Gender Differences in Trust and Reciprocity[1]

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ABSTRACT

We use the investment game introduced by Berg, Dickhaut and McCabe (1995) to explore gender differences in trust and reciprocity. In doing so we replicate and extend the results first reported by Croson and Buchan (1999). We find that men exhibit greater trust than women do while women show higher levels of reciprocity. Trusting behavior is driven strongly by expectations of reciprocation. We posit that the lower levels of trust exhibited by women may be attributed to a higher degree of risk aversion.

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1. Introduction

Behavior in strategic decision making situations often deviates from the *homo economicus* assumption of pure self-interest by exhibiting emotional dispositions or factors such as "trust", and/or "reciprocity".[2] In recent years economists have come to recognize that there are important behavioral differences between men and women when it comes to their disposition towards trust, reciprocity and altruism.[3] A growing body of research suggests that "social capital" as embodied in the tendencies to "trust" strangers and to "reciprocate" others' generous acts influence a wide range of economic phenomena and activities.[4] Some writers such as Fukuyama (1995) argue that differences in the level of trust among citizens might explain differences in their levels of development. 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. Thus, if there are systematic differences in the attitudes of men and women towards trust, reciprocity or altruism, then this may have important implications for both theoretical and empirical research in social

[2] See for instance Berg, Dickhaut and McCabe (1995) or Fehr and Schmidt (1999).

[3] Eckel and Grossman (2000a) provide a comprehensive survey of the experimental literature examining gender differences in dictator games, ultimatum games and public goods game. See also the papers by Andreoni and Vesterlund (2001), Croson and Buchan (1999), Eckel and Grossman (1996, 1998, 2000b), Scharlemann et al (2001) and Solnick (2000) for evidence of gender differences in a variety of economic transactions.

[4] See La Porta, Lopez-de-Silanez, Shleifer and Vishny (1997), Glaeser et al (2000), Fehr et al (1993, 1996, 1997) and Fukuyama (1995).

dilemma behavior, charitable giving, bargaining, household decision making and many other types of economic transactions.[5]

In the present study we use the investment game introduced by Berg, Dickhaut and McCabe (1995) to explore gender differences in trust and reciprocity. Our study, though similar to the one carried out by Croson and Buchan (1999), extends their results in a number of ways and makes substantial additional observations. Our experimental design is different from that employed by Croson and Buchan. One distinguishing feature of this study is our finding that men exhibit greater levels of trust than women do. Croson and Buchan do not find any significant difference in trust behavior. We posit that this difference in trust may partly be explained by appealing to greater risk aversion on the part of the women and derive estimates for the risk aversion parameter for the subjects of this study. We corroborate the Croson and Buchan result that women exhibit greater reciprocity than men do. Another contribution of the paper is that we explicitly consider subjects' expectations in this game. We show that trust behavior is driven by expectations of reciprocation. We also find that there are subtle differences in the expectations of men and women.

The investment game, first introduced by Berg, Dickhaut and McCabe (1995), has been widely used to test for the presence of trust and reciprocity.[6] This is a game where two players are paired anonymously with one player designated as 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

[5] See Andreoni and Vesterlund (2001) for arguments along similar lines.

[6] See Burks, Carpenter and Verhoogen (2000), Chaudhuri, Sopher and Strand (2002), Cox (2000), Gneezy, Güth and Verboven (2000) for studies involving the investment game.

amount or split it with the anonymous receiver with whom she is paired. Any amount that the sender offers to the receiver will, however, be tripled by the experimenter. This tripled amount is then given to the receiver. The receiver is told that he is free to keep the entire amount or, if he wants, he can send some or all of it back to the anonymous sender. Any amount sent back by the receiver is not tripled. The game ends after this point.

The resolution of this game using backward induction is simple. In a 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). In sending a positive sum to the receiver, the sender is said to exhibit "trust". However this trust is neither unconditional nor context-free, but, rather, based on expected reciprocation by the receiver. If the sender reposes some trust in the receiver by transferring some or all of the initial endowment of $10.00 (which is tripled by the experimenter), and the receiver reciprocates that gesture by sending some money back, then there is the potential of arriving at Pareto-superior splits where both the sender and the receiver are better off than if the sender keeps the entire initial endowment to herself. See Chaudhuri, Sopher and Strand (2002) and Gneezy, Güth and Verboven (2000) for arguments along these lines. In sending money back to the sender, the receiver exhibits "reciprocity" which is different

from simple "altruism" since the receiver is possibly rewarding the sender for her trust. Thus reciprocity, which is reactive to the sender's trust, may account for larger transfers from the receiver to the sender, than simple altruism. For an overview of evidence and an excellent discussion of reciprocal motivations, see Fehr and Gächter (2000). See Fehr and Schmidt (1999), Falk and Fischbacher(1999) and Bolton and Ockenfels (2000) for theoretical models of trusting and reciprocal behavior.

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.[7] 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 experiment. There are 47 men and 53 women. Along with gender information we also collected other demographic information. For the purposes of the current study we use only the data on the gender and the age of the subjects. Age ranges from 17 to 27.

