

Chapter 17

The Effects of Birthplace and Current Context on Other-Regarding Preferences in Accra

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One of the key findings from the first phase of the Roots of Human Sociality Project was that members of more market-integrated societies were more other-regarding, in the sense that they made higher offers in the ultimatum game. However, this finding was based on comparisons across experimental subjects drawn from a number of very small-scale societies in which livelihoods were either entirely or in large part based on hunting, gathering, and agricultural production for home consumption. This led to concerns that the monotonic relationship between individuals' other-regarding preferences and the extent to which the society in which they lived was market-integrated might not hold if we included individuals drawn from highly market-integrated societies in the analysis.

To address this concern in the second phase of the project, we added several new subject pools. One of these was a group of manufacturing employees in Accra, the capital city of Ghana. These urban-dwelling men and women are entirely dependent on the monetized economy for their livelihoods. They sell their labor for a wage, which they then use to buy food for themselves and their families. In addition, they are exposed to newspapers, radio, and television and hence to a diverse and far-reaching perspective on the human condition. In many regards, they are as market-integrated as the average U.S.-born undergraduate student. Unlike U.S.-born undergraduates, however, many of these individuals are relative newcomers to their context, having been born and raised in rural Ghana, where subsistence agriculture, combined with cash-crop farming, is still the norm. These individuals are particularly interesting as they have made a transition from a less to a more market-integrated context; as a result, their inclusion in our study may facilitate an analysis of when behavioral tendencies are determined in an individual's development. If individuals' other-regarding preferences are developed early in life through primary socialization (Henrich and McElreath 2003; Karmiloff-Smith 1994; Lancy 1996; Meltzoff and Prinz 2002; Quartz 1999, 2002; Quartz and Sejnowski 1997, 2000; Tomasello 1999, 2000a, 2000b), then these migrants will display behavioral tendencies associated with small-scale agrarian societies even though, in their current lives, they are highly market-integrated. However, if individuals' other-regarding preferences remain malleable and are affected by changes in context, then these migrants will be behaviorally indistinguishable from their urban-born counterparts.

In this chapter, I investigate whether employees born in urban Ghana and employees who migrated to the city of Accra, having been born in rural Ghana, behave similarly or differently in a series of three behavioral games. The study focuses on a sample of 177 manufacturing employees, approximately two-thirds of whom were born in urban areas (mostly Accra), while the

remaining third were born in rural areas and then migrated to Accra. Each of these employees took part in either a dictator game (DG) followed by an ultimatum game (UG), or a third-party punishment game (TPG). They also responded to a questionnaire designed to elicit information on a number of socioeconomic characteristics, including the nature of the place in which they were born.

The results of the study indicate that urban-born individuals make higher offers but may be more likely to accept low offers in the ultimatum game. Rural- and urban-born individuals behave indistinguishably in the DG and TPG. That the urban-born make higher offers lends further support to the conclusion of the first phase of the Roots of Human Sociality Project, but their greater likelihood of accepting lower offers does not; for consistency, we would expect them to be more rather than less inclined to reject low offers. That they are less inclined to reject low offers, but nevertheless make higher ones, suggests that sharing behavior is driven more by commonly internalized behavioral norms and less by the threat of punishment among the urban-born.

I begin by reviewing a number of micro-level theories that predict a relationship between market integration and other-regarding preferences. Then I introduce the sample of Accra-based manufacturing employees upon whom this study is based. I provide some background information about the contexts in which the subjects were born and now live, as well as descriptive statistics relating to their current socioeconomic characteristics. A section follows in which I set out my approach to addressing the issue raised in this introduction, explain how the games were played, and describe how I analyzed the resulting data. After presenting the results of the analysis, I conclude with a brief discussion about the results.

MARKET INTEGRATION AND OTHER-REGARDING PREFERENCES

One of the original aims of our cross-cultural study was to empirically investigate the origins of individual other-regarding preferences. Several members of the project team had previously explored the processes by which other-regarding preferences may have evolved and been acquired by individuals. However, only one, Sam Bowles, had proposed that markets might play a role. In his paper on preference endogeneity (Bowles 1998), he proposed that institutional contexts—that is, the rules governing production and distribution—affect individuals' life choices and hence the development of their personalities, habits, tastes, identities, and values. The rules of market exchange provide a strong situational frame in which individuals respond to financial incentives instead of directly to other individuals. Thus, the relationship-specific investments that support personalized exchange are not required in market exchange and are less likely to be made as a result. And this being the case, market-integrated individuals are less likely to be other-regarding. But this suggests a negative correlation between market exchange and individual other-regarding preferences, whereas the cross-cultural study identified a positive relationship.

When later working in collaboration with Herbert Gintis, another member of the original project team, and Melissa Osborne, Bowles explored an alternative mechanism that could support the observed positive correlation. Bowles, Gintis, and Osborne (2001a, 2001b) subsequently presented a large body of evidence suggesting that employers value employees with behavioral characteristics that may be described as other-regarding. Because worker effort is not perfectly observable, employers have to rely on employees' willingness to reciprocate higher pay with greater effort, in accordance with George Akerlof's (1982) theory of gift exchange. Further, if work requires cooperation between employees, more cooperative employees are preferred. If other-regarding preferences are rewarded in the labor market, there is an incentive for young people—or parents on their behalf—to invest in such preferences in much the same way that

they invest in knowledge and skills. If such investments take place through primary socialization, other-regarding preferences may be perpetuated and possibly even strengthened in market-integrated societies. This can be reconciled with Bowles's earlier work if we view labor relations as a special type of market exchange in the sense that they are highly personalized.

In the light of the preceding description, we should now return to societies characterized by personalized rather than market exchange and think about whether they offer more or fewer incentives for youngsters—or parents on their behalf—to invest in other-regarding preferences. If there are more such incentives in a society, we would not expect to see a positive correlation between other-regarding preferences and market integration. Here the natural environment may have a determining role. Drawing on the extensive anthropological literature relating to this issue, Jean-Philippe Platteau (2000) proposed that a reliance on nature in a region that is subject to violent climatic shocks weakens the perceived relationship between individual effort and prosperity. Food and shelter appear as gifts from nature to the collective, and individuals who “receive” an abundance of either are viewed as lucky rather than as deserving, and they are expected to share as a result.¹ The natural environment may also determine the degree to which any technology required by those who rely directly upon it for their livelihood involves interpersonal cooperation. This idea gained support from the first phase of the Roots of Human Sociality project, in which the whalers of Indonesia were found to be highly other-regarding despite having very little engagement in market exchange, whereas the Machugenga, who, until recently, hunted and gathered in small family groups, were found to be the most individualistic.

After describing the urban environment in which the subjects of this study currently live, I compare the socioeconomic characteristics of the rural-born subjects with the results of the 1991–1992 Ghana Living Standards Survey to gain some insights into the context in which they were born and raised. This allows me to make some tentative predictions about the behavior of the rural-born relative to the urban-born subjects in this study, assuming no secondary socialization of the former.

THE SUBJECT POOL

People are drawn to Accra, the capital city of Ghana, from all over the country. They come in search of jobs and other income-earning opportunities. As a consequence of this continuing migration, the population of Accra is very ethnically diverse. The land on which the capital is built traditionally belongs to the Ga and Adangbe groups, but Accra is now also home to people from the various Akan ethnic groups, to Ewe, to Hausa-speaking people originally from Nigeria, and to members of the many indigenous northern Ghanaian groups. In accordance with Max Gluckman's (1961) predictions, the impact of this ethnic diversity on how people live their lives has dwindled over time. With the exception of some of the traditions relating to funerals, very few ethnic-specific behavioral rules and rites are observed. Even the previously striking distinction in inheritance rules between the Akan and the other groups is blurring as the Akan increasingly adhere to bilateral, as opposed to their traditional matrilineal, property transfer rules. However, while group differences in customs and practices become less marked, ethnicity remains an important component of individual identity, and this affects individuals' experiences in the urban labor market. So, for example, entrepreneurs strongly favor members of their own ethnic group when choosing who to employ and how much to pay (Barr and Oduro 2002). One possible explanation for these findings is that members of different ethnic groups adhere to different behavioral rules in interactive situations and interethnic cooperation is relatively difficult as a result.

