

Charity and Reciprocity

Can Reputation Explain Charity?

This chapter contains a simple reputational model of charity. That model not only applies to charity as usually defined but to voting participation, which we examine in the next chapter. Both are cases of socially approved behavior, and both involve costs to participants. A reputation for good deeds requires others to know about them. Relatively few people know about many donations, and fewer still about the voting participation of others. How, then, can charity or voting participation enhance reputation?

Glazer and Konrad (1996) provide evidence of the reputational character of charity when charitable contributions are known. They find that the proportions of donors who make anonymous contributions to charities is exceedingly small, between 0.2 and 1 percent. They also find that when charitable contributions are published by size category, contributions tend to be near the minimum amount necessary to get into a category. Consider the contributions to a fund established by the Cameron Clan at Carnegie Mellon University for 1988–89 and published as donations in the \$1,000–\$4,999 category. Of the eighty-two contributions, fifty-six (68 percent) gave exactly \$1,000. Another seventeen (21 percent) gave contributions somewhere between \$1,000 and \$1,100. In contrast only four gave between \$900 and \$1,000 and thus got published in the \$500–\$999 category. (The average size of the gift in the latter category was \$525.) Similarly, the 1993–94 Harvard Law School Fund reported that of those in the \$500–\$999 category, 93 percent gave exactly \$500.

Lying

Additional direct evidence that charity has a reputational effect is that people often lie about their charity. People would not lie about their charity unless they were concerned about what others think. For exam-

ple, if people gave to charity solely for altruistic reasons, there would be no return to them from others believing that their charitable contributions were larger than they actually were. Yet Parry and Crossley (1950) found that of a sample of 920, 34 percent said that they had given to the Community Chest but were not listed as donors in the Community Chest files. That is a lot of lying.

It is conceivable, of course, that the sole reason for lying in this case is to get smiles rather than frowns from others. But as discussed in chapter 2, those smiles must be more important when they are associated with other favorable consequences. As the analysis of this chapter shows, it makes sense for people to do more than smile at charitable donors. They will behave in a more trusting manner toward them. Indeed, one suspects that the smiles themselves are produced by a belief in the greater trustworthiness of donors. Both the emotional response to an act and concern with that emotional response will be at least somewhat related to the nonemotional consequences of each. As discussed in chapter 2, in modern societies the important nonemotional payoff to what others think is in acquiring reciprocity partners. In consequence, lying does provide evidence that charity yields a reputational return in terms of more or better reciprocity partners.

In the Parry and Crossley study there also were a lot of people, 31 percent, who did not give to Community Chest and who admitted that fact. This latter result suggests a cost to lying even under circumstances, such as those in the study, where the probability of being unmasked is virtually zero. The source of that cost is conscience, discussed in chapter 2. Can anybody doubt that there is a social rule, “Thou shalt not lie,” and that conscience is the internalization of such rules?

Furthermore, the standard catchall explanation for any prosocial activity, altruism, will not work here. Just as altruism cannot explain a return to lying, it cannot explain not lying when there is a return to lying. As discussed in chapter 2, altruists, if they exist, must be limited altruists, ones who in valuing the utility of others value their own utility more. They, therefore, would not engage in any activity that harmed themselves more than it benefited others. But seemingly, not lying about not contributing to charity harms the would-be liar more than it benefits his listener.

The costs of lying have been documented. The whole basis for the polygraph test is the visible discomfort—sweat, and so forth—generated by lying.

If there were no costs of lying, one could explain this combination of

liars and nonliars by hypothesizing that there also was no return to lying. People would, then, be indifferent between lying and nonlying, and some random process would determine their behavior. But this story is contradicted by the other obvious finding in the Parry and Crossley study. There were no cases of giving to charity and then lying about it. On the “no return, no cost” theory of lying, there should be little or no difference between the lying behavior of charitable donors and nondonors. The totality of Parry and Crossley’s results can only be explained by some kind of reputational gain from charity and a cost to lying.

There is similar evidence on lying about voting participation, another behavior with individual costs. Three different methods have been used to estimate the amount of this lying, with substantially different results. The first technique compared actual voter participation to self-reported voter participation of the same group of voters. There was some uncertainty associated with this procedure because it was impossible to determine whether a small group of the self-reported voters actually voted. (This was because of lack of cooperation on the part of local election officials.) Ignoring that group, Harbaugh (1996), using data from Miller (1989), estimated that the percentage of nonvoters who claimed they voted in the 1988 general election was 25 percent with a sample size of seven hundred nonvoters. If the group whose voting was undeterminable were counted as nonvoters, that percentage went up to 28.4 percent. Counting that same group as nonvoters, Silver, Anderson, and Abramson (1986) got lying rates for nonvoters between 27.6 percent and 31.4 percent for the 1964, 1978, and 1980 presidential elections and 22.6 percent for the nonpresidential elections of 1976.

In contrast, Bernstein, Chadha, and Montjoy (2001) estimated the lying rate for each of the presidential elections between 1972 and 1996 to vary between 38 percent and 45 percent. They used the percentage of respondents who reported voting from the National Election Studies (also used by Harbaugh and by Silver, Anderson, and Abramson), comparing this percentage to the percentage of the total age-eligible population actually voting. This procedure has the advantage of avoiding determining whether the small group of uncertain reported voters actually voted. However, there is a real problem with the Bernstein, Chadha, and Montjoy procedure that is produced by a peculiarity of the National Election Studies. The same people who are asked after the election whether they voted are asked before the election whether they intend to vote, and they know in advance of voting that they are likely to be asked afterward whether they voted. Either case produces an

increase in the expected cost of lying if one does not vote and says that one has either voted or will vote. In these cases the lie is certainly required, while in other cases it is less certain at the time of voting whether one will be asked whether one has voted or has been asked whether one will vote. This extra expected cost of lying can be avoided by actually voting. This cost of lying not only affects verbal behavior, but changes voting behavior so that lies are not required to avoid embarrassment. In 1988, 60 percent of the respondents to the National Election Study actually voted as compared to a 50 percent national voting rate. Later, in chapter 8, we will use this property of lies.

There is yet one more technique to estimate the lying percentage for nonvoters: to compare the actual total percentage of nonvoters to the percentage of people who are asked after the fact whether they have voted or not. For the four presidential elections between 1976 and 1988 the percentage of lying nonvoters as determined by this technique varied between 11.7 and 12.9 percent (U.S. Census 1992). There is an obvious explanation for the difference between these results and produced by the other methods. The culprit is the same peculiarity of the National Election Studies noted earlier. In the latter those who were asked whether they voted or not were already asked whether they intended to vote. This not only increases their actual voting rates, but it increases the number of respondents who lie about having voted. Initially, saying that one intended to vote might very well increase the embarrassment of admitting later to the same organization that one did not vote. For the census data 7.4 percent of the voting-age population lied about voting in 1988, while for the National Election Studies data, 10 percent of that population lied. Both the increase in nonvoters and the decrease in liars for the census data compared to the National Election Studies imply that the ratio of the latter to the former will be smaller for the census data.

If this peculiarity of the National Election Studies is the explanation for the difference between it and the census results, then the census results provide a more accurate estimate of the amount of lying in the National Opinion Research Center (NORC) data set we use. Just as in the census case, NORC only asks voters after the fact whether they voted, and voters cannot anticipate when they vote that they will be asked. In consequence, neither their vote nor their statement about whether they voted will be influenced by having previously been asked whether they expect to vote.

