

**Sending Money in the Trust Game: Trust or Other  
Regarding Preferences?<sup>1</sup>**

**Ananish Chaudhuri  
Department of Economics  
University of Auckland**

**&**

**Lata Gangadharan  
Department of Economics  
University of Melbourne**

Corresponding author:

Ananish Chaudhuri  
Department of Economics  
University of Auckland  
Private Bag 92019  
Auckland 1001  
New Zealand  
Phone: 64-9-373-7599 Extn. 88307  
Fax: 64-9-373-7427  
E-mail: a.chaudhuri@auckland.ac.nz

---

<sup>1</sup> We are indebted to the Faculty of Economics and Commerce, University of Melbourne, for providing the funds for this study.

# **Sending Money in the Trust Game: Trust or Other Regarding Preferences?**

## **ABSTRACT**

We use the Berg, Dickhaut and McCabe (1995) Investment Game to understand whether transfers made in this game are due to trust and reciprocity, as suggested by Gneezy et al. (2000) or whether they are due to other regarding preferences, as suggested by Cox (2002). We find that amount sent by senders is strongly influenced by expectations of getting money back from the receiver. We also find that when receivers receive higher amounts they return higher amounts. We conclude that behavior in this game is in keeping with the trust and reciprocity hypothesis rather than other regarding preferences.

**JEL Classification:** C72, C91, D83

**Keywords:** Trust Game, Trust, Reciprocity, Trustworthiness, Experiments

## 1. Introduction

Recent research suggests that “social capital” as embodied in the tendencies to “trust” and to “reciprocate” trust influence a wide range of economic phenomena and activities. La Porta et al. (1997), examine data on trust for a cross-section of countries, and find that “Holding per capita GNP constant, a standard-deviation increase in trust raises judicial efficiency by 0.7, the anti-corruption score by 0.3, bureaucratic quality by 0.3 and tax compliance by 0.3 of a standard deviation. ... Furthermore, a standard-deviation increase in trust raises participation in civic activities by 0.7 and participation in professional associations by one standard-deviation.”(La Porta et al., 1997, p. 335). Knack and Keefer (1997), using indicators of trust from the World Values Survey for a sample of twenty-nine market economies, present evidence that “social capital” matters for measurable economic performance. The authors find trust and civic norms are stronger in nations with higher and more equal incomes. Fukuyama (1995) identifies the importance of trust in facilitating the workings of large-scale organizations, including governments, and the importance of trust in economic transactions in the absence of completely specified contracts. Putnam (2000) emphasizes the importance of trust and reciprocity in economic interactions. See Glaeser et al (2000) for a discussion of some of the relevant literature which connects social capital and various economic phenomena. Using standard game theoretic methodologies, it is hard to explain such “trusting” or “reciprocal” behavior in one-shot games with anonymous pairings.<sup>2</sup>

---

<sup>2</sup> In a one-shot game, we define an action taken by an agent to be “trusting” if (1) it leads to the creation of a surplus (at some cost to the agent) that can be shared with another agent but (2) also leaves the first agent vulnerable to the possibility of exploitation by giving the second agent the opportunity to expropriate the entire surplus thereby making the first agent worse off than she would have been had she not taken the trusting action in the first place. An action by the second agent is “reciprocal” if the second agent foregoes the opportunity to expropriate the entire surplus created by the first agent (even though she can do so with impunity in a one-shot game) and shares any such surplus created with the latter.

But the problem is how exactly do we measure trust? Psychologists have often relied on questionnaires to understand trust. Besides the fact that responses on such questionnaires are after all “cheap talk”, it is also not clear whether these psychological scales actually measure trust. This point has been highlighted by Glaeser et al. (2000) and Chaudhuri et al. (2003). Glaeser et al. (2000, p. 840-841) comment that trust is “at best weakly measured by typical attitudinal questions about trust, including the widely studied GSS trust question”.<sup>3</sup> These authors go on to argue in favor of using economic experiments (possibly supplemented by focused survey questions) in measuring trust and comment that “Experiments measure preferences, behavioral propensities, and other individual attributes much more convincingly than surveys, since experiments provide direct observations of behavior.”

As a result economists have relied on decision-making experiments to measure trust. The idea is to get subjects to put their money where their mouth is. The paradigmatic game used in most studies of trust and reciprocal motivations in economic interactions is the investment game introduced in the pioneering and much cited paper by Berg, Dickhaut and McCabe (1995). This is a game where two players are paired anonymously. One player is designated the sender and the other player the receiver. The sender is given a certain sum of money and told that she can keep the entire amount or split it with an anonymous receiver. Any amount that the sender offers to the receiver is tripled by the experimenter. This tripled amount is then given to the receiver. The receiver is told that she is free to keep the entire amount or, if she wants, she can send some or all of it back to the anonymous sender. The game ends after this point. The resolution of this game using backward induction is simple. In a

---

<sup>3</sup> This refers to the National Opinion Center’s General Social Survey. The actual question asked of respondents is the following. “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?”

one-shot version of the game, the receiver should not send any money back knowing that the game ends immediately thereafter. The sender, anticipating the receiver's decision, should send no money to the receiver in the first place. However, actual behavior is quite different from the one predicted above. In Berg et al.'s original experiments, out of an initial endowment of \$10.00, senders, on average transfer \$5.16 to the anonymous receivers. Receivers in turn, instead of keeping all the money offered to them, return non-trivial amounts. "Investments of \$5.00 had an average payback of \$7.17, while investments of \$10.00 had an average payback of \$10.20." (Berg et al., 1995, p.131) Subsequently a number of studies have used this game to measure trust, by analyzing the amount of money sent by the sender. See for instance Burks et al. (2003), Chaudhuri et al. (2002), Cox (2002), Croson and Buchan (1999), Glaeser et al. (2000), and Gneezy et al. (2000).

It is clear that there are more complex motivations behind the decisions made by the Berg et al. subjects than is allowed for by simple backward induction arguments. But what exactly are those motivations? Do senders send money out of a concern for fairness, i.e. do they want to share the money with the receivers? Or do senders send money in an attempt to maximize the pie, i.e. do they rely on expected reciprocation by receivers in an attempt to increase their own payoff? As Gneezy et al. (2000) ask – when senders send money, is that amount a "present" to the receiver with no expectation of getting anything back or is it an "investment" i.e. are senders relying on the reciprocation of receivers to increase their own payoff? Gneezy et al. (2000) interpret this as the latter. In their experiments, using the same game as Berg et al. but with different parameters, Gneezy et al. show that the amount of money sent by the senders is directly proportional to the amount of money the receiver *can send back*. In one experimental design where the receiver is prevented from sending any

money back, senders send very little to the receivers. On the other hand, in treatments where receivers can send back money (reciprocate trust) senders do send money to them. Gneezy et al. went on to interpret this as follows: the senders send money only when the receivers can reciprocate – so there must be an expectation of getting money back implicit in the senders’ decision to send money in the first place. When receivers can send no money back, senders do not send any money either, thereby refuting any claims that the senders are motivated by fairness considerations. Cox (2002) however comes to a different conclusion. Using a triadic game structure designed to separate trusting preferences from other-regarding preferences Cox concludes that the motivation for sending money in this game is really due to other-regarding preferences. Cox (2002, p. 346) comments “Comparison of responses in the investment game and the first-mover dictator control treatment indicates that neither males nor females exhibited significant trust. Both females and males exhibited significant other-regarding preferences”.

There is another issue here as well. In prior studies of these issues the idea of trust has implied within it the idea of trustworthiness, i.e. trust and trustworthiness are assumed to go together. Trustworthiness is defined in terms of whether a person who has the opportunity to abuse trust by expropriating the surplus created by another agent actually does so or chooses to reciprocate that trust by sharing any surplus created with the person who created that surplus in the first place. As Chaudhuri et al. (2003) show, trust and trustworthiness are very different constructs and while trustworthiness implies trust (those who are trustworthy are also trusting), those who trust are often not trustworthy in that they do not reciprocate others’ trust. Glaeser (2000) et al. point out the difference between trust and trustworthiness as well.

In this paper we focus on these questions and explain the motivations behind the decisions made by subjects using a slightly modified version of the original Berg et al. trust game. As opposed to the Berg et al. design, subjects in our experiment play both roles – that of sender and receiver. This allows us to directly observe the levels of trust and reciprocity for the same individual as opposed to most previous studies where subjects play one of the two roles. We combine the results from our experiment with survey evidence, in particular evidence on expectations of senders about the money they would get back from receivers. This unique feature helps us to identify the motivations of the subjects and separate out the trust aspect from other regarding behavior. We look at different aspects of the decision made by senders and find strong evidence that the transfers made by a majority of subjects in this game is due to trust. We also document the existence of reciprocal behavior much as Gneezy et al. (2000) did. We conclude that the behavior exhibited by a majority of subjects in this game is in keeping with the trust and reciprocity hypothesis rather than due to other-regarding preferences. We also find that trusting and reciprocal behavior are not correlated in the sense that those who repose trust in the pair-member do not necessarily display reciprocity when their pair-members repose trust in them.

The rest of the paper is organized as follows. Section 2 explains the experimental design. Section 3 presents the results and Section 4 concludes.

## **2. Experimental Design**

The experiments were conducted at the University of Melbourne.<sup>4</sup> The subjects were predominantly undergraduate students. All the experiments were implemented as non-computerized classroom experiments. There were a total of 100 participants, all of whom participated in groups of 8 to 14 in a single-session

---

<sup>4</sup> See Appendix B for the instructions given to the subjects.

experiment. There are 47 men and 53 women, ranging in age from 17 to 27. After the experiments the subjects were asked to fill out questionnaires containing demographic information.

For each session, participants were gathered in a room where they had instructions read to them. A show-up fee of Au \$3 was given to the subjects. Questions were answered and then the subjects were divided into two equal-sized groups. One group stayed in the same room while the other group was sent to an adjoining room. The subjects were paired anonymously. The sender and the receiver in each pair were always in different rooms and could not see one another and did not know who they were paired with. Each sender is informed that she has Au \$10.00.<sup>5</sup> No money was disbursed at that point and all actual payments were made at the end of the experiment. However every person who is a sender had \$10.00 added to her total experimental earning. Each sender was told that she could keep the entire \$10.00 or if she wished she could split it with an anonymous receiver. However any amount she offered to the anonymous receiver would be tripled by the experimenter. The anonymous receiver then could decide to keep the entire amount of money offered or, if he wished, could send all or part of it back to the anonymous sender. This latter amount is not tripled. The game then ends. For example if a sender wished to keep \$4.00 out of the initial \$10.00 and offered \$6.00 to the receiver, then the receiver would actually receive \$18.00. The receiver can then decide if he wishes to send any part of the \$18.00 back to the sender.

Subjects were handed record sheets for recording their decisions. Decisions made by each sender in one room were conveyed to the corresponding receiver in the

---

<sup>5</sup> At the time when these experiments were carried out, the exchange rate was roughly AU \$1 = US 0.53 cents.

other room and vice versa. The record sheets were collected by the experimenter and taken from room to room.<sup>6</sup>

In a deviation from the original Investment Game, we had each subject make both a sender and a receiver decision. The following scheme illustrates the above point.

<u>Room A</u> <u>Sender</u>	<u>Room B</u> <u>Receiver</u>	<u>Room B</u> <u>Sender</u>	<u>Room A</u> <u>Receiver</u>
1	5	5	2
2	6	6	3
3	7	7	4
4	8	8	1

For instance in one pairing Subject #1 would make a sender decision and offer a split to Subject #5 as the receiver. At the same time Subject #1 would receive a split as receiver from Subject #8 who is the sender in that pairing, and so on. This preserves the one-shot nature of the interaction since each subject interacts with a different subject in his or her role as a sender and a receiver and thus there is no scope for reputation building. The primary reason for introducing this deviation is to get each subject to make both a sender and receiver decision. We wanted to compare the decisions made by a subject in her role as a sender and as a receiver since this would allow us to draw inferences about each subject's level of trust and trustworthiness.