The top panel of table 17.1 shows the ethnic composition of the sample of manufacturing employees involved in this study. Over half of the sample were Akan, with the Fante and

TABLE 17.1 Socioeconomic Characteristics of the Ghanaian Manufacturing Employees

	Full Sample	Player 1s, DG and UG	Player 2s, DG and UG	Player 1s, TPG	Player 3s, TPG	Rural-Born: All Roles	Urban-Born: All Roles
Ethnic composition	177	30	30	39	39	53	85
Asante	9.60%	10.00%	6.67%	7.69%	15.38%	18.38%	29.30%
Fante	18.08%	3.33%	16.67%	30.77%	15.38%	23.93%	19.38%
Other Akan (including Guan)	25.99%	33.33%	43.33%	20.51%	10.26%	25.21%	14.54%
Ga-Adangbe	15.25%	20.00%	6.67%	7.69%	17.95%	5.98%	18.06%
Ewe	19.77%	30.00%	26.67%	17.95%	25.64%	22.22%	10.13%
Northern	10.73%	3.33%	0.00%	15.38%	15.38%	3.85%	8.37%
Non-Ghanaian	0.56%	0.00%	0.00%	0.00%	0.00%	0.43%	0.22%
Religious composition							
Protestant	46.33%	50.00%	76.67%	30.77%	33.33%	41.45%	38.99%
Catholic	10.17%	10.00%	0.00%	15.38%	10.26%	14.53%	10.57%
Other Christian	29.94%	36.67%	23.33%	33.33%	35.90%	33.76%	39.43%
Muslim	9.60%	0.00%	0.00%	17.95%	12.82%	3.85%	8.59%
None	3.95%	3.33%	0.00%	2.56%	7.69%	6.41%	2.42%
Other personal characteristics							
Female (dummy)	31.07%	30.00%	46.67%	20.51%	35.90%	26.42%	36.47%
Urban-born (dummy)	63.28%	53.33%	50.00%	64.10%	74.36%	0.00%	100.00%
Accra-born (dummy)	41.24%	23.33%	16.67%	56.41%	51.28%	0.00%	63.53%
Age (in years)	35.50	30.87	34.37	34.82	36.95	36.21	33.38
Education (in years)	10.56	10.43	10.03	10.41	11.05	9.94	10.87
Number of children	1.95	1.53	1.77	1.69	1.92	2.00	1.58
Number of siblings	5.59	5.23	5.10	5.59	6.03	5.94	5.38
Years in current job	7.76	5.29	3.56	9.21	8.49	8.46	5.97
Annual income (in U.S. dollars)	722.10	1,096.10	636.24	653.30	659.12	675.98	792.09
Religious attendance (monthly)	15.77	7.93	7.47	16.69	16.36	7.28	16.06
Standard deviations of continuous variables							
Age in years	11.30	9.13	9.64	10.85	12.13	10.35	10.90
Education in years	3.87	2.97	2.44	3.88	3.78	2.29	3.87
Number of children	2.03	1.72	1.55	2.02	1.97	1.80	1.84
Number of siblings	2.47	2.10	2.86	2.46	2.48	2.76	2.28
Years in current job	8.33	5.75	4.25	9.21	7.89	7.85	7.22
Annual income (in U.S. dollars)	737.77	1,337.71	576.88	582.56	450.85	709.75	846.55
Religious attendance (monthly)	31.27	5.73	4.03	27.11	33.51	6.20	28.90

Source: Author's compilation based on author data.

Asante being the most frequently represented Akan subgroups. Just under 20 percent were Ewe, 15 percent were either Ga or Adangbe, and most of the remainder were from the north of the country. If ethnic differences in behavior exist, they could compromise our ability to identify a behavioral variation between the urban- and rural-born individuals in the Ghanaian sample. Thus, the impact of ethnicity on behavior needs to be investigated.

Accra-dwelling people are also religiously diverse. As table 17.1 shows, 46 percent of the individuals included in this study attended non-evangelical Protestant churches, 10 percent were Catholic, 30 percent attended evangelical Protestant churches, 10 percent were Muslim, and only 4 percent stated that they had no religion. The individuals in the sample are also very religiously active; 93 percent of the employees who took part in the study stated that they were involved in at least one act of worship a month, and over 55 percent stated that they were involved in two or more acts of worship a week. Churches and mosques also provided the settings for much of the civil-social activity in which these urban dwellers were involved. Religion was thus an important part of these urban Ghanaians' social lives and identity and may have had some bearing on their other-regarding preferences. Thus, it is important that we take religious affiliations and degrees of involvement into account during the analysis.

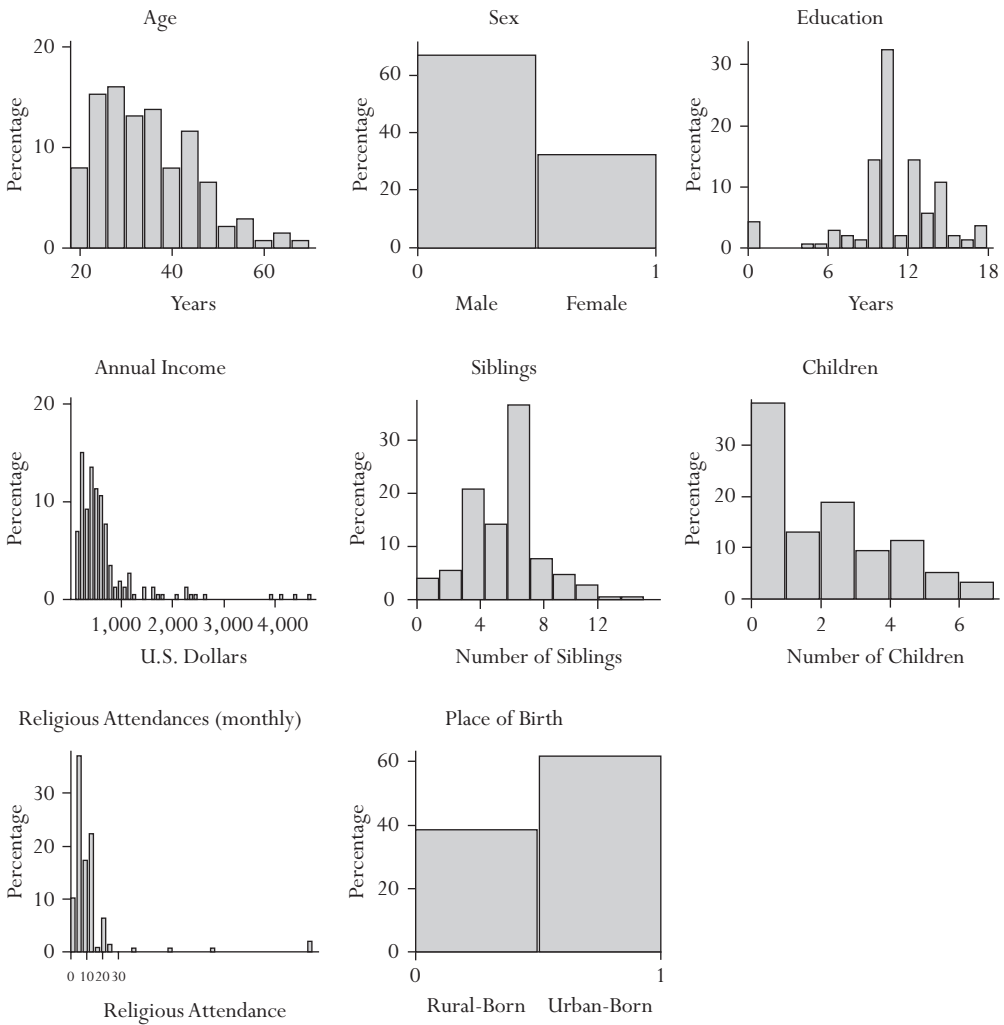
Ethnicity, religion, and family life aside, the factor that has the most influence on Accra-dwelling employees' life experience is their place of work. The structure of the Ghanaian manufacturing sector is similar to that of manufacturing sectors all over the developing world. A few large corporations, most of which are involved in the processing of Ghana's primary-product exports, exist alongside a multitude of small and micro enterprises producing generally low-quality goods for local markets. As Mans Söderbom, Francis Teal, and Anthony Wambugu (2005) have shown, where an employee is placed within this sector has a dramatic effect on his or her earnings. Those working in the large corporations can earn several times more than those working in the informal periphery.