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.[8] 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 then handed the forms for recording their decisions. Decisions made by each sender in one room were conveyed to the corresponding receiver in the other room and vice versa. The record sheets were collected by the experimenter and taken from room to room.[9]

In a deviation from the original Investment Game, we had each subject make both a sender and a receiver decision. For instance Subject #1 would make a sender decision and

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[7] See Appendix C for the instructions given to the subjects.

[8] At the time when these experiments were carried out, the exchange rate was roughly AU $1 = US 0.53 cents.

[9] 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 it is debatable whether a double-blind procedure is absolutely essential. 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."

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, and so on. The following scheme illustrates the above point.

Room A Sender	**Room B Receiver**	**Room B Sender**	**Room A Receiver**
1	5	5	2
2	6	6	3
3	7	7	4
4	8	8	1

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 if a sender's expectation about what the receiver would do matched what the sender herself did in her role as the receiver. We discuss our findings regarding this issue in Section 3.3. Our design is similar to the one used by Chaudhuri, Sopher and Strand (2002) as well as the "two-role-trust prior knowledge" treatment employed by Burks, Carpenter and Verhoogen (2000). In the study by Burks, Carpenter and Verhoogen (which also uses the same investment game), 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 their results and ours. Burks et al., however, did not explicitly consider the role of gender in their study.

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? This concluded the experiment. The subjects were then paid in the order in which they had shown up.

There are two potential confounds in this design. First, in our experiment each subject makes a sender as well as receiver decision. There is thus the possibility that the subject's decision as the receiver, which is made after the subject made a sender decision, may be affected by the latter. We find no evidence that these two decisions are correlated. If we look at the correlation between the amount sent by each subject as the sender and the proportion of amount that the same subject sent back as the receiver then we get a Spearman correlation coefficient of 0.1432 with a corresponding p-value of 0.1994 which shows that the decision made at the receiver stage by each subject is not correlated with that made by each subject at the sender stage. Second, the fact that we elicit information regarding expectations from subjects may have had an impact on behavior as suggested by Croson (2000). We discuss this second issue in depth at the end of Section 3.3 after we have presented our results regarding expectations.

We are interested in examining if there are systematic differences in the decisions made by men and women in this game.

3. Experimental Results

We will organize the data according to two primary variables – (1) the decision made by the subject at the sender stage, an indicator of her degree of trust and (2) the decision made by the subject at the receiver stage, an indicator of her degree of reciprocity.

Section 3.1 presents the data on decisions made at the sender stage. In section 3.1.1 we examine the role of expectations about receiver behavior and how those expectations affect sender decisions. In section 3.1.2, we explore the role of risk aversion in decision making in this game. We posit that the lower levels of trust shown by women may be explained partially by appealing to risk aversion and discuss the findings of previous researchers that corroborate this view. In section 3.1.3 we build a model of risk aversion (using a constant relative risk aversion utility function) and derive estimates of the risk aversion parameters for men and women and show that women exhibit greater risk aversion. We present the data on decisions made at the receiver stage in section 3.2. Finally in section 3.3 we discuss the differences in the expectations of men and women.

3.1. Observation 1: Men display greater levels of trust than women do.

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 on average keep $4.70 (47%) and send $5.30 (53%) to the paired receiver. The corresponding numbers for women are $6.53 (65.3%) and $3.47 (34.7%). Table 1 provides a quick summary of these numbers. A t-test finds a significant difference in the amounts kept (or sent) by men and women with a t-statistic of -2.60 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. The weighted average of the amount sent by all subjects is $4.33 (43.3%). In Burks, Carpenter and Verhoogen (2000), where the subjects play both roles of sender and receiver as well, the average amount sent is $4.76 (47.6%). Thus our results are quite similar to this other study where subjects play both roles.

<<Table 1 about here>>

Figure 1 shows the kernel density estimate of the distribution of the amounts kept by men and women in their role as the sender in this game. As Figure 1 shows, women (female = 1), in general, tended to keep a larger part of the initial Au $10.00 thereby exhibiting lower levels of trust. Men (female = 0) on the other hand keep less and transfer larger amounts to the anonymous receiver.

<<Figure 1 about here>>

Table 2 presents some additional parametric evidence for Observation 1 based on a tobit model of the amount sent by the sender. The dependent variable is the amount sent by the sender to the paired receiver which is bound by ten from above and zero from below. Hence we use a double censored tobit model. Model 1 contains a dummy variable for gender which we have labeled "Female" (Female is equal to1 if the subject is female and 0 otherwise). Model 2 includes female and age of the subject.

<<Table 2 about here>>

We find that female is statistically significant in explaining the amount kept by the sender. The coefficient of female is negative and significant in both model specifications showing that with a change in gender from male (female = 0) to female (female = 1) the amount that is sent to

the receiver (an indicator of trust) decreases and the amount kept by the sender increases. These results are consistent with the results from the non-parametric tests mentioned above, but the tobit specification accounts for the left and the right censored observations.

This result that men send more is also in keeping with the findings of Andreoni and Vesterlund (2001). In their modified dictator experiments they report (on p. 298) that when the value of giving is 3 times the cost of giving (i.e. $1 given up by the sender generates $3 for the receiver) men send more than women do ($t = 1.96$ with a corresponding 1-tailed p-value of 0.027 for budget 1). In our experiment, we find the same pattern of behavior in that when $1 given up by the sender generates $3 for the receiver, men send more money.

