The Effects of Amount and Social Distance on Acceptances in the Ultimatum Game

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Abstract
Economic games are useful for examining when and why an economic decision-maker’s utility maximizing behavior does not align with profit maximizing behavior. The present study examined how the size of the initial endowment ($10, $3,000, and $250,000); social distance (close friend, acquaintance, and unacquainted person), and whether the responder’s identity is made known to the proposer affect the behavior of responders in the Ultimatum Game. The amount of money involved in the game proved to be highly significant. As the size of the endowment increased, responders were willing to accept proportionally smaller offers. Social distance had an overall effect, with responders expressing a greater willingness to accept proportionally smaller offers from people to whom they were closer. Responders whose identity was known did not behave significantly differently from responders whose identity was unknown by proposers.

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1. Introduction

Models of decision-making in modern economics often are founded on the core assumption that decision-makers are rational actors who act to maximize their subjective utility (Edwards 1954). The field of behavioral economics uses economic games to uncover the variables, besides the obvious monetary payout, that contribute to a person’s subjective utility. Insights gleaned from the study of economic games can be used to update economic theories so that they better correlate with actual human behavior (Camerer, Loewenstein, & Rabin 2011). One game that has been the focus of many studies in recent years is the Ultimatum Game. Games like the Ultimatum Game are believed to provide insight into the roles of such factors as altruism, fairness, and reputation in motivating economic behavior (e.g., Gintis et al. 2003; Kagel et al. 1996).

The format of the Ultimatum Game involves an initial endowment that is to be split between two players: a proposer and a responder. In this one-shot game, the proposer proposes a split for dividing the endowment and the responder then has the option to accept or reject the offer from the proposer. If the responder accepts the offer, each player receives his or her respective amount. If the responder rejects the offer, however, both players receive nothing.

In addition to being useful for understanding factors at play in economic decision-making in general, the Ultimatum Game has implications for many real-world economic situations that share a similar structure. For example, the Ultimatum Game resembles many bargaining circumstances involving unions or contract work. When an employer organization offers an employee union a particular compensation and benefits package in exchange for the union members’ labor, the union can either accept the stipulations of the contract or reject the contract and go on strike. If the contract is accepted, both parties receive what was agreed upon, but if the
offer is rejected, neither the union nor the employer organization generates income during the strike. Strikes are representative of multi-round Ultimatum Games, where each day of a strike can be seen as a single round of the Ultimatum Game. If the union and the employer don’t come to an agreement on a given day then neither party makes any money that day, and the parties can try to reach an agreement the next day. There are also examples of single-round Ultimatum Games in the real world. Consider a hypothetical situation involving two neighbors, John and Matt, who have an idea to make money by selling baby back ribs at the one-day county fair the next day. John has a smoker and Matt has lots of ribs in his freezer, but they are unable to come to an agreement on how to split the profits and end up not selling ribs at the fair the next day. Would they have been more likely to come to an agreement were they best friends, or if they estimated the potential profits to be 10 times more?

Experiments involving two-person economic games are important because they reveal results that inform about which aspects, other than monetary rewards, factor into a person’s expected subjective utility. Economic theory assumes that people are rational actors who seek to maximize their expected utility. In the Ultimatum Game, if it were assumed that the only relevant factor to utility maximization was financial payoff, then it would be predicted that responders in the Ultimatum Game will accept any offer greater than zero, and proposers should then offer the smallest available nonzero offer. Rejecting any nonzero offer would result in forgoing a financial payoff and thus violate the profit maximization assumption. Countless studies have shown, however, that people quite often violate the profit maximizing assumption. In the Ultimatum Game, the proposers’ mean offers normally fall in the 30-40 percent range, with a 50-50 split being the most common offer, and responders often reject offers below 20 percent of the initial endowment (Camerer & Thaler, 1995). Similar results have been found
cross-culturally (Roth et al. 1991). Research continues to show that seemingly simple economic situations, such as the ones encountered in the Ultimatum Game, can involve complex factors motivating a person’s decision. Further study of variables that may influence offers and acceptances in the Ultimatum Game are needed to understand what influences choices in economic games so as to provide insight into theory.