Our design is similar to the one used by Chaudhuri, Sopher and Strand (2002) as well

---

<sup>6</sup> The original Berg et al experiment followed a double-blind procedure where even the experimenter was unaware of which subject made which decision. In our study while the subjects are paired anonymously, the experimenter does get to see the subjects' decisions. We did not institute a double-blind procedure since its relevance is debatable in this game. Bolton, Katok and Zwick (1998) comment "We find no basis for the anonymity hypothesis..." referring to double-blind procedures. Roth (1995, p. 301) comments "...there is no evidence to the effect that observation by the experimenter inhibits player 1 in ultimatum games, nor that it is the cause of extreme demands in dictator and impunity games." Gneezy et al. (2000) and Glaeser et al. (2000) use a single-blind procedure as well.

as the “two-role-trust prior knowledge” treatment employed by Burks, Carpenter and Verhoogen (2003). In the study by Burks, Carpenter and Verhoogen, the authors have the subjects play both the roles of a sender and a receiver in the same trust game, except one group of subjects knows beforehand that they are going to play both roles (prior knowledge treatment) while the other group does not know that (no prior knowledge treatment). As we discuss later there are similarities between our results and those obtained by Burks et al.

Each subject makes a sender decision simultaneously. Following that each subject makes a receiver decision simultaneously as well. We also asked each sender (provided she transferred a positive sum to the paired receiver) if she expected the receiver to return any money and if she did then what proportion did she expect the receiver to return? Prior to each subject making a receiver decision we also elicited information about their reciprocity levels by using the strategy method. Specifically each subject was asked how much she would return if she received a certain amount. Since senders are constrained to transfer money in whole dollars ranging from {\$1...\$10}, this implied that receivers could expect to get one of the ten amounts {\$3, \$6, \$9, \$12, \$15, \$18, \$21, \$24, \$27, \$30}. Receivers were asked to indicate how much they would return if they received each of these hypothetical amounts. Answers to this question allow us to examine the level of reciprocity of the receivers. This is because the answer in each case from a purely self-interested perspective should be \$0. However those who are motivated by reciprocity are expected to promise to send back more when they receive more. Then they were informed about the money they had actually been offered. This allows us to look at their actual reciprocity explicitly as well as to compare their actual behavior with their stated behavior. This concluded the experiment. The subjects were then paid privately.

### **3. Experimental Results**

#### **3.1 Sender's Decision: A Measure of Trust**

In keeping with prior studies we find that subjects, in their role as senders, do transfer positive amounts of money. The average amount transferred is \$4.33 (43.3%) out of the initial endowment of \$10.00. This amount is lower than the 51% reported by Berg et al. (1995) but bear in mind that in Berg et al.'s study subjects play only one role. In Burks, Carpenter and Verhoogen (2003), where the subjects play both roles of sender and receiver (and know that they will do so), the average amount sent is \$4.76 (47.6%). Burks et al. report that playing both roles reduces the levels of both trust and reciprocity. Thus our results are similar to this other study where subjects play both roles. We find a significant gender difference in the sender decision. Men display much greater levels of trust than women do. Of the original endowment of Au \$10.00, men ( $n = 47$ ) on average keep \$4.70 (47%) and send \$5.30 (53%) to the paired receiver. The corresponding numbers for women ( $n = 53$ ) are \$6.53 (65.3%) kept and \$3.47 (34.7%) sent. A t-test finds a significant difference in the amounts kept (or sent) by men and women with a t-statistic of  $-2.60$  (98 d.f.) and a corresponding p-value of 0.0107. We also conducted a non-parametric Wilcoxon ranksum test, which gave us a z-value of  $-2.089$  and a p-value of 0.0367. These gender differences are explored in detail in Chaudhuri and Gangadharan (2001). Here we will concentrate on other issues related to trust.

##### **3.1.1. Role of Expectations in the Sender Decision**

We find that the subject's decisions about how much money to send was crucially influenced by what they expected to get back from the paired receiver. Each sender in our experiment was asked whether she expected anything back from the receiver she is paired with (provided she had transferred a positive sum to begin with)

and if she did, how much she expected to get back.<sup>7, 8</sup> They were also asked about their motivation in sending money to the receiver. Specifically each sender was asked:

1. Are you expecting to get any money back? \_\_\_\_ YES \_\_\_\_ NO
2. How much money are you expecting to get back from the RECEIVER?  
\$ \_\_\_\_\_
3. You decided to KEEP \_\_\_\_\_ and send \_\_\_\_\_ to the RECEIVER. As a result of your decision the RECEIVER will actually receive \_\_\_\_\_.  
Why did you make this decision? Please take a few minutes to explain as clearly as you can. (Please feel free to use the other side of this sheet if you need to)

We find that the amount of money (or the percent of amount) expected back from the receiver plays a crucial role in influencing the amount of money that is sent.

Suppose each subject believes that the receivers behave according to some norm of reciprocity which states that they should return a fraction  $\alpha$  of any amount they have been sent. Moreover, we will assume (for the sake of convenience) that the receiver can be one of two types – a “reciprocator” who actually returns  $\alpha$  fraction of money sent to him, and a “non-reciprocator”, who returns nothing. Let “ $p$ ” denote the proportion of reciprocators and “ $1-p$ ” the proportion of non-reciprocators.

---

<sup>7</sup> Two subjects did not write an amount for what they expected to get back. Thus there are only 98 observations instead of 100.

<sup>8</sup> Asking subjects about their expectation could have an impact on actual behavior. Croson (2000) finds that the act of eliciting beliefs about the actions of other players in the game influences a subjects’ likelihood of playing the equilibrium in a social dilemma game. In fact, subjects in the elicitation treatment play the dominant strategy significantly more than subjects in a control treatment. In our experiment we asked senders about their beliefs regarding the behavior of receivers. Since this question is asked after the sender decision is made it does not affect the sender decision. But it may have an impact on the receiver decision. We find that the receivers in our treatment (both men and women) keep back a much greater proportion of the amount sent to them as compared to the receivers in Berg et al. (1995) and Croson and Buchan (1999). In Berg et al. (1995) receivers on average send back 30% of the amount received. In Croson and Buchan’s study women send back 37% while men send back 28%. Our receivers are more parsimonious and on average send back 17.5% of the amount received. However in Burks, Carpenter and Verhoogen (2003), where subjects also play both roles of sender and receiver, they report lower levels of reciprocity than we do. Receivers in their study on average return only 14% of any amount sent to them. It is possible, as Croson (2000) suggests, that the fact that we asked these subjects about their beliefs made the subjects more parsimonious in their behavior at the receiver stage.

Suppose the sender decides to send \$X ( $0 < X \leq 10$ ) out of his initial endowment of \$10.00 to the receiver. The receiver then gets \$3X. With probability “p” he returns “ $\alpha$ ” proportion of that amount and with probability “1-p” he returns nothing. So with probability “p” the sender gets  $(10-X+3\alpha X)$  while with probability “1-p” he gets  $(10-X)$ .

Consider the expected payoff ( $\Pi$ ) from sending any amount X. The expected payoff is

$$\begin{aligned} E(\Pi) &= p(10-X+3\alpha X) + (1-p)(10-X) \\ &= 10 - X + 3\alpha pX \end{aligned} \quad (1)$$

Taking the derivative of expected payoff with respect to X we get

$$\frac{dE(\Pi)}{dX} = 3\alpha p - 1 \quad (2)$$

Thus the expected profit is increasing in X if and only if  $3\alpha p > 1$ . If  $3\alpha p < 1$  or  $\alpha p < 1/3$ , then as one can see from (2), the sender actually expects to make less than \$10 by sending any money. In that case the sender is better off simply holding on to the initial endowment. Thus if the sender sends any money to the receiver, this makes sense if and only if he expects to make more than \$10 which is true if and only if  $\alpha p > 1/3$ .

There is a significant difference in the behavior of those who expect less than 1/3 and those who expect more. There are 44 people who expect to get back **less than** 1/3 of what the receiver gets and these people on average kept \$7.86 out of the initial \$10.00 and sent \$2.14. The modal amount (18 out of 44) sent by these subjects is \$0.00. On the other hand, of the remaining 54 people<sup>9</sup> who expected to get back **exactly 1/3 or more**, the average amount sent is \$6.05 (average kept is \$3.95). The

---

<sup>9</sup> As mentioned above two people did not enter a response for the amount expected back and so we have 98 instead of 100 observations for  $\alpha$ , the proportion expected back.

modal amount sent is \$10.00 with 17 out of 54 people sending all their initial endowment.

These results contrast with those reported by Cox (2002) who suggests that transfers made by senders in this game are mostly due to other-regarding preferences rather than trust. Our analysis suggests that the transfers are made due to conditional trust based on expected reciprocation. Most of our senders send money as an investment (hoping to reap larger gains) rather than as an altruistic act. Our results, thus, are more in line with Gneezy et al (2000) who also find strong evidence in favor of the trust and reciprocity hypothesis.

The amount that the sender sends to the paired receiver (a measure of trust) is highly correlated with the sender's expectation about the percent amount that the receiver will return (i.e. the sender's expectations about the receiver's reciprocity), with a Spearman rank correlation coefficient of 0.58 (p-value = 0.00). We get a similar result using a double-censored tobit model. The dependent variable is the amount of money sent by the sender to the paired receiver. This amount is bounded from below by \$0 and from above by \$10. In Model 1 of Table 1 we regress the amount sent against three independent variables – (1) female (which is “1” if the subject is a female, “0” otherwise), (2) age and (3) the percent amount expected back from the receiver. We find that the amount sent is lower for women than for men (the coefficient of the female dummy is negative and significant). The coefficient of the amount expected back (in percentage terms) is highly significant ( $t = 5.18$ , p-value < 0.01). Thus there seems to be a significant amount of trust, in general, in that the amount sent depends significantly on the proportional amount that the sender expects to get back from the receiver.

We examined the free responses provided by the senders about what motivated them to send any money to the receiver or not and find that there are three broad types among the responses. Appendix A provides all the responses and the coding. (Appendix A is meant for the referees only and will not be included in the final version of the paper. We intend to make these responses available to interested readers via our web-sites.)

A majority of responses exhibit an explicit recognition of the role of trust in maximizing the size of the pie. But there are two distinct types among those who show recognition of the incentives. One type decides to place trust on the pair member and send money while the other type decides not to send any money. An example of the first type is subject #1, who kept \$0 and sent \$10 and who says, “I want the \$10 but we could both make more if we work together and split the \$30 and make \$15 each. This is a total risk because it would be tempting for the other person to keep the \$30. I am hoping that an obvious gesture of generosity will get me some money back, \$10 at least”. There are 55 such responses and this type of response is coded as “2”.

An example of the second type is subject #19 who kept all \$10 and says “Because everyone wants to maximize his/her utility, so they want to keep the \$10 with them (safely) since they are dealing with an anonymous person, so there is a possibility that he/she will lose some money, that he/she offered to the other person. But that person won’t send you back the money, rather he/she will keep the money for themselves. Keep in mind that the chance is I will get 3X more than I offered to he/she, if he/she is willing to do it. However in general people are not willing to do it with a stranger. So I choose to keep the \$10 with me.” There are 17 such responses and they are coded as “1”.

The point here is that both those responses coded as “2” and those coded as “1” exhibit an explicit recognition of the incentives inherent in this game. Both these groups of players recognize that both players can be potentially better off if they behave according to the trust and reciprocity hypothesis but they arrive at starkly different conclusions. One group concludes in favor of exhibiting trust while the other group arrives at the opposite conclusion.

All other types of responses (n = 28) are coded “0”. For example Subject #13, who kept \$8 and sent \$2 saying “I am expecting some returns from what I have given out. And besides, I would just feel bad if the opposite receives nothing.” Or subject #12 who kept \$9 and sent \$1, saying “In this game I am not really losing anything. All that’s happening is a gain – someone is gaining more than another. I don’t mind sharing some gain/giving some money away. Hence I thought I will give away \$1 where I don’t lose much, but my partner in the other room gains more”.<sup>10</sup>

Coding responses in this manner is essentially subjective and somewhat arbitrary. Different researchers will interpret different responses in different ways. Some responses have been included in the zero category because it was hard to ascertain what these motives were. But we have chosen to include these responses because we believe that they do throw some light on the thought processes of the subjects and enables us to understand why they behaved in the way they did. If these free-form responses were our only means of demonstrating trust then of course we would not have much of a thesis. However we believe that coupled with the other evidence we have produced such as the significant role played by expectations in

---

<sup>10</sup> In some cases it is difficult to ascertain a clear motive. For instance subject #61 who kept \$9 and sent \$1 and says “This is just an arbitrary decision. I’ll think that keeping more money to myself will then increase my earnings” or subject #99 who kept \$6 and sent \$4, “I make this decision because first of all I would like to keep a certain amount to myself which is larger than the amount that I’ll send out ...and then because I prefer to have 6:4 ratio I make this choice out of my intuition. I just pick it randomly. No specific reason as to why”. These subjects are included in the “0” category as well.

determining transfers made by senders in this game, the motives do add to the weight of evidence in favor of the trust and reciprocity hypothesis.