Apart from the fact that men send more than women in the trust game, another curious finding is that a large number of men give away all of the $10.00 initial endowment. Out of 47 men, 16 (34%) sent their entire endowment of $10.00 to the paired receiver. Out of 53 women only 5 (6.4%) did so. A sample proportions test[10] shows that this is a significant difference ($z = 3.075$, $p < 0.01$).

3.1.1. Role of expectations in the sender decision

We find that the subject's decisions about how much money to send was greatly 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 receivers she is paired with (provided she had transferred a positive sum to begin with) and if she did, how much she

[10] If the two relevant sample proportions are p_1 and p_2, and the two samples have n_1 and n_2 members respectively, then the corresponding test-statistic is

expected to get back.[11] They were also asked about their motivation in sending money to the receiver. Specifically each sender was asked:

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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)
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The amount that the sender sends to the paired receiver (a measure of trust) is highly correlated with the sender's expectation about the 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). From model 3 (Table 3) we find that in a tobit regression of the amount sent by the sender on the amount expected back (in percentage terms), the latter is highly significant (t = 5.24, 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.

<<Table 3 about here>>

We examined the free responses about what motivated the sender in deciding whether to send any money to the receiver or not and decided to divide the responses into four

$$z = \frac{p_1 - p_2}{\sqrt{\frac{p_1 * (1 - p_1)}{n_1} + \frac{p_2 * (1 - p_2)}{n_2}}}$$

categories. Appendix B provides all the responses and the coding. [Note to editor and referees: We have provided all the responses, so that you can see what they look like. We do not plan to include these responses in the paper and instead can say these responses are available from the authors upon request.]

(1) "0" – all responses that made no sense or did not state any clear reason. (Examples: Subject 61 who kept $9 and sent $1. "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".

(2) "1" – all responses that exhibited altruistic or mixed motives, i.e. responses which made some allusion to other-regarding preferences. (Examples: Subject #13, kept $8 and sent $2. "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, "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".)

[11] Two subjects did not write an amount for what they expected to get back. Thus there are only 98 observations instead of 100.

(3) "2" - all responses which declined to repose any trust in the receiver. (Examples: Subject #19 who kept all $10. "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.")

(4) "3" - all those responses which were commensurate with the trust and reciprocity hypothesis, i.e. all those responses that expressed a decision to send a positive amount of money based on an expectation of getting some amount back from the paired receiver. (Examples: Subject #1, who kept $0 and sent $10, "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".)

Responses coded "2" and "3"showed a recognition of the trust and reciprocity implicit in the game – except some of them behaved in accordance with the trust and reciprocity hypothesis while others showed a complete lack of trust. Let us look at it from the standpoint of a participant. From this perspective, one could reason that behaving in an extremely generous or an extremely non-generous way are both consistent with maximizing one's return. 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." On the other hand, reasoning in favor of non-generosity is also consistent with a maximization philosophy: "I have no idea what my partner will do. He or she may or may not recognize the benefit to themselves of me sending money. And even if they recognize it, maximizing on their part requires sending me nothing in return."

There are similarities in the responses coded “1” and “3” as well. What distinguishes them is that “3” 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. “1” 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.

Out of 100 subjects, 8 responses were coded “0” (3 from men and 5 from women). 24 responses (9 from men and 15 from women) showed mixed motives such as other-regarding preferences. The rest of the responses (68 out of 100) all made some allusion to the fact that if the sender reposed some trust on the receiver and the receiver reciprocated then both subjects would be better off. However 17 (9 men and 8 women) out of these 68 declined to repose any trust in a stranger since they did not expect any reciprocation from the anonymous receiver. The

remaining 51 (26 men and 25 women) all behaved in accordance with the trust and reciprocity hypothesis. Thus we can conclude that the largest majority (68%) of our subjects in this game are driven by considerations of trust and reciprocity rather than any preferences for altruism or other regarding behavior.

In model 4 (Table 3) we regress (using a double censored tobit) the amount sent by the sender to the paired receiver against four independent variables (1) female, (2) age, (3) amount expected back from the receiver and (4) the motive behind the decision to send money. Female, 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 3 (towards greater trust and reciprocity), the amount sent increases ($t = 2.69$, $p < 0.01$).[12]

These results contrast with those reported by Cox (2000) 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 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.

[12] We also tried a different specification where all responses in accordance with the trust and reciprocity hypothesis are coded as "1" while everything else is coded as "0". The results vis-à-vis motive are stronger in this case. The coefficient of the motive variable remains positive and highly significant ($t = 4.77$; p-value = 0.00) showing that as motive changes from "0" to "1", the amount of money sent by the sender goes up.

