12.7 *Linear Regressions of Minimum Acceptable Offers in the Third-Party Punishment Game for the Maragoli and the Gusii*

	Maragoli (1)	Maragoli (2)	Gusii (1)
Age	−0.513		0.141
	(0.606)		(0.210)
Female (dummy)	−3.923		1.142
	(9.779)		(2.662)
Education	−6.300	−5.196	−0.721
	(3.101)**	(2.523)**	(0.856)
Income (U.S. $1,000)	−1.574		11.222*
	(13.065)		(5.589)
Wealth (U.S. $1,000)	−4.513		−3.854
	(10.589)		(2.953)
Children	3.568		−0.900
	(3.085)		(0.931)
Constant	134.061	104.787	53.882
	(57.556)**	(31.848)***	(23.045)
Observations	30	30	30
Adjusted R-squared	0.173	0.096**	0.192

Source: Author's calculations based on author data.
Note: Robust standard errors are in parentheses.
*significant at 10 percent level
**significant at 5 percent level
***significant at 1 percent level

for one's bad behavior combined with a common experience with successful collective action. The assumption here is that successful collective action depends on predictable punishment of free riders. It is a plausible hypothesis that both the Maragoli and the Gusii took this social norm into the games with them and carried out their punishment roles in the UG and the TPG with extra vigor. It is also the case that the Maragoli and the Gusii have the highest mean village sizes in our sample, and this variable is strongly correlated with TPG punishment across the project.

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