There are similarities among the responses coded “2” and many of the responses coded “0”. Many of the “0” responses display an appreciation of the value of trust and reciprocity as well. What distinguishes them is that “2” responses were purely payoff maximizing arguments. These arguments said that the sender could get a higher return by reposing some trust in the reciprocity of the receiver. This was the smart thing to do since that would maximize the sender’s payoff. These are responses which put the decision in terms of one’s own payoff maximization. “0” responses often refer to payoff maximization as well, but at the same time they show some desire towards “sharing” the money with the paired receiver, i.e. they express some concern about the other player’s payoff.

If we break up the amount sent by motive then we find that on average people who were assigned a motive of “0” sent \$3.07 out of \$10. The modal amount sent by these subjects is \$2 (11 out of 28 people send this amount). For subjects with motive = 1 (those who recognize the value of trust but refuse to display any), the average amount sent is \$0.36 and the mode is \$0 with 15 out of 17 people choosing to send nothing. For subjects with motive = 2 (responses in keeping with the trust and reciprocity hypothesis) the average amount sent is \$6.20 with a mode of \$10. 18 subjects out of 55 with motive = 2 chose to send their entire endowment of \$10 to the paired receiver. Figure 1 shows a break up of the amount sent by each type of motive. Thus a majority of subjects seem to be motivated by trust and a minority by other-regarding preferences.

In model 2 of Table 1, we regress (using a double censored tobit) the amount sent by the sender to the paired receiver against four independent variables (1) female

(=1 if the subject is a female and 0 if male), (2) age, (3) percent amount expected back from the receiver and (4) the motive behind the decision to send money, where motive takes the values 0, 1 or 2 as explained above. The three variables - female, percent amount expected back from the receiver and the motive behind the decision - are significant explanatory variables. We find that as the motive changes from 0 to 2 (towards greater trust and reciprocity), the amount sent increases ( $t = 2.05$ ,  $p = 0.04$ ).

Given the subjective nature of our classification of motives behind sending money, we carried out an alternative regression specification. Here we coded all the responses in keeping with the trust and reciprocity hypothesis as “1” ( $n = 55$ ) and classified all the other responses as “0” ( $n = 45$ ). The results vis-à-vis motive are stronger. The coefficient of the motive variable is 4.37 with a standard error of 1.07, ( $t = 4.09$ ,  $p = 0.00$ ), i.e. when motive changes from “0” to “1” the amount of money sent by the sender increases. We omit this result from Table 1.

Another curious fact that possibly warrants further scrutiny is differences by ethnicity. We find a difference in the level of trust between subjects of Australian/New Zealand/European ethnicity ( $n = 53$ ) as opposed to subjects from Asia or the Indian subcontinent ( $n = 47$ ). Subjects in the former group on average kept \$4.94 and sent \$5.06 while the latter group of subjects kept on average \$6.49 and sent \$3.51 to their pair-members. If we compare these amounts using a t-test then we get a t-statistic of 2.18 (93 d.f,  $p = 0.03$ ). The result is marginally significant using a non-parametric Wilcoxon test ( $p = 0.10$ ). However when we include ethnicity in our parametric model (see Model 3 of Table 1) we find that the coefficient of this variable is not significantly different from zero when we control for other factors in the model. Thus there seems to be no significant differences in the levels of trust between these two ethnic groups in our study.

## 3.2 Receiver's Decision: A Measure of Reciprocity

### 3.2.1 Reciprocity Elicited via the Strategy Method

Next we turn to the decision made by the subjects in the receiver stage of the game – an indicator of their degree of reciprocity. First let us look at the responses elicited via the strategy method where the subjects were asked to respond to how much they would keep if they received the 10 hypothetical amounts {\$3, \$6, \$9, \$12, \$15, \$18, \$21, \$24, \$27, \$30}. Table 2 shows the average amounts that the subjects said they will keep (and return) based on the hypothetical amounts they could receive. For instance the subjects said that **if they received \$30** then on average they would keep \$21.34 (71%) and return \$8.66 (29%) to the paired sender.

However there are distinct differences among the responses given to this hypothetical question. Figure 2 describes the different response categories. On the x-axis we have the possible amounts that the receiver can receive. The y-axis shows the percentage of the amount received that the receiver is willing to return to the anonymous sender.

We have 94 responses in all since 6 respondents did not fill out this part of the instructions. Of these 94 responses there are 5 clear trends.<sup>11</sup> At one extreme we have 20 subjects who might be referred to as “egoists”. These are people who will send nothing back to the anonymous sender regardless of the amount received. These are people for whom the willingness to return money function coincides with the x-axis. At the other end we have the “egalitarians” (n = 7) who are willing to send back about 50% of any amount received (as long as that amount exceeds \$3). In between we have three distinct groups who exhibit varying degrees of reciprocity. First we have a group of “strong reciprocators” (n = 13). These subjects promise to return about 40% on

---

<sup>11</sup> This ignores one subject who behaves in a “hyper-fair” manner in that this subject promises to give back more than 50% for all amounts received.

average of the money that they receive (much less than 40% if they get \$3 and 45% if they get \$30 but approximately 40% for all intermediate amounts). It would be beneficial to send money when paired with a strong reciprocator since in this case  $\alpha p > 1/3$ . Then we have a group of “weak reciprocators” ( $n = 32$ ) who are willing to send some money back but typically a very small fraction. This group of subjects is willing to send some money back but that amount varies between 10%, if given \$6, and just a bit above 20% if given \$30. It would be a losing proposition to send money to the “weak reciprocators” since one will definitely get back less than the amount sent. In between the “strong reciprocators” and “weak reciprocators” we have a group which we have labeled “late reciprocators” ( $n = 21$ ). For sums of money less than \$15 these subjects resemble the “weak reciprocators” in that they would send back only about 20% of the money received. However for amounts of \$18 or more these subjects resemble “strong reciprocators” in that they would return around 40% or more. When paired with a “late reciprocator” it would make sense to send a reasonably large amount because one can expect to lose money when sending small amounts but obtain a net gain when sending more since for these subjects  $\alpha p > 1/3$  only for  $X > \$15$ .

### **3.2.2 Reciprocity Elicited Directly Using Actual Amounts**

Now let us turn to how the subjects actually behaved in terms of the amount that was actually sent to them. One potential confound at this stage is created by the fact that different receivers receive different sums of money from the paired sender. So for purposes of comparison we look at the proportion of amount kept (or sent back) by each receiver. This creates one problem, since 18 out of 100 subjects, received \$0 from the paired sender. We drop these 18 observations leaving us with 82 data points. We find that on average subjects send back around 17.5% of the amount that they receive from the sender. This is less than Berg et al. where subjects return on

average 30% of the money received but similar to Burks et al. (where subjects play both roles) where subjects sent back 14% of the amount received.

The amount of money received by the receiver from the paired sender and the percent of money sent back to the paired sender is highly correlated, with a significant Spearman's Correlation Coefficient of 0.3203 and a corresponding p-value of 0.0033. This implies that when the receiver receives a larger sum of money, the receiver responds by returning a larger amount as well. Thus the data provide strong evidence of positive reciprocity again providing corroboration to the Gneezy et al. (2000) evidence along the same lines. We did not find any systematic differences in reciprocity by ethnicity.

The next logical question is how consistent are the responses elicited using the strategy method and actual amounts sent back. This goes to the issue of "hot" versus "cold" responses as explained in the paper by Brandts and Charness (2000). The issue is do the responses elicited using the strategy method (the "cold" response) match up with what subjects actually did when they were confronted with an actual monetary amount and the decision of how much to send back (the "hot" response)? That is when the subject answered hypothetically that they would return \$Y if they received \$X, did they indeed return \$Y when they received \$X from the anonymous sender? Here we have 76 observations. This is because 18 subjects received \$0 and 6 subjects did not fill out the relevant part of the questionnaire. Of the remaining ones, 49 (64.5%) are consistent in that they did indeed keep or return the amount they said they would. Some subjects kept more than they said they would while some kept less. Figure 3 describes the behavior of all 76 subjects for whom we have data. The subjects who were consistent have been assigned a code of "0". If a subject kept **more than she said she would** we have given this subject a **negative number** where the

number refers to the actual dollar figure, i.e., how much less she sent back compared to what she said she would send back. If she kept **less than she said she would and sent more back** to the receiver then she has been assigned a **positive number** where once again the number refers to how many dollars more she sent back compared to what she said she would send back. Thus in Figure 3, there are 49 subjects labeled 0. To the left of the “0” subjects we find 4 people kept \$1 more than they said they would (labeled as -1), 4 kept \$1.5 more (labeled as -1.5) while 2 kept \$10 more (labeled as -10) etc. Over to the right of the “0” subjects, 1 subject gave back \$13 more than she said she would (labeled +13) while 9 subjects gave back between \$1 and \$4 more than they said they would. So out of 76 subjects 49 were consistent and another 8 erred within \$1 on either side giving us 57 (75%) subjects who were either consistent or erred within taking \$1 more or \$1 less than they said they would. This corroborates the evidence reported by Brandts and Charness (2000) that the “hot” and “cold” responses in many situations are consistent with one another.

Model 1 of Table 3 presents results from an ordinary least squares model where the dependent variable is the difference between the amount the receivers said they will keep and the amount they actually kept. We find that when the subject is female then the difference between the hypothetical amount kept and the actual amount kept is significantly higher. This is because of the fact that for a given amount received from the sender, women actually keep a lesser amount than they say they will as compared to men. The amount received also has an impact on the difference between the hypothetical and the actual amount kept, with the difference decreasing as the amount received increases.<sup>12</sup>

---

<sup>12</sup> The problem is that the difference could be higher because the hypothetical amount is greater or the actual amount kept is less, or both. This regression does not allow us to separate out these three effects. Hence we also conducted separate regressions taking the percentage of actual amount kept and the hypothetical amount as the dependent variable. We find that women keep a lower amount at the

### 3.3 Relation between Trust and Reciprocity

Finally let us explore the relationship between trust and reciprocity. Are those who trust necessarily trustworthy? That is if a subject reposes trust on her pair-members by sending money then would that subject necessarily also reciprocate another subject's trust when in a position to do so? Chaudhuri et al. (2003) and Chaudhuri, Sopher and Strand (2002) suggest that trust and trustworthiness are very different constructs that is those who trust do not necessarily reciprocate. We find the same phenomenon in our data. Let us look at the percent amount that the subject sends to the paired receiver. Larger percent amount sent indicates greater trust. Then let us look at the percent amount sent back by the subject in her role as the receiver. If trust implied reciprocity then we would expect to see strong positive correlation between these two variables. That is those who send more as the sender (thereby exhibiting trust) also send back more as the receiver (exhibiting reciprocity). In actuality we find that these two variables are not correlated at all. A Spearman correlation coefficient test between the percent amount sent as sender and the percent amount sent back as receiver by each player yields a value of 0.1432 with a p-value of 0.1994 showing that these two amounts are not correlated.