One factor of potential importance is how the social relationship between the two players in the Ultimatum Game affects their respective behaviors. Attempting to quantify and examine social distance effects in economic games is a relatively unexplored domain in the field of behavioral economics. Some preliminary research has focused on the effects of social distance and the role of anonymity in influencing behavior in Dictator and Ultimatum Games (e.g., Charness & Gneezy, 2008). Charness and Gneezy’s (2008) work laid important groundwork, but they considered only whether the participant knew the surname of the other player. They used anonymity of the responder as a proxy for social distance and found it to significantly affect behavior of proposers in the Dictator but not proposers in the Ultimatum Game. Such a manipulation of anonymity does not systematically manipulate the social relationship between the players. One goal of the current study was to evaluate the degree to which social closeness, as measured by the previously established relationship between the players, affects the behavior of responders.

Other research has more directly investigated social distance, but in other types of economic game situations. Researchers have looked at how manipulating social distance changes the amount of money a person is willing to forgo so that a second person can receive a given amount of money (Jones & Rachlin 2006; Rachlin & Jones 2008). This research has been continued with other economic games by examining the influences of social distance on behavior.
in a prisoner’s dilemma game (Locey et al. 2013). A paper by Bechler (2013) finds evidence for an effect of social distance in the Dictator Game and on the amount offered by the proposer in the Ultimatum Game. Their research found that proposers make more generous offers to those with whom they are more socially close. Their study found social distance effects to be highly significant in both the Ultimatum and the Dictator Games. However, that study did not evaluate whether social distance affects the behavior of the responder in the Ultimatum Game. In the present study, social distance was manipulated by asking participants to imagine that the proposer was a close friend, an acquaintance, or an unacquainted person, and the effects of these manipulations on the responders’ acceptance and rejection of offers were measured.

Another factor examined in the current study is the effect of the size of the initial endowment, or an amount effect, on responder behavior. Economists have long thought about the implications of the amount of money involved in economic games. In a heavily cited paper, Rabin (1993) argues that people’s willingness to sacrifice personal monetary payoff to benefit or punish someone else decreases as the amount of money at stake increases. He presented a thought experiment about an Ultimatum Game played with $1 and one with $1 million to illustrate his point. In a footnote, he abandons the idea of testing this prediction due to the immense cost involved.

Two methods for getting around the problem of cost in determining if amount affects behavior in economic games are: (i) using hypothetical money and (ii) running experiments in countries with favorable exchange rates and lower income levels. Researchers using hypothetical money have reported amount effects in probabilistic and delay discounting paradigms, showing that results are quite similar whether the amounts are real or hypothetical (e.g., Johnson & Bickel 2002; Kühberger et al. 2002). The literature on amount effects in the
Ultimatum Game is lacking in studies using hypothetical rewards and inconsistent among studies using real monetary rewards. Slonim and Roth (1998) did not find a significant amount effect using amounts equivalent to $1.90, $9.70, and $48.40 in the Slovak Republic. It is possible that this study would have found an amount effect had it used larger sums of money. Supporting this possibility, Andersen et al. (2011) did find a significant amount effect among responders using four real monetary rewards equivalent to $0.41, $4.10, $41, and $410 in Northeast India. Straub & Murnighan (1995) did not find an amount effect among real offers that varied from $10 to $100. However, they did find that the relative minimum acceptance, as determined by asking responders what is the minimum offer they’d be willing to accept, did decrease when they asked about hypothetical amounts of $1000 and $1,000,000. Straub & Murnighan (1995) did not evaluate the statistical significance of the results involving hypothetical rewards. The current study uses varying hypothetical rewards unlike any previous study in the literature. The present study utilizes amounts of $10, $3,000, and $250,000 to add to the limited literature on the potential influence of an amount effect in Ultimatum responders.

The main focus of the current study was to investigate the effect of social distance, amount, and anonymity effects in the Ultimatum Game from the responder’s point of view. This study supplements the findings of the Bechler (2013) study by testing for social distance and amount effects in the Ultimatum Game responders’ behavior, using the same amounts as those used in Bechler (2013).