The employees included in this study were drawn from small enterprises ranging in size from seventeen to eighty-nine employees. They were predominantly production workers, although a few apprentices and office personnel also found their way into the sample. The annual earnings of these employees varied between \$110 and \$4,730, with a mean of around \$720, or just over \$2 a day. The distribution of earnings and several other characteristics are presented for the full sample in figure 17.1. Sixty-eight percent of the sample derived all of their income from one job in the manufacturing sector. However, 15 percent had second jobs, 4 percent engaged in petty trade, 1 percent earned some rental income, and 13 percent received "pocket money" from relatives.

Among these employees, significant material asset holdings were rare. Only 15 percent owned or had legal rights to land, and only 5 percent owned a house. The one asset in which they were relatively well endowed was human capital, which had a significant impact on their earnings. Thirty-seven percent of the employees had ten or more years of education, while only 4 percent had no education at all.

The last two columns in table 17.1 present the descriptive statistics for the rural-born and urban-born subjects separately. There were significant differences between the two groups. The rural-born were older (*t*-statistic significant at the 1 percent level), they were less educated (*t*-statistic significant at the 10 percent level), they had more children (*t*-statistic significant at the 1 percent level), they had been with their current employer longer (*t*-statistic significant at the 1 percent level), they earned less (*t*-statistic significant at the 10 percent level), and they attended religious services less often (*t*-statistic significant at the 1 percent level). In addition, the proportion of females within the rural-born sample was lower (*t*-statistic significant at the 5 percent level), they were more likely to be Fante, from other Akan groups, or Ewe, and they were more

FIGURE 17.1 *Distribution of Age, Sex, Education, Income, Siblings, Children, Time in Current Workforce, and Place of Birth for Full Accra Sample*



Source: Author's compilation based on author data.

likely to be Protestant or Catholic and less likely to be Muslim. Given these differences, it is critical that we control for these socioeconomic characteristics when endeavouring to identify the effect of birthplace on behavior.

A comparison of these data from figure 17.1 and table 17.1 with data from the 1991–1992 and 1998–1999 Ghana Living Standards Survey conducted by the Ghana Statistical Service (2000) indicates that the subjects of this study were well educated by Ghanaian standards. The comparison is especially striking if we restrict it to rural areas: in 1991–1992, fewer than 45 percent of rural-dwelling children of the appropriate age were enrolled in secondary education, whereas

over 90 percent of the rural-born subjects in this study had some secondary education. Since investment in education is usually correlated with household income, we may also infer from this comparison that the rural-born subjects were from rural households with relatively high incomes. Rural incomes in Ghana are primarily derived from cash-crop farming (mainly cocoa) and petty trading. The household is the unit of production in such livelihoods and rural labor markets are very thin. In addition, using ethnicity as an indicator of geographical origin, we see that the rural-born subjects in this study generally came from forested areas, which are less inclined to suffer climatic shocks compared to most of sub-Saharan Africa. Thus, while we should assume a certain amount of market integration in the context where the rural-born subjects were born and raised, there is little reason to assume high levels of inter-household cooperation. Further, given the thinness of rural labor markets, there is no reason to expect rural-dwelling parents to know which behavioral characteristics are likely to be rewarded in such markets. Thus, while we have very little information with which to address this issue, the information we do have suggests that the context in which the rural-born subjects in this study were born and raised is likely to be associated with less other-regarding preferences than the urban context in which all the subjects now lived and worked.

METHODOLOGICAL APPROACH

The behavioral experiments that generated the data for this study were conducted in the second quarter of 2002. They involved 177 manufacturing employees drawn from thirteen manufacturing enterprises situated in Accra. Thirty pairs of employees played a dictator game followed by an ultimatum game, and thirty-nine triads of employees played the third-party punishment game. The games were played in accordance with the protocols set out in chapter 3 of this volume. The experimental sessions were conducted either on weekday evenings or on Saturday afternoons after work. Three DG and UG sessions were held—two in rooms provided by the manufacturing enterprises and one in a nearby school. Each of these sessions involved employees from only one place of work. Five TPG sessions were held, all in schools near the employees' places of work. Each of these sessions involved employees from two places of work. Not all play was between colleagues, and the subjects knew this to be the case.² This last point needs to be borne in mind when comparing distributions of offers across games.

One pilot session was conducted in order to establish that the strategy method was not hindering the subjects' understanding of the game. During free-form, postplay interviews with each of the players who took part in the pilot session, no major problems of understanding were identified. Once the pilot session was complete, the scripts were adhered to in every session, and when subjects had questions, care was taken to answer by repeating the relevant part of the script.

Every session was conducted in the same way. Once the subjects were assembled, they were taught the first game and given some examples by a Twi-speaking research assistant standing at the front of the room. No talking between subjects was allowed and no questions were taken. Then the subjects were called one at a time to meet with the Twi-speaking research assistant. During this meeting, the research assistant would go over the game again, work through some more examples, answer questions, test the subjects' understanding, and then play. Afterward, the subject would be asked to wait in an area separated from those who had not yet played. If only one game was being played, once everyone had finished their one-to-one meetings, the subjects were paid and dismissed. If two games were being played, care was taken to ensure that the subjects did not discuss the first game while waiting for the second. Once everyone had played the first game, the subjects were taught the second. They

met with a research assistant a second time, were asked to wait in a separate area after they played the game until everyone else had played as well, and then were finally dismissed after being paid for both games at the same time.

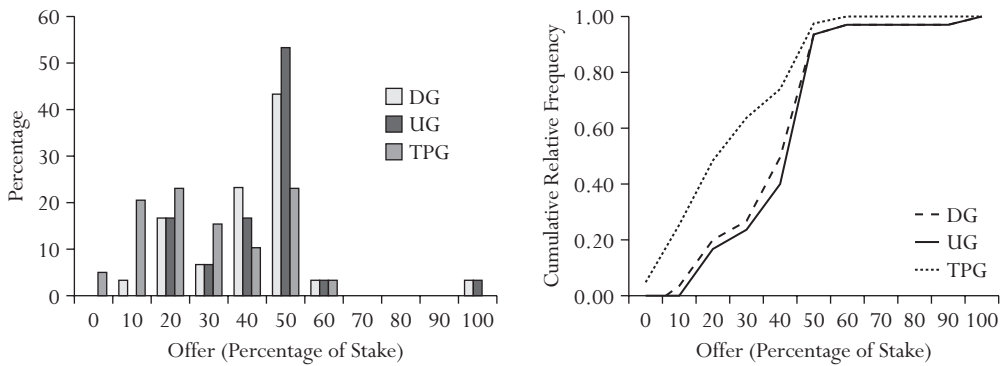
In the DG and UG sessions, all of the one-to-one interviews were conducted by a single research assistant with the researcher at his side. In the TPG sessions, however, this arrangement was not possible owing to time constraints. Instead, four Twi-speaking research assistants worked in parallel conducting the one-to-one interviews while the researcher oversaw the proceedings from a centrally located desk. Statistical tests suggest that there was no systematic variation in behavior depending on which research assistant interviewed a subject. Thus, it is reasonable to assume that this departure from the ideal protocol did not affect the resulting data.

In each game the initial stake given to player 1 to be divided between him- or herself and player 2 was Cedi50,000, which was roughly equivalent to U.S.\$6.50 at the exchange rate prevailing at the time. This amount was approximately equivalent to twice the average daily wage of the subjects, although for those earning one standard deviation more than the average, it was equivalent to only one day's wage. Player 3 in the third-party punishment game was provided with an initial stake of Cedi25,000 (U.S.\$3.25) and could reduce player 1's final payoff by Cedi15,000 at a cost of Cedi5,000 to him- or herself. Every player also received a fee of Cedi10,000 (U.S.\$1.30) for showing up to the experimental session.

The analysis of the resulting data aims to explain the variation in six variables, the offers made in each of the three games, the minimum and maximum acceptable offers in the ultimatum game, which are derived from player 2s' rejection strategies, and the minimum unpunished offer in the third-party punishment game, which is derived from player 3s' fining strategies. I begin with a simple graphical analysis in which I explore whether the employees' behavior conformed to the canonical assumptions about selfish money-maximization. Then I conduct a graphical comparison of the behavior of the urban- and rural-born individuals in the sample. Finally, I complement this graphical analysis with a series of statistical tests and simple regressions that take account of several socioeconomic variations across the employees.