Here is another way of asking the question about the relationship between trust and reciprocity. Let us define a subject as "trusting" if he or she sent **exactly 50% or more** of her initial endowment of Au \$10.00. If they sent **less than 50%** then we call them non-trusting. Then let us see if the "trusting" subjects exhibit greater reciprocity than the "non-trusting" subjects. It turns out that the answer is no. Using the 50% cut-off we get 58 subjects who are non-trusting (sent less than 50%) and 42 trusting (sent exactly 50% or more). The non-trusting subjects returned on average 18% of the

---

receiver stage as compared to men. In addition, higher the amount received, lower is the actual amount kept by the receiver, and lower is the hypothetical amount kept. This is more so for female subjects.

amount they received while the trusting subjects returned 16%. This difference is not significant using either a t-test ( $t = 0.40$ , 80 d.f.,  $p = 0.686$ ) or a Wilcoxon non-parametric test ( $z = 0.963$ ,  $p = 0.335$ ). Model 2 of Table 3 corroborates this finding, with trusting (trusting = 0 for those who send less than 50%,  $n = 58$ , and 1 for those who send 50% or more,  $n = 42$ ) not being significant in explaining the difference between the hypothetical amount and the actual amount kept by the receiver.<sup>13</sup>

The above evidence suggests that while a large majority of subjects in this game exhibit trust not all of them necessarily reciprocate trust when they have the opportunity to do so. Thus many subjects, while trusting, may not be trustworthy. How about those who do reciprocate trust? Are these reciprocators also more trusting? The answer turns out to be an emphatic yes. Let us look at two different specifications. First let us define as “trustworthy” those who return **at least 1/3 or more** of any amount offered to them. There are 27 such subjects. The remaining 55 who return **less than 1/3** are deemed less trustworthy.<sup>14</sup> Then let us look at how much money these two groups of subjects send to the pair-member in their role as senders, where the amount of money sent is a measure of their degree of trust. It turns out that the 27 trustworthy subjects send \$5.33 on average which is higher than the \$3.82 on average sent by the remaining 55 subjects. ( $t = 1.79$ ,  $p = 0.07$  on a t-test and  $z = 1.84$ ,  $p = 0.06$  on a Wilcoxon nonparametric test). A parametric double-censored Tobit model confirms this finding. In Model 1 of Table 4 we regress the amount of money sent as the sender against (1) Female (= 1 if female, 0 otherwise), (2) age and (3) trustworthy, where trustworthy = 1 if the subjects returned **at least 1/3 or more** as the receiver, 0 otherwise. The coefficient for trustworthy is positive and significant

---

<sup>13</sup> We report results from one model here, however we conducted several regressions to examine the relationship between trusting and the amount kept or sent by the receiver. In all these regressions, we find that trusting is not significant in explaining the amount or percentage kept by the receiver.

<sup>14</sup> These two numbers add up to 82 because there are only 82 subjects who receive a positive amount of money to start with and this analysis, therefore, is relevant for only those 82 subjects.

showing that as trustworthy goes from 0 to 1, i.e. towards greater reciprocity, for those subjects the amount of money sent as sender (a measure of trust) is significantly higher.

In another specification we re-define “trustworthy” as those who send back **strictly more than 1/3** of any amount they get as the receiver, while the rest are considered less trustworthy. This re-definition reduces the number of trustworthy subjects to 17 and increases the number of less trustworthy subjects to 65. The 17 trustworthy subjects on average send \$6.18 while the 65 less trustworthy ones send \$3.83. This difference is significant. ( $t = 2.43$ ,  $p = 0.02$  on a t-test and  $z = 2.31$ ,  $p = 0.02$  on a Wilcoxon nonparametric test). Once again a parametric Tobit model shows that those who are trustworthy are also more trusting. In Model 2 of Table 4 we regress the amount sent as sender against the same three variables (1) female, (2) age and (3) trustworthy, which have been defined above. The coefficient of trustworthy is positive and significant at 1%.

Thus we have strong evidence that being trustworthy implies being trusting, i.e. those who reciprocate others’ trust are inclined to trust others as well but the converse is not true. Those who trust do not necessarily reciprocate trust when the opportunity to do so arises.

#### **4. Conclusion**

In this paper we have addressed the question whether the decision to send money in the trust game is motivated by trust or other-regarding preferences. Based on our analysis of subject choices and their responses to questions we believe we can conclude that the behavior of a majority of subjects in this game is indeed in keeping with the trust and reciprocity hypothesis. Thus it seems to us that the trust game –

specifically the amount of money sent by the senders in this game – is indeed a convenient way of measuring trust.<sup>15</sup>

In addition the study is also interesting with regard to what it suggests about the relationship between trust behavior and reciprocal behavior. It seems to us that these two behaviors were unrelated to each other. A primary difference regarding trust and reciprocity in the present experiment concerns the fact that an exhibition of trust via sending money in the trust game can be formulated as consistent with maximizing one's own returns while reciprocity cannot. Let us look at it from the standpoint of a participant. That is, one could say to one's self, "to the extent that I send money to my partner I increase total possible payoff threefold (from a maximum possible of \$10 to a maximum possible of \$30). All that is necessary for me to get a greater return on money sent is for my partner to realize that I deserve to be rewarded for allowing him or her to make money. After all, I could have left them with nothing." Therefore, the sender decision constitutes a homo economicus decision. In the case of the reciprocal decision, on the other hand, sending money back cannot be justified from a self-interested or homo economicus point of view. Sending money back does not increase one's economic well being, or one's chance for subsequent economic well being. Therefore, such behavior falls in the category of being altruistic, or what might be referred to as homo reciprocans behavior.

As Chaudhuri et al. (2003) and Glaeser et al. (2000) point out, standard survey questions are indeed able to predict reciprocal (or trustworthy) behavior which is an

---

<sup>15</sup> However there is one caveat that needs to be pointed out here. It is possible that in some cases trusting behavior is connected to risk attitudes. This may especially be true for female subjects more than for male subjects. Two interesting recent papers – one by Eckel and Wilson (2002) and the other by Bohnet and Zeckhauser (2003) – try to tease out nuances in trusting behavior into two components – one of which might be explained as “pure” trust and the other as a predilection for risk or accepting a gamble. See the discussion in Karlan (2002) as well. However a clear consensus on this issue has not emerged yet. We discuss these issues in greater detail in Chaudhuri and Gangadharan (2001).

important component of social capital. If one is interested in measuring reciprocity or trustworthiness among a subject pool then a variety of survey questions may serve that purpose. However usual survey questions do a poor job of predicting trust. And in many economic situations such as those with incomplete contracts (or high transactions costs) it is trust among strangers that we are primarily concerned with. Thus if one is indeed interested in measuring trust across cultures, groups or societies then it seems to us that the amount of money sent by senders in the trust game is an adequate metric.

### **Bibliography:**

- Berg, J., J. Dickhaut and K. McCabe, (1995), "Trust, Reciprocity and Social History", *Games and Economic Behavior*, v. 10, p. 122-42.
- Bohnet, I., and R. Zeckhauser, (2003), "Trust, Risk and Betrayal", Working Paper, March 2003, Kennedy School of Government, Harvard University, Cambridge, MA.
- Bolton, G., E. Katok and R. Zwick, (1998), "Dictator Game Giving: Rules of Fairness versus Acts of Kindness", *International Journal of Game Theory*, v. 27, p. 269-99.
- Brandts, J. and G. Charness, (2000), "Hot vs. Cold: Sequential Responses and Preference Stability in Experimental Games", *Experimental Economics*, v. 2(3), p. 227-238.
- Burks, S., J. Carpenter and E. Verhoogen (2003), "Playing Both Roles in the Trust Game: The Golden Rule and Machiavellian Behavior", *Journal of Economic Behavior and Organization*, v. 51 (2), p. 195-216.
- Chaudhuri, A. S. Khan, A. Laksmiratan, A. Py and L. Shah (2003), "Trust and Trustworthiness in a Sequential Bargaining Game", *Journal of Behavioral Decision Making*, 16(5), p. 331-340.
- Chaudhuri, A. and L. Gangadharan (2001), "Gender Differences in Trust and Reciprocity", Working Paper, Department of Economics, Wellesley College, Wellesley, MA.
- Chaudhuri, A., B. Sopher and P. Strand (2002), "Cooperation in Social Dilemmas, Trust and Reciprocity", *Journal of Economic Psychology*, v 23(2), p. 231-49.
- Cox, J. (2002), "Trust, Reciprocity and Other-Regarding Preferences: Groups vs. Individuals and Males vs. Females", Chapter 14 in Rami Zwick and Amnon

Rapoport (Eds.), Experimental Business Research, Kluwer Academic Publishers, Boston, Dordrecht, London.

- Croson, R and N. Buchan, (1999), “Gender and Culture: International Experimental Evidence from Trust Games”, *American Economic Review Papers and Proceedings*, v. 89(2), May 1999, p. 386-91.
- Croson, R. (2000), “Thinking Like a Game Theorist: Factors Affecting the Frequency of Equilibrium Play”, *Journal of Economic Behavior and Organization*, v. 41, p. 299-314.
- Eckel, C. and R. Wilson (2002), “Conditional Trust: Sex, Race and Facial Expression in a Trust Game, Paper presented at the 2002 Annual American Economic Association Meetings, Atlanta, GA.
- Fukuyama, F. (1995), Trust: The Social Virtues and the Creation of Prosperity”, The Free Press, New York, NY.
- Glaeser E., D. Laibson, J. Scheinkman and C. Soutter, (2000), “Measuring Trust”, *Quarterly Journal of Economics*, v.115(3) August 2000, p. 811-846.
- Gneezy, U., W. Güth, and F.Verboven, (2000), Presents or Investment? An Experimental Analysis”, *Journal of Economic Psychology*, v. 21, p. 481-93.
- Karlan, D. (2002) “Using Experimental Economics to Measure Social Capital and Predict Financial Decisions, Mimeo, Department of Economics, Princeton University.
- Knack, S. and P. Keefer (1997), “Does Social Capital Have an Economic payoff? A Cross-Country Investigation”, *Quarterly Journal of Economics* v112(4), p. 1251-88
- La Porta R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1997), “Trust in Large Organizations”, *American Economic Review Papers and Proceedings*, v. 87(2), p. 333-338.
- Putnam, R.D. (2000), Bowling Alone: The Collapse and Revival of American Community”, Touchstone, New York, NY, 2000.

**Table 1: Double Censored Tobit**

**Dependent Variable: Amount of Money Sent by the Sender to the Anonymous Receiver out of an Initial Endowment of \$10.00**

Variable	Model 1		Model 2		Model 3	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Female	-2.356**	1.09	-1.936**	0.991	-2.342**	1.18
Age	-0.231	0.259	-0.116	0.256	-0.15	0.29
Percent amount expected back from receiver	10.92***	2.107	9.136***	2.172		
Motive			2.498**	1.219		
Ethnicity					-1.19	1.18
Constant	7.18	5.22	3.589	5.338	9.14	5.82
Pseudo-R <sup>2</sup>	0.07		0.08		0.02	

\*\*\* significant at 1%

\*\* significant at 5%

**Table 2: Amount that the subject will keep and return based on the hypothetical amounts received**

<b>If the amount received is</b>	<b>Then the subject will keep</b>	<b>And the subject will return</b>
\$3	\$2.79 (93%)	\$0.21 (7%)
\$6	\$5.24 (87%)	\$0.76 (13%)
\$9	\$7.64 (85%)	\$1.36 (15%)
\$12	\$9.67 (81%)	\$2.33 (19%)
\$15	\$11.80 (79%)	\$3.20 (21%)
\$18	\$13.73 (76%)	4.27 (24%)
\$21	\$16.07 (77%)	\$4.93 (23%)
\$24	\$17.80 (74%)	\$6.20 (26%)
\$27	\$19.95 (74%)	\$7.05 (26%)
\$30	\$21.34 (71%)	\$8.66 (29%)

**Table 3: Are responses Consistent?**

**Dependent variable: The difference between the amount kept by receiver elicited via the strategy method and the actual amount kept by the receiver in the experiment**

Variable	Model 1		Model 2	
	Coefficient	Standard Error	Coefficient	Standard Error
Female	1.35**	0.64	1.11*	0.66
Age	0.27	0.18	0.23	0.18
Amount received	-0.07**	0.03	-0.07**	0.03
Trust			-0.86	0.68
Constant	-5.57	3.53	-4.19	3.68
Adjusted R <sup>2</sup>	0.06		0.07	

\*\* significant at 5%

\* significant at 10%

**Table 4: Double Censored Tobit**

**Dependent variable: The amount of money sent by the subject as the sender (a measure of the degree of trust)**

<b>Variable</b>	<b>Model 1</b>		<b>Model 2</b>	
	Coefficient	Standard Error	Coefficient	Standard Error
<b>Female</b>	-3.41***	1.25	-3.73**	1.23
<b>Age</b>	-0.27	0.34	-0.31	0.33
<b>Trustworthy</b>	2.90**	1.34	4.60***	1.56
<b>Constant</b>	10.62	6.89	11.60*	6.73
<b>Pseudo-R<sup>2</sup></b>	0.03		0.04	