Harbaugh (1996) proposes an explanation for these results that is similar to our own. The incentive to vote, he believes, is the praise one

can obtain from others. That is also the incentive for falsely claiming that one voted.

Even with the lies, statements about voter participation and charitable contributions can provide an alternative route to information. People do not have to observe actual behavior. They can place a limited amount of credence in people's assertions about their behavior. Lying about charity or voter participation can only have reputational value to the liar if others believe it has reputational value. That belief is sustainable only if the set of people, liars and nonliars, who say they voted or gave to charity are on average more trustworthy than the truth tellers who did not vote or give to charity. But even with this expansion of the relevant information, there will probably still be many cases where one's charitable contributions and voting participation are known at most to a very limited set of people.

Conscience and Reputation Variables

We, however, do not wish to confine our interest to the charity and voter participation of which people are aware. We test our reputation theory against data on all individual charity and all voter participation. How can a reputation theory be applicable to these broader categories? Reputations cannot be increased by anonymous behavior. We maintain, however, that the same variables that are relevant in determining known charity and voter participation can also affect anonymous versions of these activities, through their impact on conscience, the driving force behind anonymous good deeds.

We do not have the same confidence in this proposition that we have in the applicability of the reputation model for known good deeds. The simple self-interest model that works in the latter case does not work for conscience, by definition, and we are unaware of any systematic attempt to determine the properties of conscience. We either try to understand, at least to some extent, how conscience works or abandon all efforts to explain anonymous good deeds. An alternative is to simply ignore anonymous charity while purportedly predicting total charity, as does Posner (2000).

There are two dimensions to conscience: (1) the social rules that are internalized by a conscience, (2) the importance attached to the social rules or how good or bad a person feels if he does or does not follow those rules. There are two obvious processes that help determine how individuals will vary by those dimensions: positive and negative reinforcement and indoctrination.

For the first, the greater the cost one has suffered in violating a social rule or the greater the rewards one has experienced in following a social rule in the past, the greater the internalized desire to follow the social rules now. But these costs and returns will be higher the more one gained from reciprocity in the past. Conscience produces a lagged response to reputational variables. But for most of those variables we only know current values, which, however, are positively related to past values. In consequence, conscience, as well as reputation, will produce an empirical relationship between those current reputational variables and prosocial behavior.

This process would be quite likely to work for a specific social rule under specific circumstances. “Do not lie when one is likely to be caught.” But we also expect it to be generalized, perhaps with less intensity, to lying in general or even to following social rules in general. To the extent that reinforcement produces this response of following social rules in general, we expect reputational variables to successfully predict behavior that conforms to the social rules, even under circumstances of limited information. Even when others do not know of one’s behavior, reputational variables can explain prosocial rule behavior.

Wilson (1993) shows that psychopaths, who obviously have no conscience when it comes to the well-being of others, also have little concern with the future. As discussed in chapter 2, social rules encourage concern with the future as well as concern about others. That conscience about such disparate social rules vary together suggests that following social rules in one context increases the probability that one will follow other social rules.

The other determinant of conscience, indoctrination, is produced by either the behavior or language of one’s parents and close associates. The more one’s parents, say, follow the social rules and admonish one to follow those rules, the greater the conscience return to that person in so doing. One predictor of the importance of a conscience to a person is the frequency of such parental activity. Parents follow the social rules more frequently the greater their reputation return in so doing and the more important conscience to them. The latter in turn depends in part upon the behavior of their parents, and so forth.

There are several important consequences. First, a conscience is in part the result of parental reputational signaling in the past. Since, however, there is a positive relationship between parental and one’s own characteristics, conscience leads to the same predictions about the impact of one’s own characteristics on charitable contributions when parental characteristics are unspecified or incompletely specified.

Second, a conscience has a more general component to it than reputational signaling itself. When a parent follows a social rule, the child learns more than a particular social rule. She also learns that it is important to follow social rules. In consequence, the greater the reputational return to parents in following social rules where others can observe that behavior, the higher the probability that the child will observe not only that rule, but rules for which compliance is difficult to observe. In particular, we would predict that parents who have high reputational returns are more likely to have children who give to charity even when those gifts are not observed.

Third, this parental role in conscience provides a test of the effect of reputational variables on conscience. If conscience increases with parental reputational signaling, then charity and voting participation should increase with an increase in any parental reputational variable. As we see later, the model developed in this chapter implies that education is a reputational variable. In the voting participation regressions of chapter 4 we do find a positive relationship of voting participation to the only parental reputational variables for which there is data—father's and mother's education. (For the charity regressions parental variables are not available.)

Wilson (1993) provides supporting evidence of both the proposition that parents are crucial in producing consciences and that part of that production is nonspecific, that is, parents produce a general sense of duty in addition to targeting it to particular activities. Those who sheltered Jews against the Nazi's were close to parents who emphasized the importance of dependability, self-reliance, and caring for others, though the care they had in mind could not have been specifically sheltering Jews from the Holocaust.

That conscience usually applies to all the social rules has another important consequence. In this chapter we show that if charity is simply motivated by self-interest, it will pay others to treat charity as a signal for trustworthiness. But we also believe that charity motivated wholly or in part by conscience generates a signal to the same effect. Indeed, the possession of a conscience increases the willingness of others to reciprocate because they need not monitor the reciprocity as closely. A conscience increases the probability that a person will reciprocate even if one cannot find out whether they have done so.

A curious problem is produced because conscience motivated charity increases a person's trustworthiness more than does charity designed explicitly to so signal. Those who give for reputational reasons will want to disguise their reason for so doing. Hence, such people

usually do not talk about their charity because talk would be reputation- rather than conscience-driven. At the same time reputational signalers will want others to know that they have contributed. The solution is for beneficiaries to do the publicity either by publishing a list of contributors or by selecting neighbors or coworkers as solicitors.

This limits considerably the amount of information coming to others from a person's own statements about his charity. We saw earlier that this was useful information. There seems to be no similar social restriction on people revealing that they voted. Indeed, that must be virtually the only way others find out about voting participation. Perhaps that is one of the reasons for this relative lack of modesty for voter participation. Blowing one's own horn is the only way it will be blown.

The Miller (1989) study of lies in voter participation provides a test of a sort for the relationship of reputational variables to conscience. The reputational return from voting and lying about voting are the same, assuming that the probability of the lie's being detected is virtually zero, as it is in surveys by strangers. The two behaviors differ in three respects: the cost of voting, the conscience returns from actually voting, and the conscience costs of lying. Holding the first cost constant, any increase in the conscience returns from voting and in the conscience costs of lying increases the probability of voting. If the proportion of actual votes to lies about votes increases with a variable, conscience increases with that variable. Miller finds that the proportion of those who actually voted to those who falsely claimed that they voted is increased by increases in education, which in turn is positively related to the returns to reputation. Hence, conscience increases with that reputational variable.

The problem with this test is that education could have effects on voting participation other than through reputation. That problem could be mitigated if this same test could be run on all of the reputational variables that we later identify. Consistent results for all of these variables would, then, be a convincing test. Unfortunately, we do not have the data for this more rigorous testing. What we have provided might be regarded more as an agenda for a test, rather than a test itself. Still the evidence is at least mildly encouraging.