The regression analyses were severely constrained by the small numbers of observations. To minimize the effects of this constraint I adopted the following approach. First, I investigated the extent to which variations in each of the six behavioral variables can be explained by the diversity of the sample with respect to ethnicity, religion, and place of work. Second, I regressed each of the six behavioral variables on nine control variables and a dummy variable taking the value one if the player was urban-born and zero otherwise. The control variables include: the age of the player in years; a dummy variable taking the value one if the player was female; the player's level of education in years; the player's annual income expressed in U.S. dollars; the number of siblings the player reported having, included to capture an important aspect of the environment in which the player was socialized; the number of children the player had, included to capture both marital status and the extent to which the player might have been actively investing in the socialization of other human beings; the number of times a month the player engaged in a religious act of worship; and the length of time (in years) the player had been in his or her current job, included to capture the effect of length of acquaintance on altruism between colleagues.³ Third, because these regressions may be overidentified and suffer from multicollinearity given the small number of observations, I then eliminated all the variables that were insignificant in the most general regression one at a time to check the robustness of the key results. To aid cross-site comparisons I also ran one regression for each behavioral variable that took only socioeconomic variables collected across all the sites discussed in this volume as explanatory variables.⁴

FIGURE 17.2 Offers in the Dictator, Ultimatum, and Third-Party Punishment Games



Source: Author's compilation based on author data.

RESULTS

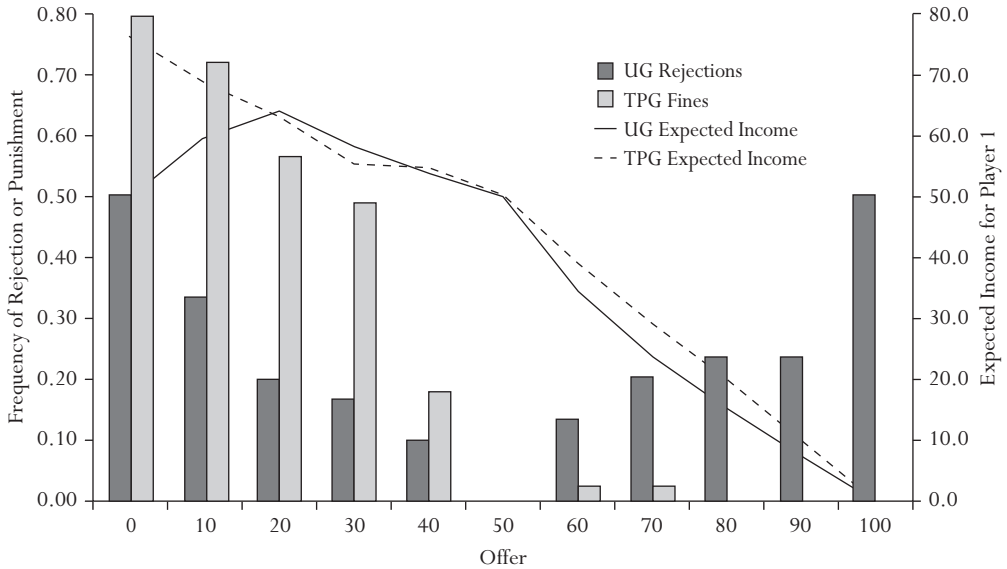
Are Accra-Dwelling Manufacturing Employees Selfish Money-Maximizers?

Under the standard canonical assumptions about selfish money-maximization, theory predicts that player 1s in the dictator game would give nothing to player 2s; that in the ultimatum game player 2s would be indifferent between accepting and rejecting zero offers but would accept all nonzero offers, and so player 1s would make the lowest possible nonzero offer; and that in the third-party punishment game player 3s would never punish and player 1s would give nothing to player 2s.

Figure 17.2 contains histograms and cumulative distribution functions for the offers (expressed as a percentage of the initial stake) made by the Ghanaian player 1s in the DG, UG, and TPG. These graphs provide no support for the standard canonical assumptions about selfish money-maximization. None of the thirty player 1s in the dictator game made zero offers, none of the thirty player 1s in the ultimatum game made minimum possible positive offers, and only two out of the thirty-nine player 1s in the third-party punishment game made zero offers. The distributions of offers made in the DG and UG were very similar, and there was a high degree of correlation between the two (the pairwise correlation coefficient was 0.82). Indeed, twenty-three out of the thirty players who played both games made the same offer in each game. In both distributions, there is a strong modal offer at 50 percent of the stake, with a considerable proportion of players (50 and 40 percent in the DG and UG, respectively) making a variety of lower offers. The mean offers in the DG and UG are statistically indistinguishable at 42 and 44 percent of the original stake, respectively.

The distribution of offers in the third-party punishment game is markedly different. Rather than a strong mode at 50 percent and a tail to the left, we see a fairly uniform distribution of offers ranging from 0 to 50 percent and a mean offer of 28.5 percent. This mean is significantly (1 percent level) lower than the means for both the DG and UG according to both simple *t*-tests and regressions designed to take account of any variations in socioeconomic characteristics between the individuals playing the different games.

Figure 17.3 summarizes the behavior of player 2s in the ultimatum game and player 3s in the third-party punishment game. The mean rejection strategies chosen by player 2s in the UG

FIGURE 17.3 *Expected Income in the Ultimatum and Third-Party Punishment Games*

Source: Author's compilation based on author data.

are represented by the darker columns. The fining strategies chosen by player 3s in the TPG are represented by the lighter columns. These are superimposed by lines showing the expected income levels implied by the rejection rates for each offer level in the UG (dark line) and fining for each offer level in the TPG (dashed line). Once again, we see little support for the canonical assumptions. Only nine out of the thirty responding players in the UG and no players at all in the TPG behaved in accordance with these assumptions. That the expected income maximizing offer in the TPG was zero compared to 30 percent of the initial stake in the UG partly explains the difference in the distribution of offers between the two games.

The most striking feature of figure 17.3 is the U-shape of the rejection function relating to the ultimatum game. Not only low but also high offers were rejected by player 2s in urban Ghana. Such rejection functions have been observed elsewhere. In the first phase of this research project, David Tracer (2003, 2004) observed some of his sample of the Au and Gnau of Papua New Guinea making high offers and those offers being rejected. Those rejections were consistent with a U-shaped rejection function, and when Tracer returned with his co-authors to conduct the strategy method UG with the Au in the second phase, he did indeed find such a function (see chapter 7, this volume, available at: <http://www.russellsage.org/Ensminger>). Juan-Camilo Cardenas found a similarly pronounced U-shape in the rejection functions chosen by the Sanquianga of Colombia (chapter 16, this volume, available at: <http://www.russellsage.org/Ensminger>). Joe and Natalie Henrich, working with the Yasawa (chapter 9, this volume, available at: <http://www.russellsage.org/Ensminger>), Carolyn Lesorogol working with the Samburu (chapter 14, this volume, available at: <http://www.russellsage.org/Ensminger>), and Alex Bolyanatz working with the Sursurunga (chapter 11, this volume, available at: <http://www.russellsage.org/Ensminger>) also report U-shaped rejection functions, although in these sites rejections of high offers were rarer.

TABLE 17.2 Means of Behavioral Variables for Urban-Born and Rural-Born Employees

	Urban-Born		Rural-Born		Full Sample	
	Mean	N	Mean	N	Mean	N
Offers						
Dictator game	45.00	16	38.57	14	42.00	30
Ultimatum game ^a	50.00	16	37.14	14	44.00	30
Third-party punishment game	29.20	25	27.14	14	28.46	39
Response strategies						
Minimum acceptable offer (UG)	9.33	15	16.67	15	13.00	30
Maximum acceptable offer (UG)	87.33	15	86.00	15	86.67	30
Minimum unpunished offer (TPG)	36.90	29	38.00	10	37.18	39

Source: Author’s compilation based on author data.

^aDistributions of offers for urban-born and rural-born individuals significantly different at the 5 percent level according to a two-sample Wilcoxon rank-sum (Mann-Whitney) test. The difference in mean offers for urban-born and rural-born individuals was significant at the 5 percent level according to a T-test, equal standard errors not assumed.

We do not observe the same U-shape in the fining function, and interestingly, neither do any of the authors just cited. Accra-dwelling player 3s were highly likely to fine low offers, but offers of 50 percent and above rarely attracted fines. Only one player fined offers in this range. He chose to fine in the case of an offer of 100 percent. This action would have left him poorer without affecting player 1, who had allocated him- or herself zero already. This is consistent with a strong aversion to advantageous inequality.