\*\*\*: Significant at 1%

\*\*: Significant at 5%

\*: Significant at 10%

Figure 1: Amount Sent by Motive Type

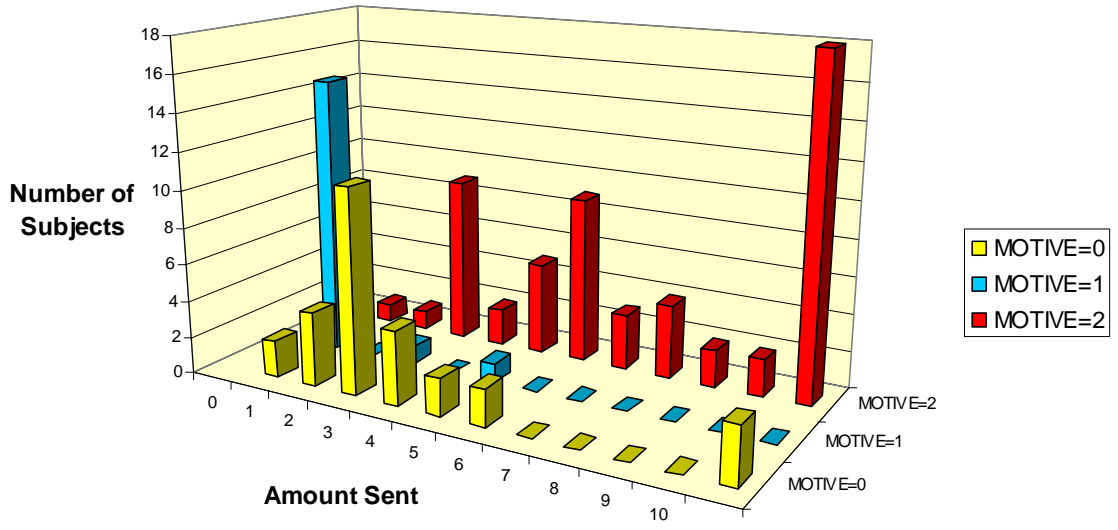


Figure 2: Types of Reciprocators

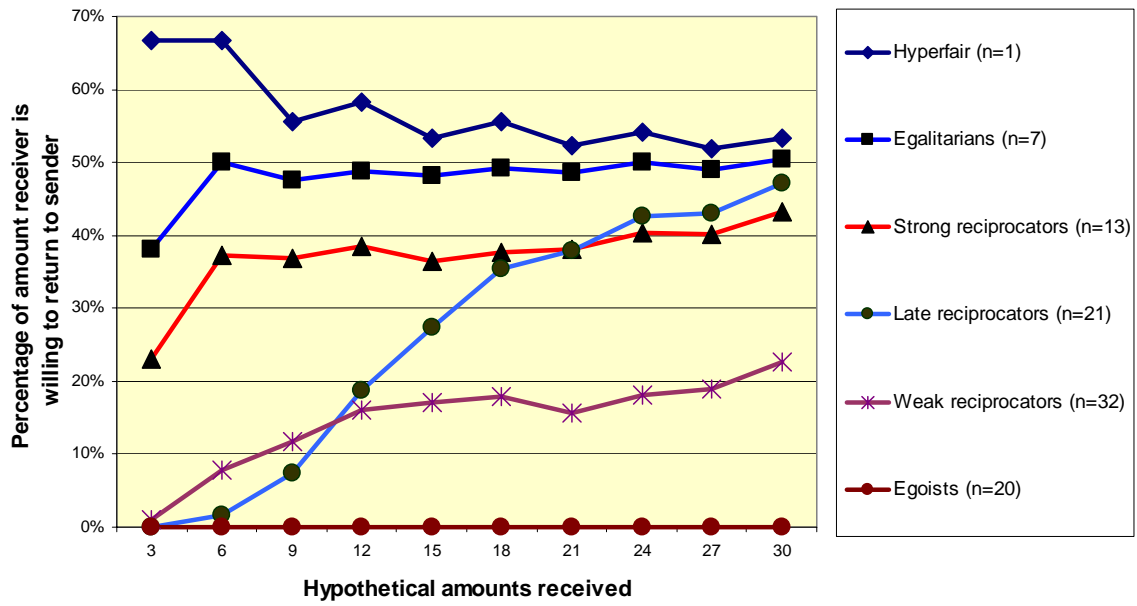
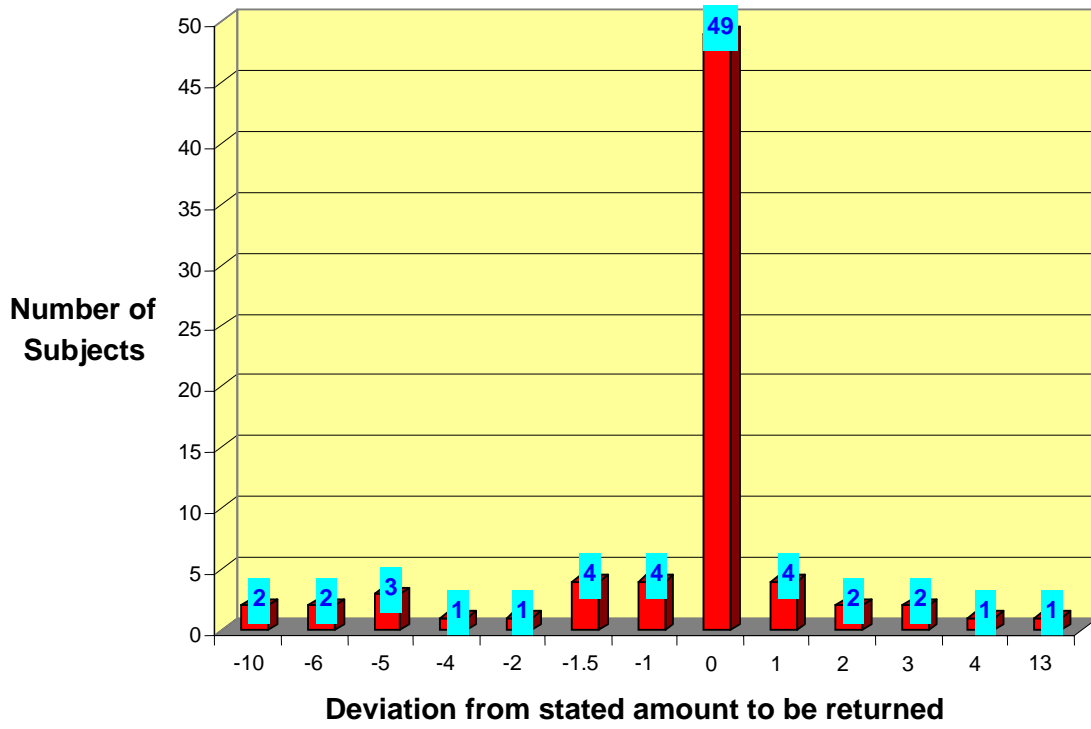


Figure 3: Consistency between stated and actual responses



## Appendix A (Meant for the Referees)

### Coding for Motive in sending money:

- “2” uses trust and reciprocity based arguments for maximizing earnings and for sending money
- “1” recognizes trust and reciprocity based incentives but does not repose trust
- “0” Otherwise

#### **Subject = 1. Gender = Female. Sent = \$10. Motive behind decision = 2.**

I want the \$10 but we could both make more if we work together and split the \$30 and make 15 each. This is a total risk because it would be tempting for the person to keep the 30. I'm hoping that an obvious gesture of generosity will get me some money back, \$10 at least. I'm thinking this is a stupid plan but have decided to continue with it anyway cause I still have a chance to keep some money that someone else will send me...perhaps. Also curiosity has overcome me on how generous people will be. It all depends on what financial circumstances they are in. The fact that we are dealing in REAL money really influences the decision. I value the “excitement” from my risk taking at \$10. But perhaps the receiver needs the money and will keep it all (or they are selfish).

#### **Subject = 2. Gender = Male. Sent = \$10. Motive behind decision = 2.**

If act in a mutually beneficial way (by sending 10 and thereby having an aggregate of 30) the best possible outcome can be achieved. Namely each player receiving 15 each. In effect I am risking \$10 for a possible 15. This however does leave me open to getting screwed, i.e. getting nothing at all.

#### **Subject = 3. Gender = Male. Sent = \$9. Motive behind decision = 2.**

I was tempted to make optimal use of the experimenter and send all \$10 ensuring maximum returns for my receiver of \$30. I hoped the receiver would show appreciation by sending back \$15 (or thereabouts) thereby obtaining max profits for us both. However I shamefully withdrew from my original decision by one step, keeping \$1. I have to say that I wanted to put my trust in the other group members to think the way I initially had. But being no guarantees, I decided it was foolish not to keep any money, so I sent \$9. I'm idealistic and believe in maximizing global profit and hoped that others would see that too.

#### **Subject = 4. Gender = Male. Sent = \$10. Motive behind decision = 0.**

Because I'll probably make as much as I would have otherwise by keeping it all, maybe more and it also makes the other person richer. So why not?

#### **Subject = 5. Gender = Male. Sent = \$0. Motive behind decision = 0.**

No matter what decision the other person makes, I seem to be better off keeping as much money as I can.

#### **Subject = 6. Gender = Male. Sent = \$10. Motive behind decision = 2.**

I hope that everyone understands that we should maximize the amount of money to distribute. There are only 4 pairs so the chances that everyone will send their \$10 are quite high. I was considering keeping \$10 and hoping to receiver \$30 from the sender, so I guess if I get sent nothing now my trust in people's common sense has been misplaced. If I receive \$30 I will keep it all, as it is the last move in the game and I stand to gain nothing by giving some back. I would assume that everyone would keep their tripled amount. It's a bit like the prisoner's dilemma, if everyone goes for what the first think is the best, everyone is worse off and if one person trusts and the other doesn't they lose the most. The best payoff is where both parties trust, I hope that there are enough economics students here to remember that!

**Subject = 7. Gender = Female. Sent = \$4. Motive behind decision = 2.**

I sent \$4. I thought that surely the receiver would return \$4 back and we would both have benefited.

**Subject = 8. Gender = Male. Sent = \$2. Motive behind decision = 0.**

I sent \$2 because I didn't know the others and had no rational expectations of their decisions. If I could have I would have sent \$2.50 which would have resulted in us both receiving the same payoff. If I knew or could have built a relationship or rapport with the receiver I would have given more.

**Subject = 9. Gender = Female. Sent = \$10. Motive behind decision = 2.**

I gave the whole \$10. As it would have given the receiver \$30. I thought they would send back \$10+.

**Subject = 10. Gender = Male. Sent = \$10. Motive behind decision = 2.**

More money is given away when I send \$10. This means more money would be distributed among the subjects of this experiment. On average we will all be better off if we send \$10 to triple the amount the receiver gets. I am however aware that the receiver may not send anything back. Who gains and who loses is a matter of chance/

**Subject = 11. Gender = Male. Sent = \$2. Motive behind decision = 2.**

I figure that as I am giving them \$6, then they should be nice enough to give me my \$2 back as I used it to give them \$6.

**Subject = 12. Gender = Female. Sent = \$1. Motive behind decision = 0.**

In this game I am not really losing anything. All that's happening is a gain – someone gaining more than another. I don't mind sharing some gain / giving some money away. Hence I thought I will give away \$1 where I don't lose much but my partner in the other room gains more.

**Subject = 13. Gender = Male. Sent = \$2. Motive behind decision = 0.**

I'm expecting some returns from what I have given out. And besides, I just feel bad is the opposite receives nothing.

**Subject = 14. Gender = Female. Sent = \$10. Motive behind decision = 0.**

This way it will benefit my partner and hopefully he/she will be inspired/feel obliged to give some in return.

**Subject = 15. Gender = Female. Sent = \$3. Motive behind decision = 2.**

So I could potentially make more than if I'd chosen to keep the entire \$10. The most I could make is if I sent the \$10 to the receiver and received \$30 back but that is unrealistic. If I sent \$3 I would lose at most \$3 ( $10 - 7$ ) and gain possibly \$11 ( $7 + 9 - 5$ ) or more.

**Subject = 16. Gender = Female. Sent = \$1. Motive behind decision = 0.**

I decided to give away \$1.00. I didn't expect to receive anything back so I wanted to minimize my loss.