Bernstein, Chadha, and Montjoy (2001) provide data that permit another test for the impact of reputational variables on conscience.¹ They compare regressions explaining respectively actual and self-reported voting participation by variables that are either directly or indirectly reputational variables. For most reputational variables one

cannot predict the sign of that difference because of the conflict of two forces. On the one hand, the cost of lying increases with an increase in a reputational variable, since lying is a violation of the social rules. On the other hand, the reputational return from lying increases, since the returns from others believing that one has voted increase. There is, however, a set of reputational variables that should have no effect on the cost of lying: those variables that are specific to the reputation associated with voting participation but not related to reputational returns from other behavior including lying. Bernstein, Chadha, and Montjoy (2001) provide three such variables: (1) partisanship, whether one were a strong Democrat or Republican compared to being a weak partisan or independent, (2) contact, whether anybody has urged one to vote or not, (3) non-Deep South, the Deep South has been a region where there is and has been a lower percentage of closely contested general elections (lags play a significant role in the behavior about which we are concerned). All of these variables increase or decrease the reputational return from voting. They all affect the interest of one's associates in whether one voted or not. But there is no obvious reason why a partisan, for example, should have a greater cost of lying. Hence, all these variables should have a bigger coefficient for reported votes than for actual votes. And they do: (1) partisanship, .049; (2) contact, .103; (3) non-Deep South, .175.

Since the reputational cost of lying operates in the direction opposite from the reputational returns from doing so, reputational variables that affect the cost of lying as well as the returns from doing so should have either smaller differences in coefficients for reported and actual voting than the three coefficients just discussed or even negative differences between those coefficients. Bernstein, Chadha, and Montjoy (2001) provide four such variables: (1) education, since those with greater education discount the future less, and this discount rate is an important determinant of reputational returns; (2) church attendance, since as discussed later, number of friends increases with church attendance; (3) nonblacks; (4) non-Hispanics, since Bernstein, Chadha, and Montjoy do not include in their analysis important reputational variables such as income and occupation that are negatively correlated with both blacks and Hispanics.² All of these variables do, indeed, have smaller differences measured algebraically than do any of the three previous variables: (1) education, .039; (2) church attendance, .011; (3) nonblack, $-.175$; (4) non-Hispanic, $-.071$. The probability of all of these coefficients being smaller than the three previous coefficients by chance is .028. So it does appear that the conscience costs of lying

are significantly affected by reputational variables that are not focused on a single activity such as voting participation. This is some evidence that reputational variables do increase the role of conscience.

Reputation seeking and conscience have more in common than the role of reputational variables in explaining their respective intensities. On both counts one follows the social rules. On both counts one is not *directly* concerned with the consequences to others. The relevant consequences of one's actions are the consequences to oneself—one's reputation for, or one's self-assessment of, trustworthiness. To keep things simple in the theory that follows, we ignore conscience and focus exclusively on the direct reputational returns to prosocial rule behavior. But one must remember that that theory works empirically as well as it does because conscience yields similar predictions. Even our empirical use of conscience is limited—largely confined to our discussions of lying behavior and lagged variables.

A Comparison of Approaches

We assume that a person gives to charity to signal that he is trustworthy. Ours is not the first analysis to focus on the signaling characteristics of charity. Glazer and Konrad (1996) developed a signaling theory of charity, where a person's income is that which is signaled. They present substantial evidence for signaling, but none for income's referent role beyond the rather uninteresting positive correlation of charity and income. Income's referent role is questionable for the bulk of charity. For charity with localized collectors the people who know one's charity will know one's standard kinds of conspicuous consumption, such as house values, that are much more highly correlated with income than the specific charitable contributions of which they are aware. If charity signals, it has to signal something for which more conspicuous, cheaper alternatives are not available. Trustworthiness qualifies as such a referent.

Most people give to more than one charity, and, in consequence, there will be few who know all of a person's charitable contributions. The relationship of a family's total charity to its income is far from perfect. The relationship of a specific contribution to that income will be orders of magnitude less. That is not a problem if trustworthiness is the referent. People are interested not in a person's general trustworthiness, but in how much she can be trusted in a relationship with them. A specific charity provides information to specific people no matter how small the relationship between that specific charity and the total.

There is a common view that charity is responsive to social pressure (Morgan 1977). The analysis of signaling has advantages over a more general social pressure model. (1) Signaling explains why people care enough to change their behavior toward you if you give to charity. (2) Our signaling model has more testable implications than an unspecified social pressure model.

Define trustworthiness as the probability that a person will reciprocate a favor. As we shall see, this probability is increased by the person's previously doing a favor. Why should a person resort to charity to signal trustworthiness when he could do so by directly doing another person a favor? There are two reasons why charity will *sometimes* be the preferred signal. (1) Charity often signals trustworthiness to a larger group of people than does a favor for a single person because the latter could be motivated by a special relationship not relevant to others. (2) Doing favors for somebody is not always a viable option. People want favors when they want them and from whom they want them. Receiving a favor has a cost in the form of either having to reciprocate or developing a reputation as a moocher. In contrast, charity places no obligations on the person receiving the information about one's trustworthiness. Hence charity is always an available option to increase one's trustworthiness.

Reciprocity

Given our hypothesis, one cannot understand charity unless one understands its referent: trustworthiness in reciprocal relationships. Nearly all human interactions involve some degree of trust. Even transactions in perfectly competitive markets provide opportunities for fraud and opportunism, and economists have begun to recognize that trust is important in such relationships. Trust is especially important in nonmarket transactions with a time dimension. John might need Ivan's help today, but Ivan might want John's help tomorrow. To get any return from his favor Ivan must trust John.

Why should Ivan help John in the first place? Doing somebody a favor both increases the probability that (1) he will do you a favor and (2) that others will do so. Now, we focus on only the first by assuming that nobody else knows about the favor. We look at the second in the charity case, since it is the basis of returns to that activity.

We develop a mathematical model of reciprocity in appendix 1. The essence of the model and its conclusions are straightforward. The most crucial characteristic of the reciprocity we examine is nonsimultaneity.

Favors are given in one period with the hope, but not the guarantee, that they will be reciprocated in the next period. The game is started by somebody asking another person chosen at random for a favor. People know the relevant characteristics of the distribution of others, but they do not know individual characteristics.

Though reciprocity is a relationship between two players, we assume that each player has many potential partners, so that no player will continue dealing with another player if he expects to do better by choosing another potential partner at random. This assumption accords with reality, and it vastly simplifies the analysis. Maximizing behavior when one is forced to deal either with a single potential partner or not deal at all is quite complicated. How many refusals to reciprocate on the part of a potential partner should lead one to refuse to do a favor oneself?

An individual can choose between several alternative “trustworthiness categories” listed from the lowest to the highest. (There are some other options that we do not include because they never will be chosen.) He can be a nonplayer, that is, he neither asks for nor does a favor. He can be a moocher, that is, he asks for a favor, but he never does a favor either in reciprocation or otherwise. He can be a reciprocator, that is, he reciprocates favors done by others but will not do a favor for somebody who has not previously done him one. Finally, he can be a favor initiator, one who both reciprocates favors done by others and is willing to do favors to those who have not previously done him a favor.

In terms of our model, these choices do not depend upon variation in moral superiority person to person. (Our model ignores the role of conscience.) Which category a person chooses depends both on individual characteristics and these same characteristics for the group upon whom he is depending for favors. These characteristics are the gain from receiving a favor (g), the cost of giving a favor (c), and the rate of time preference (r). The relevance of the first two characteristics for individual decisions is obvious. The rate of time preference is important because of the nonsimultaneity between favors received and favors given. One is more likely to give a favor now in the hopes of receiving a favor later the less one discounts the future.