3.1.2 Looking for possible explanations for the difference in trust

One possible explanation for the behavior noted above (that women send less money as compared to men in the sender stage) is that women tend to be more risk-averse. One can think of the sender's decision to send money to the paired receiver as an inherently risky one since there is always the possibility that the sender's trust will not be reciprocated. Jianakoplos and Bernasek (1998) use U.S. sample data to examine household holdings of risky assets to determine whether there are gender differences in financial risk taking and find that single women exhibit significantly more risk aversion than single men. Sunden and Surette (1998) also find greater risk aversion among women in asset allocation in their retirement plans. They also find that single women are less likely than single men to choose "mostly stocks". Levin, Snyder and Chapman (1987) carried out experiments where students responded to a series of gambling options which were framed in positive ("chance of winning") or negative terms ("chance of losing"). Subjects responded more favorably to gambles when they were phrased in positive terms and males exhibited a greater willingness to accept a gamble than women. Hudgens and Fatkin (1985) also find greater risk-aversion among women in two simulated experiments. Croson and Buchan (1999) find that men do send more than women, 69% as opposed to 63% respectively however this difference is not significant.

Ingram and Berger (1977) carry out prisoner's dilemma experiments where they find that women, in experiment debriefings, indicate that they chose the competitive strategy for fear of falling into the "sucker" role – choosing cooperation when the other player defects. The "sucker effect" occurs when individuals choose to free-ride out of fear that others will too.

Orbell and Dawes (1981) first discussed the "sucker effect" as a justification for free-riding behavior in public goods experiments.

As we mentioned before, the decision made by the sender is analogous to voluntary contribution to a public good since $1 contributed by the sender results in the receiver getting $3 from the experimenter. There has been a large amount of work on gender differences in contributions to a public good and the evidence is far from conclusive. Some authors find that women contribute less than men while some others find that women contribute more. Eckel and Grossman (2000a) provide a comprehensive review of existing work in this area. Our results suggest significantly lower contributions by women. However it is important to bear in mind that the context of, and the risk inherent in, the decision are vitally important and may have a large impact on the decision made. By and large, our results seem to corroborate the previous findings which state that when the decision is inherently risky women tend to contribute much less than men.

In the next section we develop a simple model of risk aversion in an attempt to understand the differences in the behavior of men and women in this game.

3.1.3. Modeling risk aversion

In this experiment each subject is endowed with $10.00. Suppose each subject believes that the receivers behave according to some norm of fairness which states that they should return a fraction α 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 α 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.

Suppose the sender decides to send \$X ($0 < X < 10$)[13] out of his initial endowment of \$10.00 to the receiver. The receiver then gets \$3X. With probability "p" he returns "α" 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 ($10-X$). Then the expected utility of the sender can be expressed as

$E(U) = p*U(10-X+3\alpha X) + (1-p)*U(10 - X)$

Let us assume that each sender chooses X so as to maximize this above expression.

The first order condition yields

$$(3\alpha-1)pU'(10-X+3\alpha X) = (1-p)U'(10 - X)$$

Let the utility function exhibit constant relative risk aversion with the form

$U(W) = \frac{W^{1-s}}{1-s}$ where σ is the coefficient of relative risk aversion. A larger value of σ signifies a greater degree of risk aversion.

Using this CRRA utility function and substituting in the first order condition above we get

$$p(3a-1)(10-X+3aX)^{-s} = (1-p)(10-X)^{-s}$$

$$\text{or } \left(\frac{10-X+3aX}{10-X}\right)^{s} = \frac{(3a-1)p}{1-p} \qquad (1)$$

$$\text{or } \frac{10-X+3aX}{10-X} = \left(\frac{(3a-1)p}{1-p}\right)^{\frac{1}{s}} \qquad (2)$$

[13] We constrain X to take values between 0 and 10 to obtain an interior solution.

Taking the derivative of X (the amount sent) with respect to the risk aversion parameter (σ) we get

$$\left(\frac{30a}{(10-X)^2}\right)\frac{dX}{ds} = K^{\frac{1}{s}}(\log K)\left(-\frac{1}{s^2}\right) \qquad (3)$$

where $K = \frac{(3a-1)p}{1-p}$

or

$$\frac{dX}{ds} = \frac{(10-X)^2}{30a}K^{\frac{1}{s}}(\log K)\left(-\frac{1}{s^2}\right) \qquad (4)$$

The sign of the derivative depends on the value of log K. The sign of the derivative will be negative if log K is positive. We will show below that it must be the case that log K > 0, and hence the sign is strictly negative, meaning that the amount of money sent (if any money is sent at all) is decreasing in the risk aversion parameter. Thus higher the risk aversion parameter, the smaller is the amount sent to the anonymous receiver.

Consider the expected payoff from sending any amount X. The expected payoff is

$$E(\Pi) = p(10-X+3\alpha X) + (1-p)(10-X)$$

$$= 10 - X + 3\alpha pX \qquad (5)$$

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

$$\frac{dE(\Pi)}{dX} = 3ap - 1 \qquad (6)$$

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 (5), 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 only makes sense if and only if he expects to make more than \$10 which is true if and only if $\alpha p > 1/3$.

What does this imply for the sign of $(dX/d\sigma)$? From (4) we know that the sign depends on log K. If log K > 0, then the sign is unambiguously negative.