In contrast to Bechler (2013), the current study involved two methodological changes: (i) use of a different paradigm for measuring social distance, and (ii) the employment of a staircase method for determining equilibrium points. In Jones and Rachlin (2006), participants are asked to think of “the 100 people closest to you in the world ranging from your dearest friend or
relative at position #1 to a mere acquaintance at #100.” Participants were then asked to imagine that they were playing these economic games with people who were 2nd, 20th, and 100th on this list. In the present study, participants were asked to think of three people: a close friend, an acquaintance, and a person whom he or she has never met, all of whom share the same gender, age and area of residence. The main purpose for this method is to control for certain factors that the Jones and Rachlin (2006) method does not consider. In particular, by asking the participants to picture three proposers, each of whom are the same across gender, age, and location, this study can control for factors that may affect the behavior of responders. The gender of the participants in the Ultimatum Game has been shown to have a significant effect on the amount offered by proposers (Solnick & Schweitzer 1999), so it may be important to control for these demographic variables.

The other difference from the Bechler (2013) study is that a staircase method for data collection was used in the present study. A staircase method has never before been used in the Ultimatum Game. The majority of research done on the Ultimatum Game has been done with a main focus on the behavior of proposers rather than responders. Additionally, most studies use human participants to fulfill the roles of both proposer and responder. Because of this, there have been few studies that used a computer method to collect responder data. One way of collecting Ultimatum proposer and responder data using a computer survey is to simply ask proposers how much they would be willing to offer or to ask responders what is the minimum offer they would be willing to accept. For proposers, this method works well because it has the same structure as what people would be asked if they were playing the Ultimatum Game for real money with a real responder. This is the method used in Bechler (2013). For responders, this method differs from what responders are asked in the actual Ultimatum Game because they are asked to estimate the
point at which they would accept any larger offer and reject any smaller offer, a point hereafter referred to in this paper as their minimum acceptance, instead of responding to proposer’s offers. This is a subtle difference, but previous research indicates that simply asking responders what is the minimum offer they would be willing to accept often produces contradictory responses. An unpublished study by Green (L. Green, personal communication, September, 2013) found that when asked directly what is the minimum amount that they would be willing to accept, participants frequently responded with an amount that contradicted how they actually behaved when actually given offers of different amounts. To solve this problem, this study uses a staircase method that has had success in other paradigms such as probability discounting and delay discounting.

The staircase method offers the participant a series of offers that gradually get closer to the point at which the responder would accept any larger offer and reject any smaller offer, or their minimum acceptance. The survey informs the responder that the proposer has made an offer, and the responder either accepts or rejects the offer. The survey then offers a new amount that is either higher or lower, depending on the responder’s previous response. In this way, the staircase method incrementally approaches the responder’s minimum acceptance. This method has been used extensively and is well established with other paradigms such as delay and probability discounting (Du, Green & Myerson, 2002). The staircase method seems well suited for determining the minimum acceptance for the responder in the Ultimatum Game.

Bechler (2013) found that decreasing social distance increased the amount offered by proposers in the Ultimatum Game. That is, proposers behaved more altruistically when making an offer to those with whom they were socially closer. It is unclear, however, whether decreasing social distance would increase or decrease the minimum amount accepted by responders in the
Ultimatum Game. Responders in the close social distance range might be willing to accept smaller amounts because they want to be altruistic and do not want to deprive their close friend of a payout by rejecting their offer. Alternatively, responders might expect larger offers from close friends, and be more offended by a low offer. They might then reject small offers from close friends. Responders might be afraid to reject an offer for fear of ruining their valuable friendship or they might be more inclined to reject a small offer if they believe their friendship is strong enough to overcome the rejection. For these reasons, intuition is not a useful guide, and it is important to empirically determine the effects of social distance on the likelihood of rejecting an offer.

The final important manipulation in this study is that responders are divided into two groups: one in which the responders are told that the proposers do not and will not know their (i.e., the responders’) identities, and one in which there is no mention of anonymity. These manipulations address the fact that when playing a non-repeated game with someone you don’t know, it truly is a non-repeated game, whereas it is more like a repeated game if you play with a close friend because your actions may have later repercussions. In the case where the responder is playing with a close friend, but the friend does not know the responder’s identity, the responder is not socially bound by the consequences of his or her decision. The future social repercussions are now the same when playing with a close friend as when playing with a stranger. This manipulation therefore allows for some indication as to whether people are more or less likely to accept an offer from close friends because they are behaving more altruistically or because they fear negative future social consequences of not doing so.
2. Method

2.1 Participants

401 participants were recruited online through Amazon’s Mechanical Turk (MTurk) participant pool. MTurk allows access to a large subject pool that is diverse across many demographic measures. The present study required that participants be residents of the United States. Demographic data are presented in Table 1. MTurk allows experimenters to gather data from a very large number of participants in a very short period of time, all while keeping the cost of the study low. Additionally, data collected from MTurk participants has been shown to be at least as reliable as data obtained from more traditional sources (Buhrmester et al., 2011). Participants were compensated $0.50 for participation in this study, which took on average just over 9 minutes.