These characteristics for the group are also important to the individual because his decision to do somebody a favor depends upon the probability of that favor being reciprocated. That probability in turn is a function of the individual characteristics that determine whether somebody will be a moocher or not.

There is an obvious result, but one upon which all our other results depend. Suppose Ivan does John a favor and asks John to reciprocate the favor in the next period, but John refuses. John is a moocher. If John were to ask Ivan for a favor in the subsequent period, Ivan would refuse not because Ivan is indignant, though indignant he well might be. The individual characteristics that made John a moocher in the previous period would be likely to make him a moocher in subsequent periods. Ivan can do better than depend upon John for future favors. He can ask at random for a favor and have a higher probability of receiving one.

John, of course, knows better than to ask Ivan for a favor. He will ask somebody else. Since in our model his reputation except to Ivan is unsullied, John has as good a chance of receiving a favor as anybody else asking a new person for a favor.

But there still is a cost to being a moocher. It is this cost that leads some self-interested people not to mooch. No special virtue is required to be trustworthy. John has a lower probability of a favorable response from others than John would have had with Ivan if John had previously reciprocated Ivan's favor. In the latter case, Ivan would with certainty continue granting favors to John, assuming that Ivan's characteristics had not changed in the meantime. Ivan was willing to do John a favor when he was not sure whether John was a moocher or not. He must certainly be willing to do him a favor now that he has detected that John does not mooch. Once a reciprocity partnership has been established, it persists.

This same pattern of behavior also explains why somebody might be a favor initiator rather than simply a reciprocator in spite of the higher costs of the former. The higher costs are obvious. The favor initiator is taking a greater chance that he is doing a favor to a moocher. The reciprocator, in contrast, knows with whom he is dealing. He can do a favor with confidence that it will be reciprocated. But that lower cost means that there will be some people who are reciprocators in addition to those who are favor initiators. A favor initiator will have his favor reciprocated if his potential partner is either a favor initiator or a reciprocator. A reciprocator will get a favor only if he is lucky enough to ask a favor initiator. In consequence, the probability of getting a favor is higher for a favor initiator than a reciprocator before a partnership has been established. After a partnership has been formed, it makes no difference whether a person was initially a favor initiator or a reciprocator.

To see the essential result from our model, allow individual gains from a favor (g) to vary among individuals and treat the cost of giving

a favor (c) and the rate of time preference (r) as constant for the group. High- g individuals will be favor initiators; the next highest g 's will characterize reciprocators; the g of moochers will be lower but positive; and people will be nonplayers if their g is less than 0. An individual in deciding her strategy compares the discounted value of costs and gains. But since costs per favor and discount rates are constant, individuals are only differentiated by gains per favor. Since the returns to being in a higher "trustworthiness" category are increases in the probability of receiving a favor, those individuals with more to gain per favor will choose a higher "trustworthiness" category, holding constant the other parameters. Under similar circumstances those with lower costs and with lower discount rates will also choose higher "trustworthiness" categories.

Charity: Theory

Suppose there were a way to advertise at some cost that a person was either a favor initiator or a reciprocator. Favor initiators and reciprocators gain more from reciprocity than do moochers. Hence, they can afford to engage in more costly advertising than can moochers to convince others that they are what they say they are. This kind of advertising is available: charity. In other words, the level of charity can be used as a signal of one's trustworthiness. As has been well established in the literature (Spence 1973), for example, people can signal even when they are not aware that they are so doing. All that is required in our case is that charity givers are aware that people are more willing to be reciprocity partners with them the more they contribute to charity and that others are aware that they get better reciprocity partners from charity givers than from others. In other words people only have to be aware of the returns to them that are a function of their own behavior. In our case the results will be exactly the same whether people know what governs others' responses or not.³

Favors to John are not the only way that Ivan's reputation can increase to John, though we define Ivan's reputation to John as John's assessment of the probability that Ivan will behave to benefit John in response to John's helping Ivan. Anything that Ivan does that increases this probability increases his reputation to John. In appendix 2 we show that charity has that effect on one's reputation.

There are two possible signaling equilibria. We look at only one of these: where others believe that charity of a given amount C is being used as a signal for trustworthiness. We then show in our simple model

that that belief is confirmed only for the appropriate C . The other equilibrium is where nobody believes that charity is a signal. Under those circumstances nobody has an incentive to use it as such. There is no equilibrium where some believe that charity signals and some do not so believe. One or another of those two groups must be wrong.

Why should the belief in charity as a signal arise in the first place? There is a natural evolution that could generate this belief. Start with the simple reciprocity that was previously analyzed. Now introduce others observing these reciprocities. It is reasonable to suppose that these others would prefer to do a favor for somebody who has done a favor to a third person compared to somebody who has been a moocher. The mathematics of the appendices bear that supposition out. Hence, being a favor initiator or a reciprocator has reputational returns beyond the returns in any particular relationship.

For two reasons, these reputational returns are higher the lower the probability that favors will be reciprocated within a given relationship. First, within the specific relationship a favor giver requires a higher gain from reciprocity in order to compensate for the greater risk of mooching from others. This greater gain makes him a more likely reciprocator to others. Second, the lower the direct expected gain from reciprocity, the greater the reputational gain must be to justify favor initiating. As we shall see, the greater the reputational gains one gets, the more reliable a person will be as a reciprocity partner to others. If one adopts a strategy of favor initiating with those who almost necessarily will not return it and who everybody knows are almost necessarily unable to do so, one can maximize one's reputational returns from favor initiating. Favors to the destitute are manifestations of such a strategy, and such favors are the primordial form of charity, which is nothing but favor giving where lack of reciprocating returns is a certainty.

Apart from this natural evolution from reciprocity to charity, there is another reason why we expect to see the signaling equilibrium with positive charity in contrast to a signaling equilibrium where charity is zero because others do not believe that charity signals trustworthiness. Charity contributes to group survival. We shall argue in detail in chapter 6 that redistribution of income to the poor increases group survival. Charity is one way to get that redistribution. Furthermore, as we shall immediately see, charity as a signal separates reciprocators from moochers. In consequence, people will be more likely to initiate favors. More reciprocation can take place with a resulting increase in group survival.

In appendix 2 we develop the charity model. We assume that people who are asked to give favors know with certainty the amount of charity that the would-be favor recipient or initiator has contributed. We also assume that individuals vary only in one of the three characteristics entering their decisions, their gain per favor, g , their costs per favor, c , or their discount rate, r .

Under those circumstances there is a unique amount of charity, C , that will just separate moochers from everybody else if others believe that that charity so separates. That charity level will be what the moocher can gain from reciprocity if people thought he was a reciprocator before he showed his true colors by not reciprocating. No moocher has an incentive to hide his true colors at C . Since the moocher gains nothing from a lower price, he gives nothing to charity.

However, reciprocators and favor initiators do have an incentive to pay C so that they will not be considered moochers. This is where the results of the previous section come in. Both favor-initiators and reciprocators gain more from reciprocation than do moochers, so they are willing to pay a higher price than moochers to gain access to reciprocity; that higher price is C . C will, indeed, be required to participate in reciprocity. Nobody will do a favor to somebody they are sure is a moocher. Since all other favor initiators and reciprocators pay C , a would-be reciprocator will not be selected unless he pays C to charity.