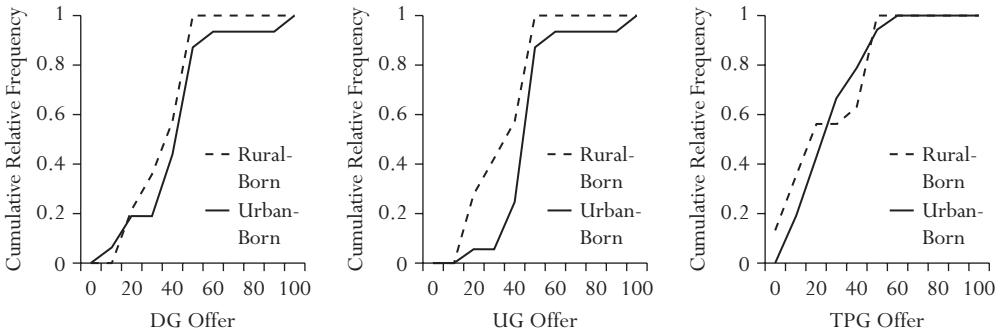
Comparing Urban- and Rural-Born Employees’ Behavior

Having established that Accra-based manufacturing employees tend to have other regarding preferences, I now turn to a comparison of preferences across urban-born and rural-urban employees.

In the dictator and ultimatum games, sixteen urban-born and fourteen rural-born employees made offers, while in the third-party punishment game twenty-five urban-born and fourteen rural-born employees made offers. The means presented in table 17.2 suggest that the urban-born employees made higher offers in all three games. However, the cumulative distribution functions presented in figure 17.4 indicate that the distributions in offers made by the two types of employee are only clearly distinct in the case of the ultimatum game. This is borne out by two-sample Wilcoxon rank-sum (Mann-Whitney) tests, which indicate that the offer distributions for rural- and urban-born players are only significantly different in the UG, and by *t*-tests that indicate that the corresponding mean offers are only significantly different (5 percent level) in the UG.

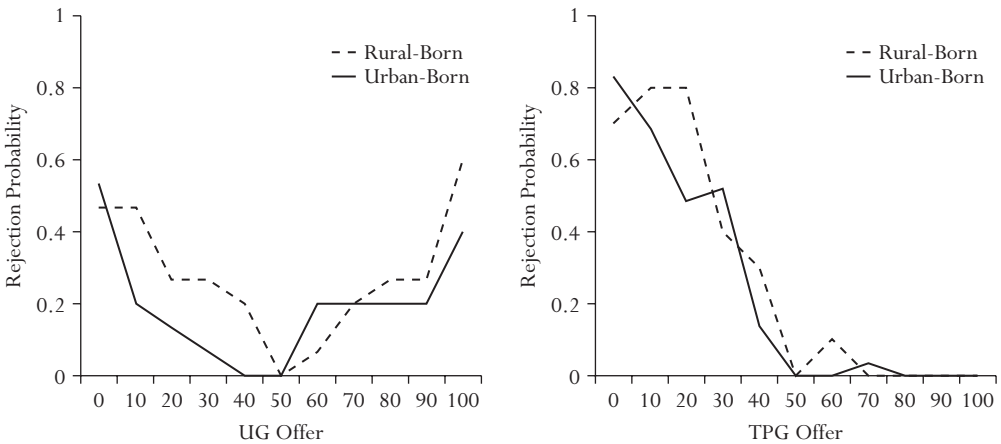
Response strategies relating to the ultimatum game were elicited from fifteen urban-born and fifteen rural-born employees. The rejection functions plotted in figure 17.5 and the mean minimum acceptable offers (MinAOs) presented in table 17.2 suggest that the urban-born employees were less inclined than their rural-born colleagues to reject low offers. However, neither the distributions of MinAOs nor the mean MinAOs are significantly different according to a two-sample Wilcoxon rank-sum (Mann-Whitney) test and a *t*-test, respectively. The mean maximum acceptable offers (MaxAOs) presented in table 17.2 suggest that the urban-born employees were also less inclined to reject high offers, although in this case the graphs are indistinct and

FIGURE 17.4 *Offers Made by Urban-Born Employees and by Rural-Born Migrant Employees*



Source: Author's compilation based on author data.

FIGURE 17.5 *Rejection and Fining Functions for Urban-Born and Rural-Born Employees*



Source: Author's compilation based on author data.

both the two-sample Wilcoxon rank-sum (Mann-Whitney) test and the *t*-test yield insignificant results. Finally, while the mean minimum unpunished offer (MUO) for urban-born individuals is lower than that for rural-born individuals, the graph, the two-sample Wilcoxon rank-sum (Mann-Whitney) test, and the *t*-test indicate no significant difference between the distributions.

Regression Analyses

The first set of regressions took each of the behavioral variables and regressed them on a set of ethnic dummy variables, then on a set of religion dummy variables, and finally on a set of workplace dummy variables. Table 17.3 contains the levels of significance (*p*-values) and adjusted R-squareds for each of the resulting eighteen regressions. None of the regressions are significant

TABLE 17.3 Explanatory Power of Ethnic, Religion, and Employer Dummies (p-Values)

	Ethnicity			Religion			Enterprise		
	Groups	p-Value	Adjusted R-squared	Groups	p-Value	Adjusted R-squared	Groups	p-Value	Adjusted R-squared
Offers									
Dictator game	6	0.9190	-0.1415	4	0.2886	0.0322	3	0.6500	-0.0403
Ultimatum game	6	0.6251	-0.0535	4	0.3083	0.0263	3	0.2471	0.0316
Third-party punishment game	6	0.3251	0.0272	4	0.5897	-0.0313	10	0.3610	0.0346
Response strategies									
Minimum acceptable offer (UG)	5	0.3604	0.0190	2	0.8263	-0.0339	3	0.1188	0.0827
Maximum acceptable offer (UG)	5	0.7613	-0.0798	2	0.5901	-0.0248	2	0.7686	-0.0533
Minimum unpunished offer (TPG)	6	0.1061	0.1152	6	0.2449	0.0517	10	0.3671	0.0365

Source: Author's compilation based on author data.

at the 10 percent level, and the adjusted R-squareds are either small or negative. This indicates that ethnicity, religion, and workplace explain little or none of the variation in behavior across the Ghanaian sample. This being the case, we need not use valuable degrees of freedom controlling for any of these factors during subsequent regression analyses.

In tables 17.4 to 17.9, each of the behavioral variables is regressed on various sets of socioeconomic characteristics. In each case, the reported coefficients on the continuous variables have been standardized; they show the increase in offer, expressed in percentage points of the initial stake, associated with a one-standard-deviation increase in the independent variable. The results of several tests relating to the normality and independence of the error terms are presented in the notes of each table.⁵

Table 17.4 presents the set of regressions that take offers in the dictator game as the dependent variable. Model 1 includes only age, the female dummy variable, education, and income as explanatory variables. These variables were collected in all sites. Only income is significant. Individuals with higher incomes made more generous offers. Model 2, the most general model in the table, indicates that income, number of siblings and children, and frequency of religious attendance have positive and significant effects on offers made in the dictator game. These four variables remain significant following the removal of the insignificant variables from the model. Model 7, the most parsimonious model, contains only these four variables and explains over 50 percent of the variation in offers. According to this model, a one-standard-deviation increase in income is associated with an 8.0-percentage-point increase in offer size, a one-standard-deviation increase in number of siblings is associated with a 6.3-percentage-point increase in offer size, a one-standard-deviation increase in number of children is associated with a 5.8-percentage-point increase in offer size, and a one-standard-deviation increase in religious attendance is associated with a 7.6-percentage-point increase in offer size. Note that the urban-born dummy variable is insignificant throughout.

Table 17.5 presents the set of regressions that take offers in the ultimatum game as the dependent variable. Model 1 includes only age, the female dummy variable, education, and income as explanatory variables. Once again, income has a positive and significant effect on offer size. The most general model, model 2, indicates that income and number of siblings and children have positive and significant effects on offers, age has a negative and significant effect, and urban-born employees offer more than rural-born ones. However, not all of these five variables remain significant once we start dropping the insignificant ones. In the model that contains only these five variables, model 6, the number of siblings is insignificant, and dropping this variable from the model renders the subject's age insignificant (model 7). Thus, the final, most parsimonious model, model 8, contains only income, number of children, and the urban-born dummy variable. This model explains just over 40 percent of the variation in offers. According to this model, a one-standard-deviation increase in income is associated with a 6.0-percentage-point increase in offer size, a one-standard-deviation increase in number of children is associated with a 5.2-percentage-point increase in offer size, and being urban- rather than rural-born is associated with a 14.8-percentage-point increase in offer size.