But for log K to be prositive it must be that K > 1

Or $\frac{(3a-1)p}{1-p} > 1$

Or $3\alpha p > 1$ or $\alpha p > 1/3$

But we have already said that a sender will send money if and only if this is true because otherwise the expected payoff is less than \$10 (a return that the sender can guarantee himself by simply holding on to the initial endowment). Thus if the sender sends any money at all then it must be the case that $\alpha p > 1/3$, and in the event that the sender sends any money , then this amount is decreasing in σ, i.e. the higher the risk aversion parameter the smaller is the amount sent. The intuition is simple. The sender sends money only if his belief about the proportion of reciprocators (and the amount they send back) exceeds a certain threshold, sepcifically $\alpha p > 1/3$. And above this threshold, conditional on the sender sending any money at all, the amount sent is decreasing in σ.

Thus if women are indeed more risk averse then men, then this might explain the smaller transfers made by women.

To examine whether men and women exhibit differing degrees of of risk aversion we use equation (1) to obtain the following:

$$\log(3a-1) = b_0 + b_1 \log\left(\frac{10 - X - 3aX}{10 - X}\right) \qquad (7)$$

where $b_0 = -\log\left(\frac{p}{1-p}\right)$

and $b_1 = s$ (the risk aversion parameter)

This regression however poses a problem. Since the logarithm of zero or a negative number is undefined, we have a problem for all those cases where X = 10 (i.e. the sender sent all of the initial endowment) or the sender expects to get back less than one-third of the money that the receiver receives (i.e. $\alpha < 1/3$). To skirt this problem , we have used X = 9.99 for all values of X = 10. We have also dropped all subjects for whom $\alpha < 1/3$. Dropping these latter subjects makes sense. In our theoretical model above we have argued that the sender will send money if and only if his belief about the probability of reciprocation and the proportion of money to be returned exceeds a certain threshold. Thus if one believes with probability 1 that the receiver will return an amount less than 1/3 of what the receiver gets, then we get $\alpha p < 1/3$. We have already argued that in all such cases the sender should send no money at all. In the data 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. On the other hand of the remaining 54 people[14] who expected to get back more than 1/3, the average amount kept (sent) is \$3.95 (\$6.05). Needless to mention there is a significant difference in the behavior of those who expect less than 1/3 and those who expect more. Those who expect less than 1/3, sent very little money to the anonymous receiver (\$2.14 on average). 34 out of these 44 subjects

[14] As mentioned above two people did not enter a response for the amount expected back and so we have 98 instead of 100 observation for α, the proportion expected back.

sent $2.00 or less. Thus in carrying out our regression analysis for estimating the risk aversion parameter we drop these 44 subjects and look at the remaining 54. Out of them 29 are men and 25 are women.

To see if there are any systematic differences in risk attitudes by gender, we regress log $(3\alpha - 1)$ against a set of independent variables that include log $(\frac{10 - X + 3aX}{10 - X})$, a gender dummy (**female**, equal to 1 if subject is female and 0 otherwise) and an interaction term, **female_log**, (between gender and log $(\frac{10 - X + 3aX}{10 - X})$). The regression equation is

$$\log(3a - 1) = b_0 + b_1 * \log(\frac{10 - X + 3aX}{10 - X}) + b_2 * female + b_3 * female\_\log$$

However the coefficient for the interaction term **female_log** is not significantly different from zero. See Table 4 for the estimated coefficients.

<< Table 4 about here>>

However if look at diaggregated data broken up by gender then we find a significant difference. When we use equation (7) to estimate the risk aversion parameter (β_1) separately for men and women, we find that for women the coefficient is 0.213 and this value is significantly different from zero with a t-statistic of 3.17 and a corresponding p-value of 0.004. For men however this coefficient is not significantly different from zero. (See Table 5 for the estimation results). Thus it seems that in the overall data risk aversion may not be a significant explanator behind the amount of money sent by the sender. But looking at disaggregated data it appears that risk aversion does play a significant role in the amount sent by women though not

for men. Thus we do find support for our contention that the smaller amounts transferred by women may be motivated by greater risk aversion on the part of women as compared to men.

<<Table 5 about here>>

This however raises one potential question for researchers in the area. If subjects in these experiments regard the experimental game as more of a gambling problem then their decisions in this game may be more a reflection of their risk atitudes than their propensity to trust others. In that case we may or may not be able to draw meaningful conclusions about trust attitudes by analysing data in such experiments. This then requires future researchers to design experiments which will try to untangle the effects of trust and risk attitudes. A recent study by Eckel and Wilson (2002) is a step in this direction.

3.2. Observation 2: Women exhibit greater degree of reciprocity than men do.

Next we turn to the decision made by the subjects in the receiver stage of the game – an indicator of their degree of reciprocity. One potential confound in 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 $0.00 from the paired sender. Thus in the subsequent analysis in this section we have 18 missing values leaving us with 82 observations – 38 men and 44 women.