**Subject = 17. Gender = Male. Sent = \$1. Motive behind decision = 2.**

Instead of me getting \$1.00 extra I gave it up so there would be \$3.00. Hence if receiver gave back money say \$2.00 and kept \$1.00 then I would be better off (by \$1.00) and so would the receiver if he/she gave up \$0.00. So we both gain. I could have risked more for greater gain but I might have been worse off.

**Subject = 18. Gender = Male. Sent = \$10. Motive behind decision = 2.**

If everyone sends \$10, then the total money in play will be maximized which means on average that everyone will have more money.

**Subject = 19. Gender = Female. Sent = \$0. Motive behind decision = 1.**

Because everyone wants to maximize his/her utility so they want to keep the \$10 with them (safely), since they are dealing with an anonymous person, so there is the possibility that he/she will lose some money, (i.e. that he/she offered to the other person. But that person won't send you back the money, rather than he/she will keep the money for themselves. Keep in mind that the chance is I will get 3X more that I offered to he/she if he/she is willing to do it...However in general people will not do it with a stranger. So I choose to keep the \$10.00 with me.

**Subject = 20. Gender = Female. Sent = \$0. Motive behind decision = 1.**

I've sent no money to the receiver because since she does not have to send me any money back I may end up with making no profit and just losing the money I sent. For e.g. if I sent \$2 they'd receive \$6. They may send me back \$3 to be fair meaning I have made \$1 profit. However they may not send back anything then I'll lose \$2. Hence I chose to send no money.

**Subject = 21. Gender = Female. Sent = \$2. Motive behind decision = 0.**

Because I want to test my partner whether she/he is generous in charity and I hope in making decision we can consider the other person who is weak. I realize that profit maximization is important for your business but you cannot always maximize utility, in other hand you hurt other. Sometimes success in business depends on your luck and hard work.

**Subject = 22. Gender = Female. Sent = \$4. Motive behind decision = 0.**

Kept \$6, gave \$4. Anyway when people want to maximize their wealth...they don't necessarily have to keep everything. Trade can sometimes make people better off.

**Subject = 23. Gender = Male. Sent = \$0. Motive behind decision = 1.**

Me sending money to anyone else is of no advantage to me. So there is no reason to send these people any money. I could very well receive nothing in return, no matter how much or how little I send. As he experiment is anonymous keeping all the money I start with is the best way to maximize my profit. Any other money I receive is a bonus. I will not send any of that back either.

**Subject = 24. Gender = Female. Sent = \$2. Motive behind decision = 2.**

If I kept the \$10 or \$9 then the receiver would have received \$0 or \$3. If \$0 then obviously they couldn't send anything back to me. If \$3 I think they would have kept all \$3 as is a small amount of money. But I thought if I kept \$8, i.e. they received \$6 then there's a small chance that they will give me \$1 back out of appreciation (if not nothing). I don't think they would give me back any more than \$1 back. Thinking about it I should just keep \$9, then I'm guaranteed to keep \$9. But \$1 is so small...I won't change my answer.

**Subject = 25. Gender = Male. Sent = \$10. Motive behind decision = 2.**

As the receiver will get \$30 from myself, I will expect the receiver to keep all of it. However I am hoping he/she will send back for the reason of generosity or thankfulness. If he/she does send any money back I'd expect it to be between \$10-15 (therefore we will both have more than the original amount). However I doubt that the receiver will send any money as it would be foolish though generous. Since our identities are anonymous in this experiment, generosity and the consequences of our actions are not rewarded. I expect my sender to act likewise and give me \$30. I don't expect to send any of this back for the above reasons. I expect my sender to give me \$30 because it increases the amount of money. H/she may also expect me to return about half of this amount.

**Subject = 26. Gender = Male. Sent = \$10. Motive behind decision = 2.**

I made this decision based on economic principles. I tried to maximize the amount that is produced regardless of who gets the money in the end. Obviously there is a risk of losing out \$10, but in turn it can generate \$30 worth of social utility. Hopefully that person sees my generosity and sends some money back.

**Subject = 27. Gender = Female. Sent = \$5. Motive behind decision = 2.**

By sending the receiver \$5, the receiver will actually receive \$15. From there we can increase our existing amount from \$10 to \$20. I expect the receiver will give me back \$5 so that I am not worse off from what I did. Both of us can get \$10 each. But if the receiver gave less than \$5 then I am worse off.

**Subject = 28. Gender = Female. Sent = \$2. Motive behind decision = 2.**

I hope the receiver will send me back some money since he or she will be getting \$6 from me. I don't think that the receiver will send most of the money back to me but at least I hope that he/she will return \$2 to me as my target is getting back to the original amount (\$10).

**Subject = 29. Gender = Female. Sent = \$3. Motive behind decision = 2.**

Because by only giving \$3 the receiver will benefit by \$9. Perhaps because of this the receiver will be inclined to send some money back. If I sent nothing I would not lose anything but there is a potential for gain on both sides so a risk of \$3 is not that much.

**Subject = 30. Gender = Female. Sent = \$5. Motive behind decision = 2.**

One dollar I sent will be 3 dollars the receiver receives so I decide to send 5 dollars to the receiver and therefore I will expect more return from the receiver. However I keep \$5 because I don't want to take risk if he/she don't send me back at least \$5. If they don't send me at least \$5 then I will not gain.

**Subject = 31. Gender = Female. Sent = \$1. Motive behind decision = 0.**

I gave only \$1. I do not think my sender is a generous person (although the partners have been swapped, people are generally greedy and selfish).

**Subject = 32. Gender = Female. Sent = \$2. Motive behind decision = 0.**

The person gets a bit of money instead of leaving empty handed. If I keep all the money and don't give any to the receiver the person will have none to keep.

**Subject = 33. Gender = Male. Sent = \$2. Motive behind decision = 0.**

Might not receive anything from the other person.

**Subject = 34. Gender = Male. Sent = \$7. Motive behind decision = 2.**

I gave \$7 and kept \$3 hoping people would make out the enormous potential of giving away money to increase social welfare over the possible risk. The return that is probable justifies the risk. I think everyone recognizes the advantages of this trade and that unselfishness is the means to maximize each other's benefit. Though there is a risk I have considered it. It boils down to my expected level of satisfaction.

**Subject = 35. Gender = Male. Sent = \$10. Motive behind decision = 0.**

Well, obviously, the more you give the more profit there is. Whether the profit goes into my pocket or his/her pocket is up to the receiver so I cannot be guaranteed of making money. However if the person does decide to keep all the money, then I at least feel good about myself for making others richer. Any

money I receive on top of that I consider a bonus. Also I am the recipient of another person's money and that can be a consolation.

**Subject = 36. Gender = Male. Sent = \$5. Motive behind decision = 2.**

I feel that the receiver may feel obliged to give me back some money as a kind of reward for the money I give him/her. \$5 seemed like a good amount because it wasn't too risky if the receiver decided not to give me any back. I still had \$5 and there was a high chance that I would at least get \$5 back and still be at the \$10 I started with. Hopefully I will be better off than this, however.

**Subject = 37. Gender = Male. Sent = \$0. Motive behind decision = 1.**

I feel that any amount that I send the maximum I can expect back is half the tripled amount. In that case I'm only returning a return of 50% of the money I send despite the enormous risk.

**Subject = 38. Gender = Male. Sent = \$0. Motive behind decision = 1.**

I have no trust in the receiver. They could keep all the money for themselves and I would not get as much as I deserve. I want to look after myself in this sort of transaction regardless of the possible benefits.

**Subject = 39. Gender = Male. Sent = \$4. Motive behind decision = 1.**

I have decided to give \$4. It might be a profit maximizing way if I can communicate with my partner so that each one of us can send \$10 then receive \$30. However I don't know what the other player is going to do so decided not to risk it. This is based more on an ethical ground as under uncertainty I can decide to give nothing and keep all that is being sent by the other player.

**Subject = 40. Gender = Female. Sent = \$1. Motive behind decision = 0.**

This is just an arbitrary decision. I'll think that keeping more money to myself will then increase my earning.

**Subject = 41. Gender = Female. Sent = \$0. Motive behind decision = 1.**

Say for instance I actually gave all \$10 to the receiver so they can get \$30, I would then expect them to return \$10 of that and hence I would end up with \$10 either way. I do not trust the receiver as they may be greedy and keep all the \$30 and send me back nothing, hence it is less risky for me to keep all \$10 and give the receiver no power. In any case the receiver will probably round off the amount they get e.g. if they receive \$12 they will probably send back only \$2 and therefore the sender will have lost \$2 in the trade. Same scenario can occur for any other exchange of money. The MAIN reason I decided to do it this way is because I do not trust these people as they came here for the money to begin with – same as I did.

**Subject = 42. Gender = Female. Sent = \$0. Motive behind decision = 1.**

Because I feel that I cannot rely on trust anybody in this game. Even if I decided to give an amount of money to the receiver (resulting in having lesser amount in my earnings) there is no guarantee that the receiver will actually be kind enough to send some of the money back to me. I know that if I send all the money (\$10) to the receiver, the receiver will actually get \$30 and IF he/she is kind enough he will hopefully send back at least half of it, so that we actually get \$15, which is a bigger amount. But this situation is almost impossible to happen because it is the nature of human beings to be greedy. From what I guess, this is like a one-time situation, so this situation will not be repeated again in the future. Therefore I've decided to send as little as possible as a sender and take as much as I can as a receiver. There is no good people in the real business world, especially when it comes to money.

**Subject = 43. Gender = Female. Sent = \$2. Motive behind decision = 0.**

Both of us are happy. I will have \$8 and the receiver will receive \$6. I will be more happier as I have more money (receive more money) as well as make my pair happy as he/she gets \$6 from me.

**Subject = 44. Gender = Female. Sent = \$7. Motive behind decision = 2.**

I decided to give more than I keep cause firstly it is often the case that only when we give then we will receive. Looking from the perspective of Economics, why I did not expect to receive anything back was because I treated that sum of money I give as a form of investment and any investments will always involve risks. If we want higher returns, we would incur higher risks as well. In the business world we need to learn to be more enterprising and have more courage to try new things in taking a risk. If we never give or try we will never learn or know. It is only when we give that we can receive. If no one gives then who can we receive from?

**Subject = 45. Gender = Female. Sent = \$2. Motive behind decision = 2.**

I felt that the receiver could benefit if I gave them money because there would be more money being shared between us, i.e. total money between us would increase by the sender sending money. I would hope to get at least some money back from the receiver – at least the \$2 I originally I sent. However I am not willing to send more money than this, in case the receiver does not send me any back.

**Subject = 46. Gender = Female. Sent = \$10. Motive behind decision = 2.**

By giving \$10, the maximum possible amount will be received, although not by me. I feel that by giving it all and not \$7, \$8 or \$9 the other person will feel bad and give me up to half, i.e. \$15, which is already \$5 more than I'd receive if I took the \$10. However I realize this is a risk. I acknowledge that I largely participated in this experiment for the money but am interested to see the reaction. This decision has the potential to maximize both me + the person I am paired with's profit.

**Subject = 47. Gender = Female. Sent = \$2. Motive behind decision = 2.**

If the receiver receives a decent amount then they are more likely to send more back. However they may not, therefore I decided to keep most as a precaution.

**Subject = 48. Gender = Female. Sent = \$0. Motive behind decision = 0.**

In order to maximize my utility, I want to keep ALL \$10 with me.

**Subject = 49. Gender = Female. Sent = \$8. Motive behind decision = 2.**

I am hoping that my receiver will be generous enough to send me back a high proportion of what they received from me. This decision is based on wishful thinking, hoping that being generous will score a win-win situation, since I sent a big amount to the receiver. I believe that the more you send, the more likely you are to receive more.

**Subject = 50. Gender = Male. Sent = \$10. Motive behind decision = 2.**

I am trying to maximize the wealth of all the participants. I believe that the receiver will be grateful to receiver such a large sum and will return to me at least the amount that I sent.

**Subject = 51. Gender = Male. Sent = \$3. Motive behind decision = 2.**

As I want to maximize my earnings, hoping that the receiver will send back at least the amount that I sent to.

**Subject = 52. Gender = Male. Sent = \$0. Motive behind decision = 1.**

I kept \$10. I knew no one will take the risk of hoping the receiver to send some portion of the money back to you (lack of information and full of uncertainty).

**Subject = 53. Gender = Female. Sent = \$5. Motive behind decision = 2.**

The decision was made assuming that I would be receiving some money back. The more money I give them the more they can afford to give back. But I don't want to take too big a risk.