In this charity model the probability of a person's reciprocating a favor when he receives one initially from a favor initiator is dramatically different from that probability given simple reciprocity. Since the favor initiator will only give favors to favor initiators or reciprocators given charity, he is certain that his favor will be reciprocated. That probability is now 1, the same probability that a reciprocator faces of having his favor reciprocated by a favor initiator in the subsequent period. Since bygones are bygones, reciprocators act as if they were favor initiators when it is their turn to give a favor. This means that the minimum gain required to be a favor initiator will be the same as the minimum gain required to be a reciprocator, as verified by the equations in appendix 2. All reciprocators will also be favor initiators.

The amount of charity, C , given by each reciprocator or favor initiator is independent of the mix of favor initiators, reciprocators, non-players, and moochers in the group. In the reciprocity model previously discussed individual behavior depends very much on that mix. The reason for this difference is easy to see. In reciprocity that mix enters into determining two key probabilities: the probability of receiving a favor if one asks and the probability of having a favor that one

gives reciprocated. In the simple charity model, one only asks favors from favor initiators or reciprocators and one only gives favors to that set. Hence moochers and nonplayers are irrelevant. Since all reciprocators are favor initiators in the simple charity model, that distinction is also irrelevant. The only group characteristic that enters into individual decisions is the proportion of partnerless favor initiators compared to the total number of favor initiators. (In our model the only favor initiators who will respond favorably to a request for a favor are those who do not already have a partner.) That proportion does not depend upon the “trustworthiness” mix of the group. In the steady state it is determined simply by the rate of entry and exit out of the group.

While the charity per reciprocator does not depend on the “trustworthiness” mix, total charitable contributions from the group do. These total contributions will be C times the number of favor initiators or reciprocators in the group. Group charitable contributions should increase proportionately to an increase in the proportion of favor initiators or reciprocators in the group. We expect that anything that increases the mean gain from a favor, or reduces the costs of granting a favor, or reduces the rate of time preference should increase the proportion of favor initiators or reciprocators. In consequence, it should increase the amount of charitable contributions from a group.

There is one serious problem with the simple charity model whose results we have summarized. That model works whether individuals vary by gains per favor, costs per favor, or rates of time preference as long as only one of those characteristics varies. When individuals within a group vary by two or more of these characteristics, the charity model becomes quite complicated. For one thing, as we show in appendix 2, there is no level of charity such that all reciprocators will pay and no moochers will do so. Because the appropriate model is much more complicated, we will continue to work with the simple charity model. However, we will not use any of the implications obviously dependent upon charity acting as a perfect screen.

These models of reciprocity and charity can be applied with slight modifications to the case of trust in the employer-employee relationship given imperfect monitoring of the employee’s behavior. The employee can do the employer a favor by behaving in a responsible manner, that is, how he would behave if he were perfectly monitored, even though he is not fully compensated for that behavior initially. The employer can do the employee a favor by fully compensating him for trusted behavior before he demonstrates his trustworthiness.

There are several differences between this case and the simple reci-

reciprocity model. In the latter case the behavioral choices are discrete and successful partners want favors at different times. In contrast, both compensation and the trustworthy employee behavior are continuous rather than periodic events. We can approximate by converting this continuous case to a discontinuous case with a single period equal to the expected time required to determine whether the employee has or has not been trustworthy. Another difference: in the simple reciprocity model two potential partners want favors at different times, so it is clear who will give the favor first. In the employer-employee case both would like to be the first recipient of the favor. Which comes first, the compensation or the behavior, will be determined by the magnitude of two conflicting processes.⁴ Whichever dominates, the firm has an incentive to hire trustworthy employees, and, hence, to screen by their charitable contributions. In this case, the source of worker variation unknown to the firm will be variation in their time preferences, since both the gains and costs facing prospective workers for the same job is the same, for they would all face the same compensation package and temptations. There is evidence that human resource managers do, indeed, try to determine the trustworthiness of their employees, and to do so seek to determine their “service orientation” and their orientation toward “social behavior” (Murphy and Luther 1997)

Charity: Tests

Throughout this book we test our theory with regressions. Sometimes the theory produces a unique testable prediction. Sometimes, however, an additional specification is required to generate a prediction. Obviously, confidence in the latter tests depends upon confidence in the specifications. We try whenever possible to defend the specifications on the grounds of either reasonableness or with relevant evidence beyond our own regression results. Occasionally, neither defense is totally convincing, and so no real test of the theory results in these cases. But even here, finding the specifications that would make theory consistent with evidence provides an opportunity for future tests of the theory.

As in much of economic research, the variables we use are determined by data availability rather than variables that precisely measure our theoretical constructs. Often, this means that there are alternative explanations of the variables’ behavior. When possible we examine alternative hypotheses. Also, the large number of quite different tests throughout this book make it unlikely that our results can be explained by these alternative hypotheses.

At the beginning of this chapter we used lying about charity as an important bit of evidence in favor of our reputational theory of charity. But lying creates problems with our tests of that theory. Our survey data combines actual contributions to charity and lies about those contributions. This is a common problem in nearly all studies of charitable donations. For the most part they are based on either survey data or income tax data. Lying problems exist for income tax returns as well as surveys.

Still, we cannot deny that lying about charity does pollute our data. Reputational needs can cause one to lie about giving as well as actually giving. However, we would expect the latter to be more sensitive to reputation than the former. The costs of lying also go up with a concern with reputation, as do the conscience returns from actually contributing. In consequence, we would expect lies about charity to be less sensitive to reputation variables than actual behavior. Therefore, it would be hard to attribute all of the connection between reputational variables and self-reported charity to lies. Still, we cannot deny that lying about charity does pollute our data. Reputational needs can cause one to lie about giving as well as actually giving.

There are two sets of testable implications that can be derived from the model of charity signaling trust: (1) those from signaling in general, and (2) those specific to the reciprocity model. In the latter we focus on time preference. The greater the rate of time preference for a group, the less charitable contributions from that group. We look at several variables related to the rate of time preference: occupation, education, and assets. Those occupations with steeper age-earnings profiles select individuals with lower time preferences, since more of their returns are delayed. Those with more education are also selected in part by low rates of time preferences. High assets mean that a person is more likely to be a lender, who faces lower interest rates at the margin. Assets, of course, are part of the budget constraint, but this does not explain the volunteer labor, asset relationship.

Now, examine the implications of signaling in general. One of the most important properties of most charity is the small number of people who know about any given charitable contribution. A requirement for signaling through a given charitable contribution is that a potential reciprocity partner will be aware of the contribution. On that account charitable contributions should increase with increases in the number of people whom a person knows well enough for them to be aware of his contributions. But people whom one knows that well might already have had enough dealings with the person to have some idea about his

trustworthiness. Why do they need a charity signal? Furthermore, people who know lots of other people are more likely to have enough reciprocity partners. Why do they need to signal? The answers to both questions are similar.

Even if one is sure that a person is not a moocher for a low-cost reciprocity, one might be uncertain for more expensive interchanges. Even if one has a partner for low-cost reciprocities, there is interest in convincing that partner and others that one can be trusted in high-cost reciprocities. There is no reason to suspect that most people are more interested in convincing strangers that they are trustworthy rather than acquaintances and partners. In any case, most charity can only be used as a signal for people whom one already knows. So it would not be surprising if the more people one knows, the more one contributes to charity. But the process discussed in the previous paragraph could conceivably generate the opposite sign.

We can rule out, however, another process that could produce a negative relationship between number of associates' variables and charity. Suppose that, indeed, people were more trustworthy the higher the value of a variable positively related to number of associates, say church attendance. Then church attendance can itself be used as a signal that a person is trustworthy. Seemingly, this signal could be used as a substitute for charity. As a result, charity would be negatively related to church attendance.