We find that out of the amount that they receive, men on average keep 85.3% and send back 14.7% to the paired sender. For women the corresponding amounts are 80.2% and

19.8%.[15] This difference in the proportion of money kept back, is not significant using either a t-test (t = 1.11, p-value = 0.26) or a Wilcoxon ranksum test (z = 1.398, p-value = 0.1620). Croson and Buchan (1999) report a significant difference in the percent kept or sent back by male and female receivers. In their experiment the average amount kept (returned) by women is 62.6% (37.4%) as opposed to 71.4% (28.6%) by men. This difference is highly significant. We, however, do get similar significant differences in the proportions kept by using a tobit specification. Table 6 presents parametric evidence using a tobit model. The dependent variable is the proportion of the amount that is kept by the receiver (out of the absolute amount received). Model 2 (which includes gender and age) shows that female has a significant impact on the proportion kept. The coefficient on female is negative and significant in model 2 showing that as we change female from 0 (male) to 1 (female) the proportion of money kept (out of the absolute amount received) decreases. Women, then, tend to keep a lower proportion of the amount that they receive as compared to men. We also find that age of the subjects has a negative and significant relationship, with older subjects keeping a lower proportion of the amount they receive.

<<Table 6 about here>>

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

[15] In Burks et al (2000) where subjects play both roles the average fraction sent back is 14%. The weighted average of the average amount sent back in our experiment is 17.4%.

amount as well. Thus the data provide strong evidence of positive reciprocity. See Gneezy et al (2000) for evidence along the same lines. Separating the data down by gender we find that the reciprocity in the data is mostly driven by the reciprocity exhibited by women. For men the correlation coefficient between amount received and percent sent back is 0.2260, with a p-value of 0.1725, while for women the correlation coefficient is 0.3903, with a p-value of 0.0088.

But there is more. Of the 38 men for whom we have observations of the amount kept back as receiver, 22 men (56%) kept all the money they were sent and returned nothing to the paired sender. Out of 44 women only 16 (36%) did so. This again is a significant difference in a sample proportions test with a z-value of 2.03 and a p-value of 0.05. Once again this is evidence that women are more generous in the receiver stage of the game than in the sender stage.

This result that women show greater generosity in similar situations is borne out by previous work by Eckel and Grossman (1998) and Andreoni and Vesterlund (2001). The decision made by the receiver in our study can be compared to that made by a proposer in a Dictator Game. The subject has been given a sum of money and has to decide how to split it – that is how much to keep and how much to send back. As opposed to the sender decision in the trust game, there is no inherent risk. Any amount not kept is sent back to the sender without being multiplied. Eckel and Grossman (1998), using the Dictator Game, find that women are much more generous under such circumstances. In their experiment, women, out of an initial endowment of $10.00, on average keep $8.40 (84%) and transfer $1.60 (16%) to the paired anonymous recipient while men keep $9.18 (91.8%) and transfer $0.82 (8.2%). These

numbers are similar to our finding that women keep 80.2% while men keep 85.3%. Andreoni and Vesterlund (2001) study gender differences by carrying out a modified dictator game with varying incomes and prices. In their experiment subjects keep or pass tokens to anonymous pair members and these token have different values to the two players. In some cases the token is worth more to the recipient than to the sender while in other cases the token is worth less to the former than the latter. They find that "when the relative price of giving is greater than or equal to one", women are more altruistic while when it is cheap, men are more altruistic. (p. 298). For our purposes we can compare the two cases corresponding to budgets 4 and 5 - in Andreoni and Vesterlund's experiment - where $1 given up by the Proposer is worth exactly $1 to the Receiver (p. 298). In one case, out of an endowment of $6.00, men on average donate $1.36 while women donate $1.91. In the second case, out of an endowment of $10.00, men donate $2.33 while women donate $2.92. The former difference is significant (t = -2.26) while the latter is not (t = -1.42). In our case the price of giving is equal to one ($1 sent back to the sender costs the receiver exactly $1), and we find that women are indeed more generous. Eckel and Grossman (1998, 2000a) make the point that when the context of giving is without any risk and the outcome is certain women will be more altruistic than men. Our results corroborate this hypothesis.

Does the act of eliciting beliefs affect behavior?[16] Croson (2000) suggests that it does. She finds that that the act of eliciting beliefs about the actions of other players in the game influences a subjects' likelihood of playing an equilibrium in a social dilemma game. In fact,

[16] This is the second confound that we alluded to in Section 2 where we discussed the design of the experiment.

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 have already reported 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 Croson and Buchan (1999) In Berg et al's original study receivers 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 in the amounts that they sent back. However in Burks, Carpenter and Verhoogen, 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. The corresponding figure in our study is 17.4%. 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 in the receiver stage. However as long as the elicitation of beliefs influence the decisions of both men and women in the same direction – i.e. towards greater parsimony – our results regarding the greater reciprocity of women, as well as the differences in expectations, will be valid.

3.3 Differences in Expectation of Men and Women

We do not find a significant difference in what men (in their role as senders) expect to get back from the paired receivers, as compared to what women expect. Men, in their role as senders expect to get back 28% of the amount they sent to the paired receiver. Women expect

to get back 25%. This difference is not significant using either a t-test or a non-parametric Wilcoxon test.

However, we find that there is a significant difference between men and women if we look at the difference between what a subject expects to get back from the receiver and what the subject sent back when he was the receiver. The difference between the percent amount expected from the receiver and the actual amount that the subject sends back as the receiver was 16% for men and 5% for women, i.e. men expect 16% more from their receivers than they send back as the receiver while women expect 5% more. This difference is significant using a Wilcoxon ranksum test ($z = 1.876$, p-value = 0.04). Moreover, the difference for men is significantly different from zero ($t = 3.59$, p-value < .01), while for women it is not ($t = 1.05$, p-value = 0.30) . This shows that men expect more from their receivers but when they are the receivers, they behave differently. For women on the other hand, there is no difference between what they want out of their paired receivers and what they would do themselves, i.e. behavior expected of others corresponds closely to her own behavior. Thus there seems to be a greater disconnect between what men expect out of their paired receivers and what they do as receivers, while the expectations and actions of women are much closer to each other.