**Subject = 54. Gender = Female. Sent = \$7. Motive behind decision = 2.**

I'm keeping \$3 for myself in case I end up with nothing. However I'm hoping that what I reap will eventually sow. Thus I'm hoping the receiver will give me \$9. In that way we will both gain \$2 as both of us will end up with \$12 – 50%-50% of the pie. Moreover I already have \$3 for turning up. Thus I will eventually end up with \$6. I'm kinda putting my faith in the goodness of others. Hopefully, things will turn out well.

**Subject = 55. Gender = Female. Sent = \$2. Motive behind decision = 2.**

By keeping \$8 I am hoping to gain some money back depending on the receiver. Even if I don't I have only lost either one or two dollars which I consider to be a small amount to lose. I am hoping that the receiver will give me some back. I thought that if I gave the receiver too much he will keep it all.

**Subject = 56. Gender = Female. Sent = \$2. Motive behind decision = 2.**

I only sent a small amount (\$2) because I knew that whatever the earnings of the receiver he would not give much back, just a few dollars. He would not share half with me. If the receiver was a friend, I would have given all the money.

**Subject = 57. Gender = Male. Sent = \$10. Motive behind decision = 2.**

If I sent all my money \$10 would have become \$30. If everyone sent back half i.e. \$15 EVERYONE would have a total of \$30 exclusive! at the end.

**Subject = 58. Gender = Male. Sent = \$5. Motive behind decision = 2.**

This will result in the receiver receiving an amount which will more than compensate for any loss they have made. Therefore they are able to cut their losses, make a gain and also share that profit with me, the sender, hence allowing for mutual benefit. Hopefully I won't encounter a backstabber.

**Subject = 59. Gender = Male. Sent = \$10. Motive behind decision = 2.**

The potential gains are greatest this way. If I had chosen to send a small amount (e.g. 2 or 3 dollars) the receiver would be less inclined to share any of the increased amount with me, as there is less to return. So I think if I show that I'm willing to give them the greatest gain, they might reciprocate.

**Subject = 60. Gender = Male. Sent = \$5. Motive behind decision = 0.**

I sent \$5, as I thought I may benefit, but mainly because I knew the other player would also benefit.

**Subject = 61. Gender = Female. Sent = \$5. Motive behind decision = 0.**

I made this decision because I felt that I would lower my chances of losing everything by 50%.

**Subject = 62. Gender = Male. Sent = \$3. Motive behind decision = 0.**

Kept \$7. Not sure of the returns but wish to invest to test waters.

**Subject = 63. Gender = Male. Sent = \$8. Motive behind decision = 2.**

I want to keep some amount of money to myself but at the same time I want to maximize the amount that the receiver gets. So keeping \$2.00 seemed like a good decision along with sending \$24, I'm hoping that I get back at least \$10.

**Subject = 64. Gender = Male. Sent = \$2. Motive behind decision = 2.**

I wanted to send some money, but I didn't want to lose too much in case I get nothing sent back. This way I have a safety net for myself.

**Subject = 65. Gender = Male. Sent = \$0. Motive behind decision = 1.**

I made this decision based on expected outcome. Even if I had sent all \$10 giving them \$30 I would not expect more than \$10 back, even then I could not be assured of getting \$10 back. By keeping all \$10 I am assured of retaining \$10, there is no uncertainty.

**Subject = 66. Gender = Male. Sent = \$5. Motive behind decision = 2.**

I figured, if I kept \$5 the receiver would get 15 and give me 5, so at the end we would both make 10 each. I guess I am trusting them enough to think they would give back at least 5.

**Subject = 67. Gender = Male. Sent = \$10. Motive behind decision = 2.**

To make both sender and receiver better off (money created in also maximized)

**Subject = 68. Gender = Female. Sent = \$8. Motive behind decision = 2.**

Generally the more money people received the more people want to send out. If everyone keep this point, then everyone could be better off in this game.

**Subject = 69. Gender = Female. Sent = \$2. Motive behind decision = 0.**

Cause it's extra money we are gonna make without any real effort (except the time we give up). I would like to share the amount with my paired person, but then I would like to keep the big part to myself. Also I believe that my paired person will send an amount of money back if not more than the amount I gave him/her to me, I hope. It is a mutual benefit game. Also there would be no point in playing if I were to keep the whole sum to myself.

**Subject = 70. Gender = Male. Sent = \$10. Motive behind decision = 2.**

If everybody (senders) send maximum amount to receivers, then everyone's gains will be maximized, since all money sent is tripled. However some senders may not trust others and keep the whole \$10 and therefore I am taking the risk and hoping everyone will realize it is in everyone's best interest to send \$10. Also there is no point in sending any money back as a receiver since the amount will not be tripled.

**Subject = 71. Gender = Female. Sent = \$3. Motive behind decision = 0.**

If receiver don't give me any money back I can at least keep 7. And on that point since I have 7, Receiver has 9, we are almost equal. That is not too bad.

**Subject = 72. Gender = Male. Sent = \$0. Motive behind decision = 1.**

Give nothing. Anonymous and attractiveness of financial reward. Fail to trust partner as expected return is not higher than simply keeping amount to ourselves.

**Subject = 73. Gender = Male. Sent = \$4. Motive behind decision = 2.**

Basically the decision I made is the amount of money I wish I can earn. The money I sent out will be multiplied by three times. From this multiplied amount I wish that I can get back half of it, in that sense, I am making money. Even though it is possible that I might not get anything back, it is always about taking risk to make more money.

**Subject = 74. Gender = Female. Sent = \$0. Motive behind decision = 0.**

I decided to keep \$8 and gave \$2 because I assumed if I give up less than that amount I would be worse off. The receiver might not want to split what he/she gets.

**Subject = 75. Gender = Female. Sent = \$0. Motive behind decision = 1.**

If I give any money to the receiver, then he/she will gain more than I have and I'm not sure if she/he is going to give any of it to me. But I think there's a 70% chance I get nothing back. Even if I can get half the money that I've given. The maximum amount will be \$15, only \$5 more than I had at first, it's not worth to take a risk to own the \$5 extra.

**Subject = 76. Gender = Female. Sent = \$3. Motive behind decision = 0.**

Because after considering the possibility of getting back some of the money I sent \$3 seems like a fair amount. Also if the receiver doesn't send any money back, the loss of \$3 will not be too much.

**Subject = 77. Gender = Female. Sent = \$0. Motive behind decision = 1.**

I don't think the sender will send any \$ back and this I will not send anything to the receiver to avoid a loss. There is a possibility that the receiver will send back some money but it is minimal – who gives away money? Since I did not give the receiver anything, most likely he will not send back anything as well!

**Subject = 78. Gender = Female. Sent = \$5. Motive behind decision = 2.**

By sending \$5, the receiver actually gets \$15, which is the experimenter's money, since the amount that I forfeit is actually multiplied, I only have to sacrifice small increases to get a big increase for my partner so I'm trying to take money from the experimenter to make my partner happy. By doing that my partner is more likely to give back more to me. However I still need to keep some just in case not a lot is sent back to me. So basically the more I invest, the higher my profit is likely to be.

**Subject = 79. Gender = Male. Sent = \$2. Motive behind decision = 1.**

I wanted to benefit more from the exchange than the receiver would benefit, if I assume that I will receive nothing back from the receiver. My amount chosen would have been different if the receiver's identity was known to me...in this case I would more expect to receive something back. Because the identity is not known I have taken a conservative approach so as not to potentially lose too much.

**Subject = 80. Gender = Female. Sent = \$0. Motive behind decision = 1.**

Can't trust the person I am sending to. If they receive less than what I give them, they will send back nothing because I'm already getting more. Hopefully because it is anonymous I can keep all the money and no one will know. By keeping the \$10 I am guaranteed this money, I don't have to rely on others' generosity. Although I know the greater good will come out of giving the \$10, in lieu of getting \$15 back. If I got \$30 given to me, I would not send any back. Yes, I'm GREEDY!

**Subject = 81. Gender = Male. Sent = \$5. Motive behind decision = 2.**

It would be best if everyone sent all their money but I am not sure this is going to happen so I decided to do half. I would be happy to receive 15 and keep 5, so I think this is the best model for all.

**Subject = 82. Gender = Female. Sent = \$10. Motive behind decision = 2.**

My decision maximizes the money and I would hope that since I have maximized the money the receiver will be fair and give me half.

**Subject = 83. Gender = Female. Sent = \$7. Motive behind decision = 2.**

I thought – or am hoping – that no matter what, the receiver will be appreciative of the money received. I thought that the receiver is most likely to give away an amount that will leave their remaining sum a nice round no. or will give away a round number (e.g. \$5, 10 etc.). So I thought if I give them \$21 then

they will give back \$10 and keep \$11 so that they end up with more than myself but also give back an amount which displays gratitude. I believe it would be safer to give about \$5 but following my theory about giving back a round sum, they would most likely give back \$5 and I wouldn't make a profit. I'm also hoping that the magnitude that my receiver receives from me will trigger generosity – stimulated by shock!

**Subject = 84. Gender = Male. Sent = \$6. Motive behind decision = 2.**

That people would be nice enough to acknowledge the sum I sent (\$6) and in return send a fair portion back. For everyone to maximize their earnings, they need to send a larger rather than smaller amounts of money. While in theory this may be the right thing to do, everyone might not be so nice. While this should imply sending all \$10, we're not in utopia right? This is a pretty awesome experiment btw...

**Subject = 85. Gender = Male. Sent = \$0. Motive behind decision = 1.**

Assuming all participants are rational, one would expect everyone to be greedy/selfish and would want to maximize profits. If a sender sends a portion to a receiver, the receiver in turn may and very likely give nothing back although by sharing the profits, it is a better outcome as there will be wealth generation as the receiver will be receiving an amount multiplied by 3. Also in a repeated game setting and if one could identify the other player (which in this game do not allow) then one would be more likely to share profits or wealth generated.

**Subject = 86. Gender = Female. Sent = \$3. Motive behind decision = 0.**

The amount sent is deemed to be a fair share of the actual \$10 received. Due to the tripling of the \$3 I am actually going to send, the receiver will get almost double he/she actually have originally and I find that to be reasonable and rather generous. In the end, the receiver will have \$19 in total.

**Subject = 87. Gender = Male. Sent = \$10. Motive behind decision = 2.**

Well if I sent \$10, I thought the receiver would feel some compassion and give me more than \$10 back – most of them were females, so I believed that they do have some feel of “fair play”. Since if they had received \$30 they would feel it would be fair to give a significant amount back.

**Subject = 88. Gender = Male. Sent = \$10. Motive behind decision = 2.**

I am relying on the goodwill nature of the anonymous person that the receiver might split all gains made as result of maximizing trade especially at the fact that I'm left with nothing. It doesn't totally bother me that I don't get money back because it was not mine to start with and it created 3 times as much.

**Subject = 89. Gender = Male. Sent = \$0. Motive behind decision = 1.**

Because I do not know who I am trading with I am hoping that they do what I do. I would trade the whole lot, but I may end up with nothing. The thought of trading everything is not beyond me and it would be great if my partner send me everything, still the thought of getting someone who gives me nothing is too scary. I do not want to trade nothing as that is too stingy...hmmm...but it could be best for me. Oh well I decided to do what is best for me. At least I will be happy.

**Subject = 90. Gender = Male. Sent = \$10. Motive behind decision = 2.**

This is like a gamble, you may either get \$0 or \$15. Bad probability but worth a try. Chinese mentality. Gamble. You play on psychology, if you give all to a person, unless the person is hopeless, should give ½ or least part of it back to you. I would split if I was the receiver.

**Subject = 91. Gender = Male. Sent = \$4. Motive behind decision = 2.**

I am a risk averse investor. For every investment I expect a reasonable return. In this case the best way is to send full \$10 to receiver so as to triple but there is uncertainty of receiving nothing and the

probability of that is unknown. So I will like to take less risk so that even if I don't receive anything back I am left with something.

**Subject = 92. Gender = Female. Sent = \$6. Motive behind decision = 2.**

I felt that if I sent less than \$5, I probably would not get any money back or if I did my total in the end would be less than \$10 (my original amount). If I sent more than \$5, the receiver might feel more grateful and send back more. I'm expecting the receiver might want to keep about \$10 for himself and if he/she's a nice person, would want to send the remainder back to me. Thus, if I gave \$6, if he/she sends back \$7 then I'll be better off by \$1 and he/she will be better off by \$11. I did not dare to give more than that as there's a big possibility I won't get anything back so I want to keep some for myself.