Table 17.6 presents the set of regressions that take offers in the third-party punishment game as the dependent variable. Model 1 includes only age, the female dummy variable, education, and income as explanatory variables; none of these are significant. The most general model, model 2, indicates that income and number of siblings have positive and significant effects on offers. These two variables remain significant following the removal of the insignificant variables from the model. Model 9, the most parsimonious model, contains only these two variables and explains just over 20 percent of the variation in offers. According to this model, a one-standard-deviation increase in income is associated with a 5.7-percentage-point increase in offer size,

TABLE 17.4 Explaining Variations in Offers in the Dictator Game

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	1.9572 (3.1184)	-8.9847 (6.2801)					
Female (dummy)	-0.5244 (7.1659)	-6.3600 (6.3073)	-5.5588 (6.4371)				
Education	-3.1428 (3.4715)	-1.4341 (3.4678)	-3.3898 (3.2655)	-4.3071 (3.0700)			
Income	7.6701 (3.0268)*	8.6217 (2.8325)**	7.8191 (2.8447)*	8.5398 (2.7038)**	8.3498 (2.7566)**	7.5019 (2.4034)**	8.0104 (2.3809)**
Siblings		8.5503 (2.7684)**	6.6871 (2.5031)*	6.4300 (2.4710)*	6.2433 (2.5188)*	6.5638 (2.4410)*	6.3404 (2.4512)*
Children		16.1526 (7.0534)*	7.4449 (3.6523)	6.7372 (3.5385) [^]	8.0827 (3.4771)*	6.5345 (2.5157)*	5.7616 (2.4449)*
Religious attendance		6.0187 (2.7472)*	5.4242 (2.7825)	5.9946 (2.6873)*	6.8493 (2.6718)*	6.7460 (2.6351)*	7.6347 (2.5414)**
Tenure in workforce		-4.2612 (3.8797)	-4.2725 (3.9752)	-3.7990 (3.9144)	-2.5435 (3.8901)		
Urban-born (dummy)		6.4578 (6.1580)	8.2665 (6.1752)	6.6617 (5.8548)	4.5259 (5.7712)	6.0756 (5.1988)	
Constant	40.3032 (18.1426)*	27.4206 (16.9859)	16.8910 (15.6855)	18.7989 (15.4391)	1.9026 (9.8617)	0.1110 (9.3597)	2.9841 (9.0969)
Observations	30	30	30	30	30	30	30
R-squared	0.28	0.64	0.6	0.59	0.55	0.54	0.52
Adjusted R-squared	0.16	0.48	0.45	0.46	0.43	0.45	0.44

Source: Author's compilation based on author data.

Notes: Standard errors are in parentheses. The estimated coefficients in column 7 are not affected by dropping outliers, which increases the size and significance of the coefficients. The residuals relating to the regression in column 7 are normally distributed (skewness/kurtosis tests for normality) and free from heteroscedasticity (Cook and Weisberg test).
[^] significant at 10 percent level; *significant at 5 percent level; **significant at 1 percent level

TABLE 17.5 Explaining Variations in Offers in the Ultimatum Game

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age	-0.9667 (3.0657)	-13.3315 (5.9164)*	-12.7763 (5.9094)*	-14.3084 (5.3769)*	-13.5415 (5.6233)*	-13.0381 (5.6691)*	-8.7697 (5.1850)	
Female (dummy)	2.4172 (7.0449)	-6.2800 (5.9420)						
Education	-3.1893 (3.4129)	-0.9142 (3.2670)	-2.0632 (3.0894)	9.2214 (2.5421)**	8.4346 (2.6279)**	6.9080 (2.3433)**	7.0217 (2.4178)**	5.9673 (2.4182)*
Income	7.2896 (2.9757)*	8.3859 (2.6684)**	9.1441 (2.5773)**	21.1244 (5.7319)**	19.5000 (5.9397)**	16.3475 (5.4196)**	12.7520 (5.1063)*	5.1857 (2.5487)^
Siblings		4.8507 (2.6081)^	4.4475 (2.5872)^	4.6829 (2.5306)^	3.7082 (2.5946)	4.2074 (2.5905)		
Children		20.4408 (6.6450)**	19.1095 (6.5426)**					
Religious attendance		3.3088 (2.5881)	3.9114 (2.5315)	4.3745 (2.4038)^				
Tenure in workforce		-5.9863 (3.6550)	-5.4563 (3.6305)	-4.9319 (3.4997)	-4.5189 (3.6636)			
Urban-born (dummy)		11.7007 (5.8013)	10.0137 (5.5929)	8.7969 (5.2208)	11.5888 (5.2351)*	14.2763 (4.8116)**	13.5718 (4.9465)*	14.8279 (5.0624)**
Constant	51.7847 (17.8363)**	50.9407 (16.0022)**	52.4286 (15.9845)**	47.3972 (13.9190)**	53.6600 (14.1484)**	49.1163 (13.8080)**	49.2784 (14.2527)**	26.5706 (4.9525)**
Observations	30	30	30	30	30	30	30	30
R-squared	0.21	0.64	0.62	0.61	0.55	0.52	0.47	0.41
Adjusted R-squared	0.09	0.48	0.47	0.49	0.43	0.42	0.38	0.34

Source: Author's compilation based on author data.

Notes: Standard errors are in parentheses. The estimated coefficients in column 8 are not affected by dropping outliers, which increases the size and significance of the coefficients. The residuals relating to the regression in column 8 are normally distributed (skewness/kurtosis tests for normality) and free from heteroscedasticity (Cook and Weisberg test). ^, significant at 10 percent level; *, significant at 5 percent level; **, significant at 1 percent level

TABLE 17.6 *Explaining Variations in Offers in the Third-Party Punishment Game*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age	-0.3359 (2.7940)	0.6828 (6.1976)							
Female (dummy)	-7.8824 (8.1397)	-5.6633 (8.5065)	-5.8380 (8.2187)						
Education	-4.0360 (3.5803)	-5.6584 (4.4308)	-5.6194 (4.3433)	-4.2358 (3.8509)					
Income	4.9290 (3.0543)	8.6749 (3.7261)*	8.6037 (3.6087)*	8.8096 (3.5682)*	6.3155 (2.7641)*	6.0759 (2.6244)*	5.8705 (2.5874)*	5.6558 (2.5688)*	5.7005 (2.5325)*
Siblings	6.8179 (3.1345)*	6.8179 (3.1345)*	6.9385 (2.8884)*	7.1431 (2.8510)*	7.4454 (2.8470)*	7.5253 (2.7972)*	7.7804 (2.7514)**	6.9089 (2.5648)*	6.9060 (2.5325)**
Children		-4.7615 (5.3796)	-4.4312 (4.3925)	-4.2097 (4.3463)	-1.0464 (3.2695)				
Religious attendance		0.8407 (2.9545)	0.7633 (2.8222)	1.2449 (2.7175)	1.7861 (2.6814)	1.8266 (2.6417)			
Tenure in workforce		4.1055 (5.3050)	4.5347 (3.5406)	4.3644 (3.5042)	3.0265 (3.2971)	2.4586 (2.7408)	2.4274 (2.7193)		
Urban-born (dummy)		2.3483 (6.2035)	2.5501 (5.8285)	1.3670 (5.5406)	1.8625 (5.5404)	1.6411 (5.4217)	2.4567 (5.2511)	1.6199 (5.1517)	
Constant	36.4638 (14.6535)*	15.2548 (19.5102)	16.3949 (16.2650)	11.2328 (14.4345)	0.0014 (10.2360)	-0.1058 (10.0904)	0.1773 (10.0045)	5.3638 (8.1206)	6.3586 (7.3847)
Observations	39	39	39	39	39	39	39	39	39
R-squared	0.10	0.30	0.29	0.28	0.26	0.25	0.24	0.22	0.22
Adjusted R-squared	-0.01	0.08	0.11	0.12	0.12	0.14	0.15	0.16	0.18

Source: Author's compilation based on author data.

Notes: Standard errors are in parentheses. The estimated coefficients in column 9 are not affected by dropping outliers, which increases the size and significance of the coefficients. The residuals relating to the regression in column 9 are normally distributed (skewness/kurtosis tests for normality) and free from heteroscedasticity (Cook and Weisberg test).