4. Concluding Remarks

In recent years economists have started to take an increasing interest in the issues of social capital as embodied in the disposition to trust strangers and to reciprocate the trust of strangers. These studies view "trust or social capital as a propensity of people in a society to cooperate to produce socially efficient outcomes and to avoid inefficient non-cooperative traps

such as the prisoner's dilemma"(La Porta et al, 1997, p. 333). As Parks et al (1995, 1996) and Chaudhuri, Sopher and Strand (2001) show, a greater degree of trust may lead to greater cooperation in social dilemmas thereby reducing the possibility of getting caught up in prisoner's dilemma type situations. Also relevant here is the voluminous literature on voluntary contributions mechanisms. See Ledyard (1995) for a review of public goods experiments where similar conditional trust, based on expected reciprocation by group members, come into play.

In this paper we examine systematic gender differences with respect to trust and reciprocity. We find that women tend to exhibit lower levels of trust then men do. Insofar as the decision to trust can be interpreted as one with an inherent risk involved, the lower levels of trust exhibited by women may be commensurate with a greater degree of risk aversion. However when the outcome of their decision is certain, women seem to display greater levels of generosity, as exhibited by the fact in our study that women show much higher levels of reciprocity.

One implication of this finding is that male-female pairings with the male as the sender and the female as the receiver should exhibit the highest levels of trust and reciprocity as compared to other pairings such as male-male or female-female. Scharlemann et al (1999) present results which show exactly that. In their experiments male-female pairs manage to reach much better outcomes than other pairings. Commensurate with our finding of women showing less trust, female-female pairings in Scharlemann et al (1999) exhibit the least amount of trust and achieve the worst outcomes.

Most previous studies, such as Croson and Buchan (1999) or Scharlemann et al (1999) have studied behavior in situations involving trusting ("risky") decisions versus generosity ("risk-

less") among different subject pools. Another contribution of the present study is that it allows us to study attitude towards a risky decision and a riskless decision within the same group of subjects with interpretable changes in behavior in the two circumstances.

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Table 1: Sender Behavior

	Men	Women
No. of subjects	47	53
Amount Kept (Out of $10.00)	$4.70	$6.53
Amount Sent (Out of $10.00)	$5.30	$3.47
Percentage of Initial Endowment Kept	47	65.3
Percentage of Initial Endowment Sent	53	34.7

Table 2: Double Censored Tobit

Dependent Variable: Amount of Money Sent By the Sender to the Anonymous Receiver Out of the Initial Endowment of Au $10.00

	Model 1		Model 2	
	Coefficient	Std.Error	Coefficient	Std. Error
Female	-2.67** (-2.36)	1.13	-2.34** (-2.34)	1.13
Age			0.13 (-0.46)	0.27
Constant	5.81*** (6.99)	0.83	8.31 (1.52)	5.46
Pseudo-R^2	0.01		0.01	

(t-statistic in parentheses)
***: Significant at 1% level
**: Significant at 5% level
*: Significant at 10% level

Table 3: Double Censored Tobit

Dependent Variable: Amount of Money Sent By the Sender to the Anonymous Receiver Out of the Initial Endowment of Au $10.00

	Model 3		Model 4	
	Coefficient	Std.Error	Coefficient	Std. Error
Female	-2.41** (-2.33)	0.99	-2.06** (-2.19)	0.943
Age	-0.19 (-0.80)	0.24	-0.957 (-0.25)	0.232
Expected Amount	10.92*** (5.24)	2.08	8.867*** (4.29)	2.066
Motive			1.30*** (2.70)	0.483
Constant	6.41 (1.33)	4.82	1.414 (0.29)	4.92
Pseudo-R^2	0.07		0.09	

(t-statistic in parentheses)
***: Significant at 1% level
**: Significant at 5% level
*: Significant at 10% level

Table 4: OLS Regression for Risk Aversion Estimates

Dependent variable: log (3a - 1)

$$\log(3a-1) = b_0 + b_1 * \log(\frac{10 - X + 3aX}{10 - X}) + b_2 * female + b_3 * female\_\log$$

	Coefficient	Standard Error
log ((10-X+3αX)/(10-X))	-0.002 (-0.02)	0.0915
Female	-0.202 (-0.78)	0.257
Female_log	0.215 (0.179)	0.158
Constant	-0.733 (-3.78)	0.194
R-squared	0.05	

(t-statistic in parentheses)

Table 6: OLS Regression for Risk Aversion Estimates Separated by Gender

Dependent variable: log (3α - 1)

$$\log(3a-1) = b_0 + b_1 * \log(\frac{10 - X + 3aX}{10 - X})$$

	Women		Men	
	Coefficient	Robust Std. Error	Coefficient	Robust Std. Error
log ((10-X+3αX)/(10-X))	0.213*** (3.17)	0.067	-0.002 (-0.02)	0.091
Constant	-0.934*** (-5.25)	0.178	-0.732*** (-3.66)	0.200
R-squared	0.10		0.00	