2.2 Procedure

The study was administered using Qualtrics Survey Software. All games played by participants were hypothetical, as were the proposers making offers to them. Participants were divided into two groups: the Anonymous Group and the Known Group. In one group the responders were told that the proposers do not and will not know their (i.e., the responders’) identities, and in the other there is no mention of anonymity. In both groups, responders then either accepted or rejected a series of five offers in nine different scenarios. These scenarios are the nine different combinations of the three amounts ($10, $3,000, and $250,000) and the three social distances (close friend, acquaintance, unacquainted person).

The following are the social distance instructions describing how the participants were to come up with a close friend, an acquaintance, and an unacquainted person:

Before describing the situations, I want you to picture three people in your mind. One person (Person A) should be a close friend of yours who lives in the same city or town as you.
Another person (Person B) should be an acquaintance of yours who lives in the same city or town as you and is of the same gender and of similar age as Person A. The third person (Person C) should be someone who you have never met but lives in the same city or town and is of the same gender and of similar age as Persons A and B.

Please take a moment before proceeding to picture these three people in your mind.

Here is an example of instructions for the Ultimatum Responder (Known, Friend, $3,000) condition:

PERSON A has been given $3000 to divide between themself and you. PERSON A is free to allocate to you as much or as little as they wish, and they will receive what is left, but only if you accept their offer. If you reject their offer, however, then both of you will receive nothing. PERSON A does not and will not know that you are the person with whom they are dividing the $3000.

PERSON A has offered you $187.50. Do you accept or reject the offer?

ACCEPT    REJECT

3. Results

3.1 Amount

Figure 1 displays the mean of responders’ relative minimum acceptances across the three amounts and three social distances. It is important to note that the dependent variable is the responder’s minimum acceptance as a proportion of the total endowment and not as an absolute magnitude. The data are separated into the Known and Anonymous Groups in the left and right graphs respectively. There was a clear and robust amount effect: as the size of the endowment increases, the mean relative minimum acceptance decreases. The amount effect is significant in both the Known Group, \( F(2, 199) = 78.262, p < .001 \), and the Anonymous Group, \( F(2, 198) = \)
68.961, \( p < .001 \). Responders were willing to accept proportionally smaller offers when the amount being divided was larger.

For both the Anonymous Group and the Known Group, the mean relative minimum acceptance at each amount was significantly different from that at every other amount at the \( p < .001 \) level. That is, the difference between $10 and $3,000 was significant beyond \( p < .001 \), as was that between $10 and $250,000 and between $3,000 and $250,000 (see Table 2).

The lower rows of graphs in Figure 2 and Figure 3 also clearly display the amount effect. In these figures, the responders’ individual relative minimum acceptances are plotted. These figures illustrate how the data is distributed: they show that a large number of responders accept the minimum offer; that there are clear differences in accepting and rejection behavior between the different amounts; and that there were a few responders willing to reject some proportionally large offers.

### 3.2 Social Distance

It’s clear from Figure 1 that at every amount in both the Known and Anonymous Groups, the mean relative minimum acceptance of the socially closer group is less than or equal to that of the group that is more socially distant. Responders were generally willing to accept proportionally smaller offers from people to whom they are socially closer. Responders were more likely to reject a given offer if it came from a stranger than if it came from a close friend. The social distance effect was statistically significant in the Anonymous Group, \( F(2, 198) = 11.239, p < .001 \), but not in the Known Group, \( F(2, 199) = 2.478, p = .105 \). In the Anonymous Group, the social distance effect was significant between friend and acquaintance \( (p = .010) \), and friend and stranger \( (p < .001) \), but not between stranger and acquaintance \( (p = .186) \). None of these effects were significant in the Known Group. In Figure 2, comparison between the graphs
organized by social distance and those organized by amount show that, while the effect of social
distance is visible in the data, the effects are not nearly as large as the effects of amount.