But that is not the way it works. Suppose that everybody knows others' church attendance. Then charity only signals trustworthiness conditional on church attendance. Whether people with higher church attendance use more charity in their signaling boils down to exactly the same issue as that already addressed without considering church attendance as a substitute signal. Will the possible diminishing returns to signaling trustworthiness be sufficiently compensated by the fact that one's fellow congregants know more about whether one has given to some charities? No new issue is raised by church attendance as a substitute signal. Of course, the more imperfect knowledge of others' church attendance, the less church attendance will serve as a substitute signal for charity.

Even though there is some uncertainty about the sign of the relationship between number of associates and charity, we are still able to get one unambiguous prediction. There are several variables positively related to the number of close associates. They should have similar directional effects on charity.

The proxies we use for number of close associates are church atten-

dance, how long one has lived in a neighborhood, home ownership, marital status, and income. (1) Church attendance: Obviously, the social life of a community is often built around the church. (2) Similarly, one knows more people in a neighborhood, who are more likely to know one's charitable contributions, the longer one has been in a neighborhood. (3) A homeowner anticipates that he will be in a neighborhood longer, and, hence, makes more effort to make neighborhood friends. Homeowners also have a greater incentive to join civic associations related to maintaining property values for the neighborhood. (4) Married people have more associations than do singles, since associations are being developed by at least two people rather than one. (5) The number of associations increases with income and assets, as does the money value of the favors exchanged. For virtually all of these variables there is some evidence that they are, indeed, positively related to number of associates.⁵

We also believe that age should be positively related to charitable contributions, though through a somewhat more complicated process. The average slope of the age-friendship relationship is not significant.⁶ The important feature of aging, however, is the increasing difficulty of acquiring new friends, except in certain retirement communities. This considerably increases the return to convincing one's current friends that one is trustworthy. This cost of additional sampling probably helps explain the charity effect of many of the variables discussed above: migration, marriage, and home ownership in particular. For our purposes, it makes no difference whether the charity effect of these variables is attributable to number of close associates or to the costs of acquiring new associates.

Using data from the *National Study of Philanthropy* (Morgan 1977), we look at four charity dependent variables: (1) Following Boskin and Feldstein (1978): the logarithm of (total money and property family contributions to charity plus \$10); (2) the logarithm of (these contributions to the church or church-sponsored activities plus \$10); (3) the logarithm of (nonchurch contributions plus \$10); (4) the logarithm of (hours of voluntary labor in the year plus 10 hours) for the head.⁷ In all these regressions we use as our price variable whether a person itemizes his tax deductions.⁸

The primary bias generated by the exclusion of the rest of the price variable will be on the coefficient of the income variable, since the marginal tax rate is dominantly a function of income. The income coefficient will be biased upward by this exclusion. But since income is

in the regression, this generates no obvious bias in the *regression coefficient* for the other variables positively correlated with income. Most of the other biases on the other variables will be dependent on the difference between income and taxable income. For example, the more business or mortgage interest deductions one can take, the lower taxable income relative to actual income, and the less the marginal tax rate. This will tend to create a downward bias in the home ownership regression coefficient and reduce the effect of occupation on charitable contributions. Similarly, the lower tax rates for married couples, holding family income constant, will tend to bias downward the marriage regression coefficient.

The regression results in table 3.1 show that those occupations with the greatest age-earnings slopes, such as professional, managerial, and skilled workers, have coefficients that are positive and statistically significant.⁹ The greatest coefficient for such occupations is for managers for whom trust is particularly important. The largest charity coefficient of all occupations belongs to the self-employed, for which age-wage slopes are inappropriate. (The self-employed either do not receive wages or the wage is arbitrary.) But trust can be particularly important in the client relationships many of them possess.

The pattern of these results is similar for two components of charity: charity through the church and other charitable contributions, but there are some interesting differences. The age-earnings slope provides a better predictor of charity by occupation for nonchurch contributions than it does for church contributions. Usually, work associates, in contrast to friends, are more aware of other contributions than church contributions. The opposite would be true for friends. A possible exception is the self-employed, for whom fellow church members are potential customers. It is not surprising that the self-employed comprise the only high-trust occupational group for whom the coefficient for church contributions is greater than the coefficient for other contributions. The lower discount rates that help determine whether one chooses a high-trust occupation would increase charitable contributions both in the work and the social environment. However, the greater gains from trust that characterize the occupations themselves are returns peculiar to work.

The occupational pattern of volunteer labor is even more closely related to the occupational pattern of age-earnings slopes. All of the high-slope occupations have greater coefficients and greater *t* values in that regression.¹⁰ However, the self-employed have a virtually zero

TABLE 3.1. Charity Regressions

	Char.	Char.	Char.	Church	Non.	Vol.	Slope
Int.	-4.28	-2.88	-3.24	-1.81	-2.37	.742	
<i>t</i>	-6.72	-4.06	-4.51	-2.76	-3.98	1.49	
Inco.	.431	.345	.343	.245	.331	.027	
<i>t</i>	7.79	5.90	5.90	4.56	6.77	.616	
Asset	.063	.062	.062	.052	.052	.021	
<i>t</i>	6.71	6.40	6.42	5.90	6.42	2.82	
Item.		.744	.749	.610	.561		
<i>t</i>		6.84	6.90	6.05	6.15		
Att.	.032	.036	.031	.036	.013	.014	
<i>t</i>	16.82	15.72	15.45	19.49	7.83	9.02	
Neib.	.051	.081	.080	.107	.018	.023	
<i>t</i>	1.26	1.94	1.90	2.76	.518	.722	
Home	.351	.148	.147	.187	.100	.069	
<i>t</i>	3.18	1.20	1.19	1.65	.962	.787	
Marr.	.443	.392	.395	.337	.306	.017	
<i>t</i>	4.07	3.35	3.38	3.12	3.13	.199	
Age	.069	.047	.050	.036	.036	.030	
<i>t</i>	3.88	2.35	2.47	1.96	2.12	2.15	
Age ²	-.0005	-.0003	-.0003	-.0003	-.0002	-.0004	
<i>t</i>	-2.93	-1.51	-1.60	-1.32	-1.29	-2.38	
Educ.	.096	.056	.054	.045	.058	.047	
<i>t</i>	5.69	2.69	2.63	2.35	3.31	3.58	
NILF	-.323	-.230	-.211	-.138	-.112	.330	
<i>t</i>	-1.73	-1.20	-1.15	-.880	-.449	2.93	
Pro.	.243	.274	.266	.153	.390	.496	146.4
<i>t</i>	2.07	1.93	1.82	1.13	3.44	4.67	
Mgr.	.434	.440	.450	.350	.535	.535	166.3
<i>t</i>	2.50	2.86	2.87	2.40	4.32	4.60	
Self	.665	.701	.677	.735	.546	.017	
<i>t</i>	2.83	2.78	2.65	3.10	2.73	.236	
Cler.	.152	.083	.086	.156	.032	.419	114.5
<i>t</i>	1.36	.650	.610	1.13	.598	3.74	
Skill.	.259	.208	.213	.220	.116	.238	85.8
<i>t</i>	2.02	1.44	1.42	1.56	1.23	2.22	
Oper.	-.117	-.123	-.116	-.061	-.182	-.034	65.3
<i>t</i>	-4.22	-4.43	-4.17	-.237	-.784	-.157	
Lab.	.028	.125	.137	.046	.185	.062	64.2
<i>t</i>	.096	.430	.470	.170	.755	.276	
Farm	-.118	-.079	-.061	.079	-.344	-.419	61.2
<i>t</i>	-3.17	-.209	-.161	.228	-1.06	-1.43	
Race	.058	.173	.170	.100	.011	.141	
<i>t</i>	.385	1.00	.989	.628	.079	1.18	
Jew	.298	.258	.225	.105	.433	-.118	
<i>t</i>	1.38	1.17	1.02	.522	2.36	-.683	
Cath.	-.319	-.305	-.309	-.329	-.061	-.434	
<i>t</i>	-3.33	-3.04	-3.09	-3.57	-.723	-5.73	
View			.156				
<i>t</i>			2.55				