**Subject = 93. Gender = Female. Sent = \$0. Motive behind decision = 1.**

Self interest. Money tripled once given to the receiver, what are the chances of receiving a portion of it back if not all? Probability quite likely to be zero because assumption that receiver is also looking after own's self interest.

**Subject = 94. Gender = Female. Sent = \$2. Motive behind decision = 0.**

It is reasonably equal. Would prefer to keep \$7.50 and send \$2.50 but that isn't an option. Therefore choose \$8.00 and send \$2.00 because this allows the receiver to get %6.00.

**Subject = 95. Gender = Female. Sent = \$5. Motive behind decision = 2.**

I would like to keep half the amount of money that I was given and give the other half. The receiver can get triple the amount that I gave him/her. He/she can earn more money and hopefully he/she will return some to me. Hence I can make some profit provided the amount she returns is more than the amount I gave him/her. If I gave too little money or none at all, the receiver won't be able to have enough money for himself/herself and by then won't send any money back to me. Here I'm taking a risk, if the receiver sends me some of the money I gave him/her, I might be able to make some profit.

**Subject = 96. Gender = Female. Sent = \$2. Motive behind decision = 0.**

A balance of \$8 for myself would mean an actual \$6 being sent to the receiver. I started off with \$10 and logically would want to do better than the receiver. If I keep \$7, he/she will make \$9 and be better off than me. I could always keep everything to myself, but that would mean nothing to the receiver which is not quite right. I do not expect to receive any money in return since he/she will figure out that I've kept \$8 and is already making more than he/she did.

**Subject = 97. Gender = Female. Sent = \$6. Motive behind decision = 2.**

Ideally I would have liked to send all \$10 and keep nothing. The reason I would expect the receiver to split \$15 with me and then the whole process is repeated vice versa when I am the receiver. Hence obtaining a total of \$30 which is the optimal amount. However sadly enough I am bit wary and cynical hence doubt that the receiver will be willing to split what he gets in half. Thus I decided on keeping \$4 as a safety mechanism something like keeping for a rainy day. But at the end of the day I would still invest more than keep even though not by a big margin. It is obvious I am risk averse and am pessimistic in the dealings of the corporate world. The prisoner theory where if both convicts are not selfish they would both be benefit but humans being humans I think it's very hard.

**Subject = 98. Gender = Female. Sent = \$2. Motive behind decision = 0.**

I have decided to keep \$8 and send \$2 because the receiver will receive \$6. This is not a lot but at least he/she is receiving something. I have decided to keep \$8 for myself because I don't expect the receiver to send anything back to me. So at the end, I will have more than he/she received.

**Subject = 99. Gender = Female. Sent = \$4. Motive behind decision = 0.**

I make this decision because first of all I would like to keep a certain amount to myself which is larger than the amount that I'll send out ...and then because I prefer to have 6:4 ratio I make this choice out of my intuition. I just pick it randomly. No specific reason as to why.

**Subject = 100. Gender = Male. Sent = \$4. Motive behind decision = 2.**

Knowing that the other person can benefit from the game, you need to give them a substantial amount so they can benefit. The tripling of the amount given doesn't affect either or us. However simultaneously you run the risk of not getting any money in return so you don't want to risk too much. So I decided to send \$4 and keep \$6. This allows the other person to still get \$12, I'm also hoping that the person would send back \$4 so I can recover my losses. Overall I consider myself a fair person so I would love to offer more, however I know that there would be people who would not return the favor (and allow me to recoup my losses) so I've gone for an amount roughly in the middle, more like a safe bet.

**Appendix B (Meant for the Referees)**

**Player ID #** \_\_\_\_\_

**Experiment Instructions**

**General Instructions:**

This is an experiment in the economics of market decision making. The University of Melbourne Australian Research Council and other funding agencies have provided funds to conduct this research. The instructions are simple. If you follow them closely and make appropriate decisions, you may make an appreciable amount of money. These earnings will be paid to you in cash at the end of the experiment.

In this experiment you will be asked to make a series of decisions. Please make sure that you completely understand the instructions for each part of the experiment before making any decisions in that part of the experiment. If you have any questions at any point or need clarifications, please raise your hand and the experimenter will come to you and answer your question.

You will be paid \$3.00 as a show-up fee. This money is being paid to you just for agreeing to participate and will be paid to you regardless of any other amount that you may earn during the actual experiment.

After we are done with the experiment we would like you to answer a few questions about yourself. Please answer the questions truthfully and as accurately as possible. They provide the experimenter with extremely valuable data that is of enormous help in organizing and interpreting your decisions. Your answers are confidential and will not be revealed to anyone other than the experimenters. The data will only be identified by the ID number assigned to you at the top of this sheet and will not at any point be connected to your name in any way.

If you are ready then we will proceed. Please turn the page and follow along with the experimenter.

## **Specific Instructions:**

The following experiment will be conducted in pairs. After the experimenter is done reading the instructions you will be divided into two equal groups – one group will stay in this room while the other group will go into the next room.

In this experiment, one member of the pair is designated the SENDER while the other is designated the RECEIVER.

Each SENDER has \$10.00. No money will be disbursed at this point and all actual payments will be made at the end of the experiment. However every person who is a SENDER will have \$10.00 added to their total experimental earning.

Each SENDER is free to keep the entire \$10.00 given to him or her. Or if he/she wishes to, he/she can decide to split it with the anonymous RECEIVER he/she is paired with. However any amount of money that the SENDER offers to the anonymous RECEIVER will be TRIPLED by the experimenter and given to the RECEIVER. To take an example if the SENDER offers to give \$X.00 to the anonymous RECEIVER then the anonymous RECEIVER will actually be given \$3X.00 since the amount offered is TRIPLED by the experimenter. The RECEIVER, in turn, can decide to keep the entire \$3X.00 offered to him/her. Or the RECEIVER can, if he/she so wishes send a part or all of this \$3X.00 back to the same anonymous SENDER he/she is paired with. This latter amount will NOT be TRIPLED anymore. The experiment ends at that point.

Each of you will play both roles in this experiment. Each of you will be paired with two people. In one pair you will be the SENDER while in the other pair you will be the RECEIVER. Let us take an example. Suppose you are Subject #1. In one pairing, you are paired with Subject #6. In this pairing you, Subject #1, are the SENDER while Subject #6 is the RECEIVER. In another pairing you are paired with say Subject #7. However in this pair, Subject #7 is the SENDER while you, Subject #1, are the RECEIVER.

So you will play this game, once as SENDER and once as RECEIVER. However the important thing to bear in mind here is that you are NOT paired with the same person as SENDER and RECEIVER. Rather you are paired with two different people. In all cases, the person you are paired with will be in the other room and you will not be told of the identity of the person at any point.

You will convey your decisions to your paired member using the form provided. Please take a look at this form now.

It is important that you keep track of your earnings accurately since this is the amount you will be paid at the end of the experiment.

You will record your earnings from various parts of this experiment on the RECORD SHEET that you have been provided. Please take a look at the RECORD SHEET now.

After you have made your decision as the SENDER, please record the amount that you wish to keep for yourself (out of the \$10.00) in Box 1 of the Record Sheet. Your job as SENDER is done at this point.

The experimenter will then collect all the forms and convey your decision to the anonymous RECEIVER you are paired with. This RECEIVER will then get three times the amount you have offered. The RECEIVER can, if he/she so wishes, return some amount to you. Once you get back this amount from the RECEIVER, please make a note of it on Box 6 of the RECORD SHEET.

However, do not forget that you are also paired with another person, where you are the RECEIVER. So you will also receive an amount from the anonymous SENDER you are paired with. When you get this offer, you will have to decide how much to keep and how much to send back. So while the RECEIVER you are paired with is making a decision about what to keep and what to send back, you are making a similar decision about what to keep and what to send back. Once you have decided how much you wish to keep back as the RECEIVER, please make a note of this amount on Box 2 of the RECORD SHEET.

If you are not absolutely sure that you understand the instructions, please get any questions clarified before we proceed.

Are there any questions?

Please turn the page when asked to do so and answer the questions on the next page.

Player ID # \_\_\_\_\_

**DECISION TASK 1:**

Pick ONE out of the following as your decision: Put an X next to your choice.

	<b>I WISH TO KEEP (\$)</b>	<b>I WISH TO SEND (\$)</b>	<b>THE RECEIVER WILL THEN GET (\$)</b>
	10.00	0.00	0.00
	9.00	1.00	3.00
	8.00	2.00	6.00
	7.00	3.00	9.00
	6.00	4.00	12.00
	5.00	5.00	15.00
	4.00	6.00	18.00
	3.00	7.00	21.00
	2.00	8.00	24.00
	1.00	9.00	27.00
	0.00	10.00	30.00

After you have made your choice enter the relevant amount on the Form for Making Decision that appears on Page 6.

**Player ID #** \_\_\_\_\_

Before we proceed please answer the questions on the next page.

Please look at the choice you made above.

You decided to **KEEP** \_\_\_\_\_ and send \_\_\_\_\_ to the **RECEIVER**. As a result of your decision the **RECEIVER** will actually receive \_\_\_\_\_.

Based on the choice you made in **DECISION TASK 1** on page 3, the anonymous **RECEIVER** will receive \_\_\_\_\_. The anonymous **RECEIVER** can then, if he/she so decides, send some money back to you, the **SENDER**.

**DECISION TASK 2:**

1. Are you expecting to get any money back? \_\_\_\_ YES \_\_\_\_ NO
2. How much money are you expecting to get back from the **RECEIVER**? \$ \_\_\_\_\_

Keep in mind the amount of money that the **RECEIVER** has received which is shown on page 3 and which you have noted above.

**DECISION TASK 3:**

You decided to **KEEP** \_\_\_\_\_ and send \_\_\_\_\_ to the **RECEIVER**. As a result of your decision the **RECEIVER** will actually receive \_\_\_\_\_.

Why did you make this decision? Please take a few minutes to explain as clearly as you can. (Please feel free to use the other side of this sheet if you need to)

**Player ID #** \_\_\_\_\_

Each of you will also play as a RECEIVER. Before any of the actual decisions are revealed to you please complete Decision Task 4.

**DECISION TASK 4:**

As a RECEIVER, you will receive a split suggested by the SENDER. Since the amount suggested by the SENDER is TRIPLED by the experimenter, the amounts that you can expect to receive are listed on page 3 under DECISION TASK 1.

Now as the RECEIVER, you have to decide whether you wish to keep the entire amount given to you, or whether you wish to send some amount back to the anonymous SENDER you are paired with.

IF AMOUNT RECEIVED IS	THEN I WANT TO KEEP	I WISH TO SEND BACK TO SENDER
\$3.00		
\$6.00		
\$9.00		
\$12.00		
\$15.00		
\$18.00		
\$21.00		
\$24.00		
\$27.00		
\$30.00		

Player ID # \_\_\_\_\_

**Form for Making Decision**

**ROUND #1: YOU ARE THE SENDER NOW. PLEASE FILL OUT THE TOP PART**

<b>A</b>	<b>Starting Amount</b>	<b>\$10.00</b>
<b>B</b>	<b>Amount you wish to KEEP</b>	
<b>C</b>	<b>Amount you wish to SEND (A – B)</b>	

**SENDER: You will get the bottom part back after the RECEIVER you are paired with has made his decision**

**SENDER DO NOT WRITE BELOW**

**RECEIVER – FILL IN THE BOXES BELOW WHEN ASKED TO DO SO**

**RECEIVER: Please make a note of the amount you have been offered, the amount you wish to keep and the amount you wish to send back on the next page in Boxes G, H and I. This makes record keeping easier**

<b>D</b>	<b>Amount you have been sent (3 times C)</b>	
<b>E</b>	<b>Amount you wish to KEEP</b>	
<b>F</b>	<b>Amount you wish to SEND BACK (D – E)</b>	

## EARNINGS RECORD SHEET

1	Amount Kept as Sender	
2	Amount Kept as Receiver	
3	Amount sent back by paired Receiver	
4	Total Earnings (Add amounts in Boxes 1, 2 & 3)	
5	Show-up fee	\$3.00
6	TOTAL	