3.3 Anonymity, Interaction Effects, and Demographic Variables

The between-subjects effect of anonymity did not prove to be significant \( F(2, 399) = 0.658, p < .418 \). Even though at first glance there appear to be differences in the mean relative minimum acceptances (see Figure 1), and social distance was significant in the Anonymous, but not the Known Group, the difference between the Known and Anonymous Groups was not statistically significant. Responders acted similarly regardless of whether or not they were told that proposers would not be informed of their identities.

There was a significant interaction between social distance and amount in the Anonymous Group, \( F(2, 198) = 3.984, p = .005 \), but not in the Known Group, \( F(2, 199) = 1.561, p = .192 \). This interaction effect appears to support the trends found in the Figures 1, 2, and 3: as the size of the endowment increased, the impact of social distance on the responder’s minimum acceptance decreased. As an example, the mean relative difference in the minimum acceptance changed little between friend, acquaintance, and stranger in the $250,000 conditions.

There was a significant gender effect in the Anonymous Group such that females were statistically significantly more likely to have higher relative minimum acceptances than males (\( p < .002 \)). There was no significant gender effect in the Known Group. Aside from gender in the Anonymous Group, none of the other demographic variables had a significant effect on minimum acceptances. Figure 4 shows the mean relative minimum acceptances of males and females across the different amounts and social distances. In every condition in the Anonymous Group (bottom graph), the females were more willing to accept lower offers than their male counterparts.
4. Discussion

4.1 Main Effects and Methodology

The amount effect found in this study adds to the body of existing literature surrounding amount effects in the Ultimatum Game. Combined with the results of recent findings of Andersen et al. (2011) and Bechler (2013), the conclusion is that the size of the initial endowment influences both the proportion offered as well as the proportion accepted in the Ultimatum Game.

The presence of an amount effect complicates the idea of how something like fairness might influence decision-making in economic games. If fairness is the driving motivator in Dictator and Ultimatum Game decision-making, and if an equitable division of resources is what defines fairness, then the size of the endowment should not alter behavior. That is to say, if there were a certain division that is fair, would it not be a fair division regardless of how much money is being divided? The existence of a robust amount effect could cast doubt on the concept of fairness playing a prominent part in motivating behavior. An alternative to discarding the concept of fairness is to amend it in a way that incorporates how amount might modify one’s judgment of what constitutes a fair offer.

Though not as robust as the amount effect, this study did find a significant effect of social distance. Few studies have focused on formally manipulating the effects of social distance in economic games. For example, Charness and Gneezy (2008) assumed that providing the surname of an unknown responder would constitute a manipulation in social distance in Ultimatum proposers. In both the Bechler (2013) study that evaluated offers in the Ultimatum and Dictator Games, and the current study, which compared the likelihood of rejecting an offer, social distance was more formally manipulated. The present findings show that responders are willing
to accept lower offers from people to whom they are socially closer, a finding that is not intuitively obvious. This is an effect that could have intuitively gone in either direction.

Interestingly, there was no statistically significant difference between the Anonymous Group and the Known Group in the mean relative minimum acceptances. If responders do not act differently when their identity is known or hidden from the proposer, this suggests that any social aspects of the Ultimatum Game that factor into the responder’s subjective utility are more likely due more to something hidden like altruism rather than something more public like reputation-maintenance. Subtle nuances like this discovery allow for a much richer understanding of how people maximize their utility in economic games and presumably in real-world behavior.

One thing to note regarding the Anonymous and Known distinction is that in the Known Group, responders were not explicitly told that proposers would know their identities. In the Known Group, responders know the identity of the proposer and there is nothing to indicate that the proposer does not know the responder’s identity. The intent is that responders in the Known Group would assume that the proposers know their identity. However, it is possible that not all participants made this assumption and that some responders thought their identity was anonymous. This could cause responders in the Known Group to act like those in the Anonymous Group, which would make finding a significant difference, if one existed, between the two groups more difficult. This study did not explicitly inform responders in the Known Group that their identities would be known by responders for fear that it might bias the results by drawing responders’ attention to this manipulation. Future research could investigate whether a difference between an Anonymous Group and a Known Group exists when responders are clearly made aware that proposers will be informed of their identities.
The findings of a consistent, robust amount effect in both the Anonymous and Known Groups, as well as the finding of a social distance effect in the Anonymous Group suggest that the methodology used in this study produce reliable data. If using hypothetical money prompted participants to not take the study seriously, then it would not be expected that their data would yield the consistent results that this study found. This is also encouraging for the use of a staircase method for responders in the Ultimatum Game.