TABLE 3.1. *Continued*

	Char.	Char.	Char.	Church	Non.	Vol.	Slope
Numb.						.111	
<i>t</i>						4.00	
<i>R</i> ²	.45	.44	.45	.44	.38	.17	
<i>N</i>	1,400	1,247	1,247	1,247	1,247	1,374	

Char. = log(total contributions + \$10); Church = log(contributions to church + \$10); Non. = log(nonchurch contributions + \$10); Vol. = log(hours of volunteer labor + 10); Slope = age-earnings slope of the 1969 earnings of white males with 12 years of school who worked 50–52 weeks that year (U.S. Census 1973) (we took the difference in mean earnings for those 55–64 years old and those 18–24 years old and divided by 38.5).

Independent variables are as follows: Int. = intercept; Inco. = log(family income) assigning 1 to 0 income (this transformation is also made for all independent variables in log form); Asset = log(total assets); Item. = dummy variable with 1 = if a person itemized deductions on his or her federal income tax; Att. = number of times per year respondent attended church; Neib. = log(number of years residing in neighborhood); Home = dummy variable with 1 if homeowner; Marr. = dummy variable with 1 = married; Age = age in years; Age² = age squared; Educ. = number of years of school; NILF = dummy with 1 if not in labor force; Pro. = dummy with 1 if professional occupation; Mgr. = dummy with 1 if manager; Self = dummy with 1 if self-employed; Cler. = dummy with 1 if clerical or sales occupation; Skill. = dummy with 1 if skilled worker or foreman; Oper. = dummy with 1 if an operator; Lab. = dummy with 1 if laborer or service worker; Farm = dummy with 1 if farmer; Race = dummy with 1 if white; Jew = dummy with 1 if Jewish; Cath = dummy with 1 if Catholic; View = answers to the question: “Do you think a person is likely to give more if the amount he gives is made public?” (if “Yes,” then 3; if “No,” then 1; if equivocal answers 2); Numb. = number of children under 18 in household; *R*² = multiple correlation coefficient squared; *N* = sample size. With regard to occupation, for the regression coefficients the occupation of comparison is miscellaneous occupations. The *t* values compare the occupation with the weighted average of low slope occupations—operators, laborers, farmers, and miscellaneous occupations for all higher slope occupations—with the weights given by their respective proportions in the sample. For low slope occupations the *t* values use miscellaneous occupations only as the occupation of comparison.

coefficient in the volunteer labor regression, probably because the value of their time is greater.¹¹ The greater visibility of volunteer labor explains the greater impact of occupation on volunteer labor than on contributions. More people are likely to know about a person’s volunteer labor than about the usual monetary contribution. Hence, volunteer labor is likely to act as a better signal.

Education, our other low-interest proxy, behaves the same way as occupations. It has a significantly positive coefficient in all regressions, and its elasticities are greater in the volunteer labor regression (though not its coefficients) and are greater for nonchurch contributions than for church contributions.

Consider the variables that are related to the number of close associates who would know of one’s charitable contributions: time lived in the neighborhood, home ownership, income, marital status, church attendance, and age. All of these variables have significant coefficients in most of the contributions’ regressions, and most have significantly positive coefficients in all the regressions.

The church attendance coefficients are particularly worthy of note. Of all variables it has the largest t values in all the contributions regressions including nonchurch contributions. That one often has nonchurch associations with the people one meets in church may help explain the positive effect for nonchurch charity. An alternative hypothesis is that expected afterlife returns or some other source of church-generated “trustworthiness” motivates both kinds of contributions. However, one would expect people to believe that contributions through the church to be so much more effective for that purpose that nonchurch contributions might very well be reduced given this better substitute. Later, we examine evidence that allows one to distinguish between these two hypotheses.

The greater visibility of volunteer labor has the consequence that close associations become less important in determining charity because there will be more strangers that know of the volunteer labor. As a result the church, home ownership, and the time in the neighborhood coefficients are smaller in the volunteer labor regression.¹²

The regression results also suggest that a person’s charity is affected by the group to which he belongs, holding constant individual characteristics. If the probability that a person is trustworthy is a continuous function of his charitable contributions, his relative contributions will be important in determining whether he becomes a partner. *He* is chosen rather than others. Hence, the amount of the charity of others in his group will be important in determining the amount of one’s own charity.¹³ There is evidence for this group effect. We find a negative effect of Catholics in all regressions and a positive effect of Jews in some regressions.¹⁴

Social Capital

This chapter’s results are analogous to Glaeser et al.’s (1999) results that focus on social capital rather than charity. The similarity of these results should come as no surprise. Glaeser et al.’s definition of social capital is the cumulative investment in trustworthiness. In our analysis charity is an investment in trustworthiness. Those that have an incentive to increase their social capital should find it in their interest to contribute to charity. In consequence, the variables that are significant in determining “trustworthiness” in Glaeser’s regressions also tend to be significant with the same signs in the charity regressions when those variables are available in both data sets. “Trustworthiness,” like charity, increases with education, income, church atten-

dance, and marriage. These results lend some support to the idea that charity signals trustworthiness.

Glaeser et al. use two different variables as their measures of “trustworthiness” and “trust”: (1) number of nonprofessional organizations to which respondents belong; (2) answers to the question, “Generally speaking would you say that most people can be trusted or that you can’t be too careful?” a measure that they call “GSS Trust” (where *GSS* stands for the General Social Survey from which their trust question comes). A rationale for the first measure is that trustworthiness increases with community involvement. The more people one knows, the greater the reputational costs of nontrustworthy behavior. The second measure appears to be a measure only of trust rather than trustworthiness, but, of course, it would be difficult to get reliable answers to questions about one’s own trustworthiness. There is a good reason for expecting the trust question to also measure trustworthiness. The most obvious evidence that one has of the anticipated behavior of others is one’s own behavior in similar circumstances. In addition, we would expect trust to be a function of the ratio of successful reciprocity relationships one has had to the unsuccessful ones. That ratio is, in part, a function of one’s own trustworthiness characteristics.

Glaeser et al., then, show that this second measure of trust actually works in predicting trustworthiness in a trustworthiness experiment. The biggest effect of this variable is on others’ behavior toward one, rather than one’s own behavior: trustworthiness rather than trust. While the parties to this experiment do not know a person’s answer to the trust question, the experiment has them meeting before the trust game is played. In consequence, they are able to make some assessment of the other’s trustworthiness prior to the game, especially if they knew each other before the experiment started. Evidently, in this game the most important determinant of behavior is how others assess the trustworthiness of their partner in the experiment rather than their assessment of trust for people in general.