(t-statistic in parentheses)
***: significant at 1% level

Table 6: Tobit

Dependent Variable: Proportion of Amount Kept by the Receiver (Out of the Amount Received from the Paired Sender)

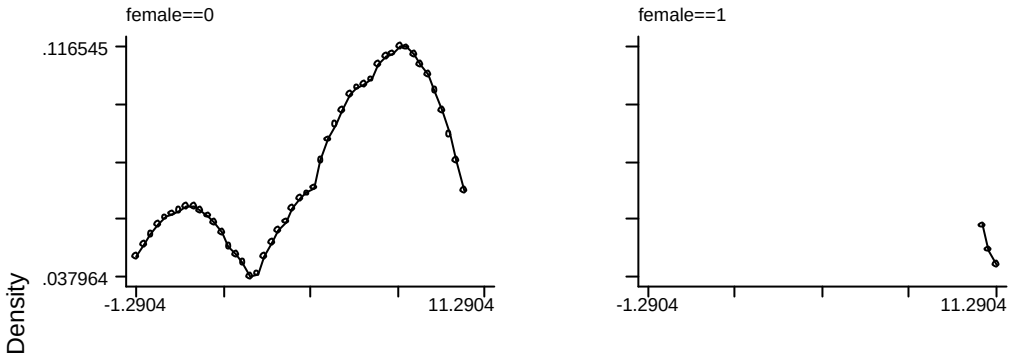
	Model 1		Model 2	
	Coefficient	Std. Error	Coefficient	Std. Error
Female	-0.13 (-1.51)	0.08	-0.14* (-1.75)	0.08
Age			-0.04** (-1.95)	0.22
Constant	1.01*** (15.26)	0.07	1.88*** (4.13)	0.46
Pseudo R^2	0.03		0.07	

(t-statistic in parentheses)
***: Significant at 1% level
**: Significant at 5% level

*: Significant at 10% level

Figure 1

female = 0 for men and 1 for women



TGSENDKEPT

Kernel Density Estimate

Appendix B (Meant for the Referees)

Coding for Motive in sending money:

"0" nonsense or no clear motive stated
"1" mixed or altruistic motives; shows some concern for others' payoff
"2" recognition of the benefits of trust and reciprocity but refuses to repose any trust in the receiver
"3" uses trust and reciprocity based arguments for maximizing earnings and for sending money

Subject = 1. Gender = Female. Sent = $10. Motive behind decision = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 1.

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 = 3.

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 = 3.

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 = 3.

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 = 1.

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 = 1.

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 = 3.

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 = 3.

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 = 1.

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 = 3.

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 = 3.

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 = 2.

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 = 2.

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 = 1.

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 = 1.

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 = 2.

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 = 1.

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 = 3.

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 = 3.

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 = 3.

By sending the receiver $5, the receiver will actually receive $15. From there we can increase out 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 = 3.

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 = 3.

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 = 3.

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 = 1.

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 = 3.

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 = 1.

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 = 3.

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 = 2.

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 = 2.

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 send by the other player.

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

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

Subject = 41. Gender = Female. Sent = $0. Motive behind decision = 2.

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 receiver $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 = 2.

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 = 1.

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 = 3.

I decided to give more than I keep cause firstly it is often the case that only when we given then we will receive. Looking from the perspective of Economics, why I did not expect to receive 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 = 3.

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 mo ney 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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 2.

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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 3.

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 = 1.

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 = 3.

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 = 3.

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 = 2.

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 = 1.

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 = 3.

To make both sender and receiver better off (money created in also maximized)
Subject = 68. Gender = Female. Sent = $8. Motive behind decision = 3.

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 = 1.

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 = 3.

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 = 1.

If receiver don't give me any money back I an 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 = 2.

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 = 3.

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 = 3.

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 = 2.

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 = 3.

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 = 2.

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 = 3.

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 = 2.

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 = 2.

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 an 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 = 3.

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 = 3.

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 = 3.

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.). SoI 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 = 3.

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 = 2.

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 = 1.

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 = 3.

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 fell 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 = 3.

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 = 2.

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 = 3.

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 = 3.

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 = 3.

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 = 2.

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 = 1.

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 = 3.

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 = 1.

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 = 3.

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 = 1.

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 = 1.

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 C

Player ID #_____

Experiment Instructions

General Instructions:

This is an experiment in the economics of market decision making. The 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 4 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 5 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.

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DECISION TASK 1:

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

	I WISH TO KEEP ($)	**I WISH TO SEND ($)**	**THE RECEIVER WILL THEN GET ($)**
	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 for Experiment #2 that appears on Page 6.

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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 dearly as you can. (Please feel free to use the other side of this sheet if you need to)

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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		

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Form for Making Decision in Experiment #2

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

A	**Starting Amount**	**$10.00**
B	**Amount you wish to KEEP**	
C	**Amount you wish to SEND (A – 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

D	**Amount you have been sent (3 times C)**	
E	**Amount you wish to KEEP**	
F	**Amount you wish to SEND BACK (D – E)**	