4.2 Further Analysis

Figure 5 displays how many responders in each condition accepted the smallest offer made ($0.31, $93.75, and $7182.50 respectively in the $10, $3,000, and $250,000 conditions). The percentage of responders who accepted the lowest possible offer increased as the amount of the initial endowment increased. Collapsed across social distance and the Known and Anonymous Groups, the percentage who accepted the lowest offer was 40.23%, 59.6%, and 76.39% for the $10, $3,000, and $250,000 amounts, respectively. Overall, slightly over a third of the responders in both the known and Anonymous Groups accepted every offer made to them. Other studies also have reported that a fair percentage of responders accept almost any offer made. For example, in Andersen et al. (2011), responders accepted offers of less than 10% of the endowment over 55% of the time. Perhaps some people do only consider monetary outcomes when making decisions in the Ultimatum Game. Or perhaps some people are extremely altruistic and never want to deprive the proposer of a payout. One participant in this study emailed me after completing the survey:

In every exchange, I came out at least slightly ahead, and saw no reason not to help them come out with more than they had as well. Had I not done so, they would have received nothing, and in the absence of other information, there's no reason why they should
have to settle for nothing. There's no reason why we can't all profit.

Notice here that two completely opposite strategies- one of self-profit maximizing and one of other-profit maximizing might behave the same exact way. Accepting every offer maximizes the responder’s own payout in each round, and also maximizes proposer’s payouts. For this reason it is important to be careful about projecting interpretations onto results.

It is interesting to note that in the $250,000 condition, over 76% of the responders accepted the minimum offer. This means that fewer than 50 responders in the Known and Anonymous Groups could show differential rejections as a function of social distance at this amount. Perhaps the lack of variance in the $250,000 conditions precludes finding a robust social distance effect. In fact, after removing the $250,000 condition, and comparing across the $10 and $3,000 conditions, the overall effect of social distance now is significant for both the Anonymous, $F(2, 198) = 11.872, p < .001$, and the Known, $F(2, 199) =3.929, p=.033$ Groups. In the Known Group, however, despite the overall social distance effect, the friend condition still did not differ significantly from the acquaintance ($p = .268$) or stranger ($p = .066$) conditions, nor did the stranger differ from the acquaintance ($p=.348$) condition. The fact that social distance was significant after removing the $250,000 condition does suggest that it has a strong effect at smaller amounts.

One possibly surprising finding was the apparent lack of a statistically significant difference in rejections between the Known and Anonymous Groups. It may be of interest to note that the amount effect and social distance effect are both more significant in the Anonymous Group than in the Known Group. Moreover, the mean minimum acceptances are higher for the Anonymous Group than the Known Group for most of the conditions (see Figure 1). Nonetheless, as shown in Figure 5, the number of minimum acceptances in each condition is
very similar between the two groups in each condition. The difference between the Anonymous Group and the Known Group remains insignificant (p = .245) if you take out the $250,000 condition as in the post-hoc analysis of social distance discussed above. Anonymity continues to be statistically insignificant (p = .097) if you then also remove the bottom third of responders who accept every offer. Only in the $10 condition with the bottom third of minimum accepters removed does Anonymity finally show a significant effect (p = .033). Thus, whether responders are told that the proposer will or will not know the responders’ identity appears to play little role in influencing responders’ acceptance of offers. This indicates that the motivating factor behind the social distance effect is not purely based on how this interaction will affect their future interactions with the proposer, nor is it solely because they want maintain a certain reputation, since neither of these would be impacted in the Anonymous Group. Alternatively, this suggests that responders might simply care more about the payout received by a close friend than of that received by a stranger.