The peculiar nature of this *GSS* measure of trust does, however, generate some differences in the charity regressions and the trustworthiness regressions using that variable. Jews give more to charity but have less trust. Blacks have less trust but do not give less to charity. The obvious explanation is the one Glaeser et al. give. Minorities are less trusting of people in general because people in general are less likely to be members of the same minority group. (The coefficient for blacks is insignificant using the number of organizations variable, and Jews are not included in that regression.)

“Warm Glow” and Signaling

The Morgan (1977) data that are the basis for our regressions give some rough idea about the importance of signaling for charity in general. They ask: “Do you think a person is likely to give more if the amount he gives is made public?” Forty-five percent answered yes, while only 29 percent said no, with the rest giving equivocal answers. We construct a variable, “Views,” in which a 3 is assigned to a “Yes,” a 1 to a “No,” and a 2 to other answers. Table 3.1 shows a significant positive impact of “views” on charitable contributions. Those who answer yes to this question believe that others are more responsive to social pressure probably because they themselves are more responsive. In consequence, they give more to charity than others. Glaeser et al. (1999) use a very similar argument when they use a variable that explicitly measures trust as a measure of trustworthiness. They, like we, find that such a measure works in the sense that it successfully predicts trustworthy behavior.

Of all the determinants of charity, the only ones that have a significant impact on “views” are church attendance and the dummy variable, “Jew,” with positive t values of 3.18 and 2.00 respectively. The former result is evidence for the proposition that the crucial role of church attendance in determining both church and nonchurch charity is the greater associations with which it is related and the resulting greater social pressure for contributions rather than altruism or concerns with an afterlife. Jews may be more aware of social pressure because they are tighter knit due to their minority status.

The Beneficiaries of Charity

Charitable contributions benefit somebody other than the contributor. Altruism, the standard explanation, is not required. That is fortunate because altruism does not explain donor behavior. While contributing to charity is costly to the individual, the choice of beneficiary costs the individual nothing. That does not mean that the individual is indifferent between beneficiaries. He wants to distribute his charity to maximize its effectiveness as a signal. He is particularly interested in signaling to his group that he is trustworthy to members of his group. As developed in chapter 5, one way to signal this preference for particular people is to imitate their behavior. Charity choice can be used to signal whom one wants as partners in reciprocity by imitating their choices. But others are doing the same thing. As chapter 5 shows, this mutual

imitation multiplies the impact of any exogenous determinant of choice common to the group. Group survival implies that this determinant is some benefit shared by others, even if these benefits are small. Targeting charity so that a particular group approves is a way of demonstrating trustworthiness toward that group. That group will be more enthusiastic the greater the benefits to the group from the charity. Charity to the poor, cancer research, funds for the church organ all fit that bill.¹⁵ No altruism is required to produce this effect of creating external benefits; just a concern with what others think.

One would predict, therefore, that the greater the group benefits from an activity, the greater the expected charitable contributions to that activity. Government expenditures that reduce the external benefit to private contributions for an activity should partially crowd out these private contributions. But government contributions should have no impact (holding real income constant) on the signaling needs that motivate charitable contributions in general. Total charity should not be affected by government expenditures when total charity is broadly conceived. There can be some impact on measured charity, however. Total charity includes the loss in total income generated by engaging in all prosocial activities and not engaging in antisocial activities. As government activity reduces the external benefits from measured charity compared to other activities like voting or other community activities, there can be some crowding out of measured charity, but it should be less than the crowding out of the particular charities most closely related to government actions.

The Price of Charity

It has been standard procedure in the empirical studies of charity to estimate the price elasticity of charity by looking at the response of charitable contributions to changes in income tax rates, since charity is deductible in determining taxable income. This procedure makes sense given the altruistic theory of charity. But the interpretation of the results is quite different given any signaling theory of charity. The charity that separates moochers from reciprocators is the charity that people pay, that is, the net cost to them of the contribution given the tax benefit. In consequence, total charitable *expenditures* should be invariant with respect to a tax rate, holding real income constant. To keep *expenditures* constant, *contributions* will have a price elasticity of 1, as far as the substitution effect is concerned.

This same prediction holds for the more general “warm glow” the-

ory of charity. Warm glow is assumed to come from the sacrifices people make for the public good. Just as in the signaling case, these sacrifices are a function of the amount net of taxes that people pay rather than the amount the charity receives. Again, that leads to a prediction of a price elasticity of 1 when charity is measured by contributions rather than expenditures.

Clotfelter (1985) surveys price elasticity studies. He finds considerable variation in estimates. Most of those studies have elasticities close to 1. The major exceptions are the large price elasticities produced by studies based on the same data set we use—The National Study of Philanthropy. Elasticity estimates from these data are suspect.¹⁶

More recent, and, on the whole, better studies surveyed in Tiehan 2001 tend to find price elasticities less than 1, though Feenberg (1987) estimates this elasticity as 1.63. For example, Randolph (1995) finds a price elasticity of only 0.51 with a standard error of .06. However, Tiehan (2001) herself finds price elasticities varying between 0.94 and 1.15. Obviously, this wide range of estimates over all studies does not provide much confidence. At least, however, our predicted 1 is within that range.

All of these empirical articles on price elasticities have one thing in common: they are all simply empirical articles. The only theory they use is that of the negatively sloped demand curve. We provide a theory, which not only predicts a negative elasticity, but a precise value for that elasticity. Even if it turns out that that prediction is wrong, the prediction is a worthwhile exercise. It is an implication of the standard warm-glow theory of charity as well as our more specific signaling theory. If it doesn't work, that means something else is going on. We believe that "something else" cannot be simple altruism, since the theory and evidence against the operation of the latter is so strong. So finding that "something else" will require finding out why.

A Similar Analysis

The analysis that comes closest to ours is that of Posner (2000). He also treats charity as a signal of trustworthiness. His basic model differs in an important respect from ours. He uses a prisoner's dilemma model with cooperation and defection as the two options. Trust is required in this model because each player makes his move without knowing the move of the other party. We use a reciprocity model in which trust is required because one must do a favor without knowing whether the other party will reciprocate later. We believe that reciprocity is a more

common pattern of the behavior related to charity than is simultaneous decision-making. Our model also assumes many potential partners while the typical prisoner's dilemma model does not. Not only is this assumption more realistic; it vastly simplifies the analysis by eliminating many strategic options. Our model produces a richer set of implications. Posner predicts, as do we, more signaling for those with lower discount rates. We predict also more signaling from those with greater gains and lower costs from reciprocity. These latter predictions are particularly important because these gains and costs from reciprocity vary with prospective partners in reciprocity. This variation plays a crucial role in the chapters that follow. We also investigate a whole range of empirical implications from signaling that Posner does not.

The most significant difference between Posner's work and ours is his contention that social norms in general are arbitrary. In the charity case, that implies that the beneficiaries of charity are arbitrary. Indeed, for signaling purposes it doesn't make much difference who receives the benefits. We maintain, however, that group selection does have an important role to play in determining those beneficiaries and many social norms as well. By and large the beneficiaries of charity can be explained by group selection, and group selection's role in signaling plays a crucial role in later chapters.

Because, however, group selection operates so slowly, there are also many charities that must be otherwise explained: for example, charity for animal hospitals. There are multiple equilibria associated with signaling unless constrained by something else like group selection. These multiple equilibria can have important implications in their own right, for example the instability of the role of ethnicity, an instability stressed by Kuran (1998).

While Posner provides no systematic data testing his signaling model, he provides a rich set of examples. Most of that evidence supports our position as well. The rest shows a lot of noise in social norms. But since some noise is consistent with patterns in social norms, that evidence is also consistent with our approach.