*significant at 5 percent level; **significant at 1 percent level

and a one-standard-deviation increase in number of siblings is associated with a 6.9-percentage-point increase in offer size. The urban-born dummy variable is insignificant throughout.

Table 17.7 presents the set of regressions that take the minimum acceptable offers for player 2s in the ultimatum game as the dependent variable. Model 1 includes only age, the female dummy variable, education, and income as explanatory variables, and none of these are significant. The most general model, model 2, suggests that only birthplace has a significant effect on rejection behavior: urban-born employees accept significantly lower offers than their rural-born counterparts. As insignificant variables are dropped from the model, tenure in the workforce gains significance: those who have been in their jobs longer accept lower offers. Further, when this variable is dropped from the model, the urban-born dummy becomes insignificant and we are left unable to explain any of the variation in rejection behavior (model 10). This being the case, while there are concerns about robustness, the model containing the urban-born dummy and tenure in the workforce (model 9) is preferred. These two variables explain just over 20 percent of the variation in minimum acceptable offers. According to this model, a one-standard-deviation increase in tenure is associated with a 7.7-percentage-point decline in the MinAO, while being urban- rather than rural-born is associated with a 16.7-percentage-point decline in the MinAO.

Table 17.8 presents two regressions that take the maximum acceptable offer for player 2s in the ultimatum game as the dependent variable. Model 1 includes only age, the female dummy variable, education, and income as explanatory variables; model 2 is the most general model. None of the socioeconomic variables placed on the right-hand side of these regressions are significant.

Finally, table 17.9 presents the regressions that take the minimum unpunished offer in the third-party punishment game as the dependent variable. Model 1 includes only age, the female dummy variable, education, and income as explanatory variables, and none of these are significant. None of the explanatory variables in the most general model, model 2, are significant either. However, once we start dropping the least significant variables from the model, education becomes weakly significant (models 6 to 10). More-educated subjects are less tolerant of low offers. This result remains significant after all the insignificant variables are dropped from the model. This one variable explains 10 percent of the variation in MUO (model 9). According to this model, a one-standard-deviation increase in education is associated with a five-percentage-point increase in the MUO. The urban-born dummy variable is insignificant throughout.

DISCUSSION AND CONCLUSIONS

The results presented here indicate that Accra-based manufacturing employees are not selfish money-maximizers. The similarity in offers between the dictator and ultimatum games, combined with the strong modal offers at 50 percent despite the expected income-maximizing offer in the latter of only 30 percent, suggests that the ultimatum is of only minimal importance as a motivating force for player 1s in the ultimatum game. That this might indeed be the case was also suggested in interviews with key informants conducted a day or two after each experimental session. They indicated that the player 1s viewed both the dictator game and the ultimatum game as sharing problems in which they were weighing up their desire to keep the money for themselves, on the one hand, with their desire to be fair, on the other.

In contrast, player 1s in the third-party punishment game appeared far more focused on the financial implications of their own and others' decisions. In this case, key informants stated that, with no clear guidance as to when the fine would and would not be levied, player 1s felt the need to hold money back to ensure that they would end up with a reasonable amount for

TABLE 17.7 Explaining Variations in the Minimum Acceptable Offers in the Ultimatum Game

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Age	1.0866 (3.1831)	1.6112 (6.7878)								
Female (dummy)	-12.7239 (6.4251)	-10.8333 (7.9163)	-11.4185 (7.3517)							
Education	2.9530 (3.3769)	5.4591 (4.3460)	5.8604 (3.9128)	3.9094 (3.8228)						
Income	-6.2055 (3.5396)	-5.0680 (3.9768)	-5.3175 (3.7482)	-2.6338 (3.4313)	-1.2382 (3.1514)	-4.9684 (3.0979)				
Siblings		-1.2139 (3.9489)	-0.9626 (3.7180)	-3.8591 (3.3181)	-4.9133 (3.1571)					
Children		-2.9463 (6.4686)	-1.6503 (3.3897)	-2.4544 (3.4558)	-2.1657 (3.4477)	-2.3840 (3.3421)	-1.6413 (3.4124)			
Religious attendance		1.9537 (3.3481)	2.0733 (3.2348)	0.8697 (3.2399)	0.1945 (3.1750)	0.1322 (3.1147)	0.3766 (3.2073)	-0.0876 (3.0131)		
Tenure in workforce		-5.1407 (3.6883)	-5.0748 (3.5943)	-5.6545 (3.6878)	-5.4916 (3.6880)	-5.6835 (3.5906)	-7.1076 (3.5868) [^]	-7.6624 (3.3457)*	-7.6626 (3.2832)*	
Urban-born (dummy)		-16.6946 (8.4377) [^]	-17.7216 (7.0794)*	-16.4104 (7.2509)*	-13.5235 (6.6855) [^]	-13.9538 (6.4780)*	-13.9035 (6.6785)*	-13.8824 (6.5789)*	-13.8826 (6.4560)*	-7.3333 (6.2590)
Constant	9.7776 (17.0081)	10.0438 (22.6994)	12.9934 (18.5646)	20.8680 (18.4232)	36.6122 (10.1293)**	36.0856 (9.8618)**	27.0832 (8.3596)**	26.5222 (8.1546)**	26.3604 (5.8441)**	16.6667 (4.4258)**
Observations	30	30	30	30	30	30	30	30	30	30
R-squared	0.18	0.40	0.40	0.33	0.29	0.29	0.21	0.21	0.21	0.05
Adjusted R-squared	0.05	0.13	0.17	0.11	0.11	0.14	0.09	0.13	0.15	0.01

Source: Author's compilation based on author data.

Notes: Standard errors are in parentheses. The estimated coefficients in column 9 are not affected by dropping outliers, which increases the size and significance of the coefficients. The residuals relating to the regression in column 9 are normally distributed (skewness/kurtosis tests for normality). A Cook and Weisberg test indicates that there is some heteroscedasticity. However, controlling for this by adjusting the errors ex post does not significantly affect the results.

[^]significant at 10 percent level; *significant at 5 percent level; **significant at 1 percent level

TABLE 17.8 *Explaining Variations in the Maximum Acceptable Offers in the Ultimatum Game*

	(1)	(2)
Age	-0.3175 (3.6335)	6.6075 (8.4885)
Female (dummy)	7.6387 (7.3343)	7.6341 (9.8997)
Education	0.0800 (3.8547)	-0.7865 (5.4349)
Income	2.6288 (4.0405)	2.5641 (4.9731)
Siblings		-0.1011 (4.9383)
Children		-9.2074 (8.0894)
Religious attendance		2.3937 (4.1870)
Tenure in workforce		4.8429 (4.6125)
Urban-born (dummy)		8.7187 (10.5518)
Constant	81.0055 (19.4149)**	57.8093 (28.3868)
Observations	30	30
R-squared	0.05	0.16
Adjusted R-squared	-0.10	-0.22

Source: Author's compilation based on author data.

Notes: Standard errors are in parentheses. No diagnostics were performed on residuals.

**significant at 1 percent level

themselves. This suggests that the existence of the sanctioning player 3 may have crowded out the other-regarding preferences of player 1s. Recall, however, that the TPG sessions involved employees from two workplaces, whereas the DG and UG sessions involved employees from only one workplace. Hence, the difference in offers may indicate that other-regarding preferences were stronger when employees knew they were playing with colleagues.

The frequent rejections of low offers in the ultimatum game suggests that the Ghanaian employees had strong feelings about what constituted socially acceptable sharing behavior. Many of them were willing to punish those who acted unfairly, even when there was a cost associated with doing so. Similarly, the commonplace fining of low offers in the third-party punishment game can be taken as evidence that individuals were motivated to punish antisocial behavior even when that behavior was not directed toward themselves and when it was costly to punish.