A final point of discussion is how the behavior of responders relates to the behavior of proposers in the Ultimatum Game. The results of this study can be compared to those of Bechler (2013), which manipulated the same variables of amount and social distance in Ultimatum proposers. The amounts used were the same in the two studies, but the social distance variables were described differently in Bechler (2013) than in the current study. Therefore the results are not directly comparable, but are similar enough for the purpose of discussion. The closest social distance is probably fairly similar between the two studies (close friend and social distance #2), but it is unclear exactly how the others relate. The acquaintance in the present study could be more similar to either social distance #20 or to #100, since the Jones and Rachlin (2006) paradigm technically defines #100 as a “mere acquaintance.”
Figure 6 shows a comparison of the mean relative minimum acceptance of Ultimatum responders in the Known Group (black) and the mean proportion offered by Ultimatum proposers (white). The figure clearly shows that proposers on average make offers that are significantly greater than the amount that would on average be rejected by responders. The distance between the proportion offered and the relative minimum acceptance is much greater for the close social distances than for the further ones. Proposers are more likely to make larger offers to their close friends and responders are more likely to accept smaller offers from their close friends. This means there is a much smaller chance that an Ultimatum Game played between close friends will end in a rejection, perhaps because a rejection between close friends more negatively affects the players’ subjective utility than does a rejection between two more socially distant players.

The comparison between the furthest social distances in the two studies is actually quite close in contrast to the comparison between close friends. One possibility is that proposers are actually essentially profit maximizing when interacting with responders who are socially distant, and that they make their offers based on their predictions of how responders will act. The gap between the proportions offered and the minimum acceptances could be due to some form of altruism, or it could be a result of risk aversion, or even an accurate understanding of the variability of responder behavior. As can be seen both in the standard error bars of Figure 1, and the wide distribution of responder behavior in Figures 2, and 3, responder behavior varies considerably between responders. Proposers might make their offers higher than what they expect responders to reject because they correctly calculate that the risk of getting nothing outweighs a marginal increase in payout from lowering their offer further. Or proposers might overly weight the risk of rejection and make higher offers because they are risk averse.
4.4 Future Directions

It is noteworthy that the only demographic variable that was significant was gender. Interestingly, in the Bechler (2013) study of offers made by proposers, gender also was the only significant demographic variable. In that study, however, the gender effect among proposers was obtained in the Dictator Game, but not among proposers in the Ultimatum Game. Andreoni & Vesterlund (2001) also found a gender effect in the Dictator Game. Clearly, the role of gender is a variable that merits further study in economic games. Another potential area of future interest might be to examine if the gender of the imagined proposers has a significant effect on behavior. Since we found that responders’ gender correlates with their behavior in the anonymous condition, it would be interesting to know if the gender of the person they were thinking about also has an effect. If this is the case, then the modification that I utilized in this study to control for the gender of the proposers could turn out to be important.

As noted earlier, the current study did not formally declare in the Known Group that the proposers would know the identities of the responders, which may have influenced the results of this study. A future study could more clearly differentiate the Known and Anonymous Groups to see if it makes an important difference when it is more clearly stated to responders in the Known Group that the proposer is aware of the responders identity.

5. Conclusion

The current study expands the body of knowledge regarding factors that influence how a person makes a decision in pursuit of maximizing his or her utility. Responders were systematically more willing to accept proportionally smaller offers as the size of the endowment increased. Thus, the larger the amount, the more the responders’ utility maximizing behavior overlapped with profit maximizing behavior. Indeed, at the largest amount studied, over 76% of
the responders were willing to accept the smallest offer. Responders also were willing to accept proportionally smaller offers from people with whom they share a deeper relationship. However, the effects of social distance were less pronounced as the size of the endowment increased. Responders who were told that their identity would not be revealed to the proposers showed little difference in behavior from those responders who were told that their identity would be made known to the proposers. Among those in the Anonymous Group, women were more likely to accept proportionally smaller offers than men were.

Finally, it should be noted that the functional relations found between the amount of the endowment and the likelihood of rejection as well as the proportion offered by proposers (Bechler, 2013) argues for the validity of using hypothetical money, MTurk participants, and a staircase method to take advantage of these experimental methods.
References


### Tables and Figures

**Table 1**

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<thead>
<tr>
<th>Variable</th>
<th>Category</th>
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<th>Anonymous</th>
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<td>25-29</td>
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<td>Attended some college</td>
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<td>$35,000 - 49,999</td>
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**Table 2**

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</table>
Figure 2

Known: Stranger Conditions

Known: $250,000 Conditions

Known: Acquaintance Conditions

Known: $3,000 Conditions

Known: Friend Conditions

Known: $10 Conditions
Figure 3

Anonymous: Stranger Conditions

Anonymous: Acquaintance Conditions

Anonymous: Friend Conditions
Figure 4
Figure 5