That high offers also attracted rejections in the ultimatum game suggests that the Ghanaian employees were averse to inequality even when that inequality was in their own favor. However, the explanations given by key informants a day or two after the sessions indicated that subjects rationalized their rejections of low and high offers somewhat differently. Low offers were rejected because they were seen as unfair, while high offers were rejected because they raised suspicions and fears of repercussions. We have every reason to believe that the employees understood that play was anonymous. However, it seems that they found it difficult to act *as if* play was anonymous when they imagined their playing partners doing something they would not do themselves. Key informants who were also informed of the absence of fines in the case of high offers in the TPG found this to be entirely consistent with their explanation: player 3s had

TABLE 17.9 Explaining Variations in the Minimum Unpunished Offers in the Third-Party Punishment Game

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Age	3.7383 (2.8595)	7.0845 (4.9317)								
Female (dummy)	-1.4978 (6.2738)	0.0849 (7.2660)	0.9366 (7.3690)							
Education	5.4253 (3.3058)	5.5653 (4.0582)	6.3682 (4.0901)	6.2927 (3.9820)	5.3866 (3.8212)	6.4637 (3.5120) [^]	6.8796 (3.5114) [^]	4.8914 (2.8974) [^]	5.0006 (2.8396) [^]	4.9585 (2.8151) [^]
Income	-2.3521 (3.1378)	-2.8932 (3.3029)	-2.8424 (3.3607)	-2.7437 (3.2175)						
Siblings		4.4350 (3.5463)	2.7355 (3.4019)	2.6892 (3.3282)	2.4557 (3.3027)					
Children		-0.5236 (4.5749)	4.0990 (3.3091)	3.9511 (3.0483)	3.5442 (2.9979)	3.4517 (2.9750)				
Religious attendance		2.7040 (3.8678)	2.2520 (3.9227)	2.3876 (3.7144)	2.4911 (3.6965)	3.2254 (3.5380)	3.5521 (3.5447)			
Tenure in workforce		-4.5084 (3.7692)	-2.1628 (3.4569)	-1.9937 (3.1397)	-1.8310 (3.1205)	-1.3241 (3.0244)	-0.4621 (2.9466)	-0.9032 (2.9138)		
Urban-born (dummy)		-1.4701 (7.3646)	-1.7306 (7.4917)	-1.7653 (7.3670)	-2.8353 (7.2283)	-4.7831 (6.6911)	-5.6136 (6.6865)	-4.2092 (6.5384)	-3.9935 (6.4191)	
Constant	5.9435 (13.1302)	-10.0964 (18.3845)	6.2579 (14.6891)	6.7061 (14.0314)	6.8830 (13.9699)	10.3426 (13.0828)	12.0346 (13.0673)	19.0169 (11.0553) [^]	17.5662 (9.8894) [^]	14.7199 (8.6945) [^]
Observations	39	39	39	39	39	39	39	39	39	39
R-squared	0.14	0.24	0.18	0.18	0.16	0.15	0.12	0.09	0.09	0.08
Adjusted R-squared	0.03	2.3e ⁻³	-0.03	2.0e ⁻⁴	0.01	0.02	0.01	0.01	0.04	0.05

Source: Author's compilation based on author data.

Notes: Standard errors are in parentheses. The estimated coefficients in column 10 are not affected by dropping outliers, which increases the size and significance of the coefficients. The residuals relating to the regression in column 10 are free from heteroscedasticity (Cook and Weisberg test). However, they are subject to both skewness and kurtosis.
[^] significant at 10 percent level

no reason to fear repercussion because they were not accepting the offer on their own behalf, and they had no reason to worry about repercussions aimed at player 2 since that player was incapable of action under the rules of the game and therefore beyond reproach.

Before discussing the results that compare rural- and urban-born subjects' behavior, there are several other findings that are worthy of note. First, in every game, individuals with higher monetary incomes made higher offers. There are two possible explanations for this result. Either richer players, knowing that they were likely to be richer than their playing partners, were more generous, or being richer rendered the stake in the game less attractive and so richer subjects placed less weight on their desire to be self-serving compared to the weight they placed on acting fairly. Second, subjects with more siblings made higher offers in the dictator game and the third-party punishment game. One possible explanation for this result is that individuals who grew up among more siblings internalized norms of equitable sharing more readily. Third, subjects with more children made higher offers in the ultimatum game and third-party punishment game. Individuals engaged in socializing children in sharing norms (possibly in preparation for a labor market that rewards other-regarding behavioral tendencies) may themselves be more inclined, owing to dissonance reduction, to adhere to such norms. Fourth, subjects who were more religiously active made larger offers in the dictator game, possibly because their religion encouraged them to be other-regarding. Fifth, more-educated subjects undertook more fining of low offers in the third-party punishment game, possibly because education both reinforces ethical values and bestows a sense of authority or initiative. And sixth, subjects with longer tenure in the workplace accepted lower offers in the ultimatum game, possibly because they were aware of the relative income insecurity of others.

Finally, the results indicate that there may be a difference in behavior between rural- and urban-born manufacturing employees. In the ultimatum game, urban-born employees made higher offers even though they accepted lower offers than rural-born employees. It seems unlikely that sharing norms would have been internalized to a greater degree among the urban-born considering that, in the dictator game, where there is no sanctioning, behavior between the two subject pools was indistinguishable. In the UG, the difference in offers arises because some urban-born subjects increased their offers when faced with the threat of rejection. However, there may be another way of looking at the data. Figures 17.4 and 17.5 indicate that there was a relatively high degree of consistency between UG offers and rejections within the urban-born samples: over 80 percent of the offers were in the fully acceptable (to their kind) range of 40 to 50 percent of the stake, whereas only 43 percent of rural-born subjects made the fully acceptable (to their kind) offer of 50 percent. This could be taken as evidence that the rural-born were less certain about what sharing norm to apply. Combining this with the null finding that, in the other games, the behavior of the rural-born was indistinguishable from that of the urban-born, we might tentatively conclude that the rural-born are undergoing a period of secondary socialization into the norms that prevail in Accra.

However, this conclusion needs to be treated with considerable caution. The analysis suffers from several critical drawbacks. First, the small sample sizes have eroded the power of our statistical tests—that is, they have increased the likelihood that we are erroneously accepting null hypotheses. This possibility notwithstanding, the fact that a significant difference in behavior in the ultimatum game could be identified, despite the small sample sizes, suggests that we could learn a great deal from a more comprehensive study of behavioral variations between people who were born and raised in cities and people who have migrated to cities having been born and raised in rural settings. The second drawback that would need to be addressed in a more comprehensive study relates to the absence of information about how individuals who were born and then remained in rural areas might play the games. Such information would allow us to establish

whether the behavior of the rural-born individuals was consistent with their rural upbringing. Without this check, it is difficult to rule out two alternative explanations for the significant differences in behavior identified here: the observed variations in behavior between rural- and urban-born individuals could be due to the effect of migration rather than that of birthplace; or those who are less inclined to share fairly, while being more indignant when others do not share fairly with them, could be more likely to migrate. The only additional piece of evidence that can currently be brought to bear on these issues is that, when the urban-born dummy is replaced by a dummy variable that takes the value one for all migrants regardless of whether they are urban- or rural-born and zero otherwise, the latter is never significant. It is migrating from a rural area to Accra rather than migrating per se that is associated with a difference in behavior. Finally, in order to further explore the tentative conclusion that the rural-born in this study were being secondarily socialized into the sharing norms that prevailed in Accra, we would want to know how long the rural-urban migrants had been in the city. Then we could test the hypothesis that longer exposure to the norms of the place in which one currently lives leads to greater adherence to those norms.

NOTES

1. This theory might explain why, in this volume, we see more punishment of individuals behaving unfairly in the games in Africa, where climatic shocks are common, compared to the Amazon and Papua New Guinea, where they are not.
2. This was necessary due to problems recruiting subjects during the period of the World Cup soccer semifinals and finals.
3. In earlier runs of the analyses, I also included an index of individual asset holdings derived from a series of dummy variables indicating the ownership of particular assets and the number of people with whom the subject regularly shared meals. These variables are not directly comparable with the wealth measures and household size measures used elsewhere in this volume, did not significantly improve the fit of the regressions, and used up valuable degrees of freedom. So I have excluded them from the analyses presented here.
4. Note that in many sites these regressions included household size and wealth. Although data relating to each of these concepts were collected for the Ghanaian employees, they were not comparable to the data collected elsewhere and so have been excluded from the regression analyses. Because a large proportion of the employees did not live with their families, either lodging with others or sleeping in their place of work, household size was defined as the number of people with whom they usually ate an evening meal. Wealth was measured by an index generated from a series of dichotomous variables capturing ownership of various durables. When included in the regression analyses, neither of these variables is significant.
5. Additional regressions were run to test for problems of understanding and effects associated with the different research assistants conducting the interviews. None were found. There was no reason to expect contamination across sessions.

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