CONTRACTS AND TRUST

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Abstract

Social preferences and third-party enforcement of formal contracts are two mechanisms that facilitate performance of an agreement. The standard argument is that formal, enforceable contracts substitute when the social preferences of trust and trustworthiness/reciprocity are lacking. We explore the hypothesis that trust and contract enforcement are complements. We measure social preferences from a Trust Game and use it is an explanatory variable in a contract game. We find that both increased contract enforcement and high trusting preferences lead to enhanced rates of contract formation and larger investments. There is an interaction effect where trusting individuals make larger investment agreements, specifically when enforcement is greater. Thus, contracts and trust complement one another.

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1. INTRODUCTION

Absent externalities or cognitive limitations, mutually agreeable trade creates Pareto improvements. Agreements, though, come with uncertainty. For example, performance of the terms of the deal does not occur simultaneously in many settings. This creates the possibility of post-agreement opportunistic behavior (Williamson, 1993) or exposes the parties to the risk of termination (Masten, 2009). Alternatively, reliance expenditures may be made, leaving the investor exposed if the other party backs out of the agreement. Anticipating and avoiding these risks, agreements may not be made and gains from trade not realized. How to overcome these difficulties is a core area of concern in legal studies.

It is often argued that social preferences can facilitate trade (Chen, 2000; Fehr and Fischbacher, 2002). If individuals care about their reputation or are intrinsically motivated to have concern for other's well-being, then an individual is willing to perform the terms of the agreement even when the opportunity arises to break the agreement and financially benefit. If individuals trust that others have strong social concerns, they can be expected to be willing to make the trusting, risky investments. In other words, if strong social preferences lead individuals to experience a nonmonetary disutility for gaining at the expense of others, then the disutility discourages breaching an agreement.[1] Consequently, belief in the prevalence of these social preferences in others encourages trusting behaviors. The disutility encourages the formation of agreements and, consequently, trade.

When these pro-social behaviors are not prevalent, it is argued that formal contract arrangements are needed to facilitate trade (Fehr, Gächter, and Kirchsteiger, 1997). Legal institutions, developed to enforce agreements and resolve disputes, can be utilized. For example, in ancient Athens as the population and economy grew, informal mediation customs were formalized and incorporated into the institutions governing the city. Specific features, such as using witnesses when finalizing the agreement and the submission of disputes to selected professional arbitrators, were developed (McCannon, 2011). Demand for alternative dispute resolution mechanisms may arise when time delay and costs to litigation are prevalent in

[1] See, for examples, the theoretical environments developed by Chen (2000) and Bohnet, Frey, and Huck (2001).

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publicly-provided courts (Bernstein, 1992; Dari-Mattiacci, 2009).[2] As another example, there is a long tradition in development economics arguing for strong contract enforcement mechanisms as a primary vehicle of growth (Clague *et al.*, 1999) and improving these institutions should be included as part of a plan for developing and transitioning economies (Havrylyshyn, 2003). Arguments for the trade promoting role of the rule of law date back to Hayek (1944).

Hence, there are two distinct paths to facilitate contract performance. The implicit argument is that formal, enforceable contracts are needed when social preferences are lacking. Or put another way, contract enforcement and trust in pro-social behaviors of others are substitutes.[3] It is this assumption that we challenge here. Contract enforcement is often imperfect. A judge may not enforce the agreement or, with direct litigation costs and high opportunity costs caused by backlogs in the legal system, the expected return from a dispute may be incomplete. An alternative hypothesis, then, is that social preferences and contract enforcement are complements where individuals are more likely to enter into a contract when they have and believe others have greater "other-regarding" concerns. As North (1990) argues, "formal rules can complement and increase the effectiveness of informal constraints" (p.46).

Amongst the many social preferences to study, we feel that trust and trustworthiness are central components to trade. Trust, operationalized here as the willingness to make wealth-creating investments without the guarantee of personal gain, is a socially advantageous behavior. Trustworthiness is, here, the willingness to reciprocate trusting behaviors of others. Trust and trustworthiness mitigate costly monitoring and ex post sanctioning of breach.

Experimental economics has established a well-studied mechanism to elicit measurements of trust. The classic game, initially developed by Berg, Dickhaut, and Smith (1995), is the Trust Game. In this game two players are paired. One has an endowment and chooses how much of it to invest with the other player. The investment grows and the recipient is given the opportunity to return a portion of the revenues. Without communication, reputation,

[2] Relatedly, Klement and Neeman (2013) show that giving information to disputants about arbitrators' win/loss ratios affect the arbitrators decision making (e.g. social concern for reputation). Choi, Fisch, and Pritchard (2010) provide evidence that professional background of arbitrators is correlated with outcomes in securities arbitration. Marselli, McCannon, and Vannini (2015) also provide evidence that the professional background of arbitrators affects the rate of private resolution. Thus, social concerns, such as reputation, also affects the enforcement of contracts.

[3] In a related, but distinct, point, Sitkin and Roth (1993) argue that legalistic arrangements can erode the interpersonal foundations of a relationship. Similarly, a constitution designed to deal with self-interest, free-riding "knaves" crowds out advantageous civic virtues (Frey, 1997). For a thorough discussion of the "crowding out" effect of formal incentives on behavior driven by social preferences see Bowles and Polanía-Reyes (2012).

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repeated play, or external enforcement, the amount given back is taken as a measurement of one's trustworthiness. The initial investment is profitable if the player with the endowment believes that he is paired with someone who will reciprocate. Thus, the initial contribution is taken as a measurement of one's trust.[4]

To identify the relationship between trust and contract enforcement, we conducted experiments where subjects played two games. First, they played the Trust Game to provide measurements of their trust and trustworthiness. Second, they played an augmented version of the Trust Game where the recipient can first propose a contract that stipulates how much to invest and what the return will be. The player with the endowment then chooses whether to accept the terms and make the contribution. Regardless of whether an agreement is reached, the contribution provided triples and the recipient is free to choose how much to give back. Four treatments of this Contract Game are considered. In one treatment the contract formation is simply cheap talk without any enforcement if the terms of the agreement are breached. In the other three treatments, the contract, if agreed to, is enforced with a known probability (here 1/6, 1/2, and 5/6).

The Contract Game allows for us to identify the rate at which agreements are reached, the size of the investment made, the generosity of the return in the contract, and whether the agreement, if reached, is breached. Measurements of behavior in the Trust Game are used to identify the role of social preferences in contracting. Contract enforcement and the social preference of trust are substitutes if those with lower levels of trust disproportionately increase their willingness to enter into contracts as enforcement increases. Alternatively, contract enforcement and social preferences are complements if those who exhibit higher social preferences disproportionately enter into agreements as the enforcement of those agreements increases.

One would expect individuals with higher levels of social preferences, such as trust and trustworthiness, would be more willing to enter into a trade and make larger investments. Also, one would expect formal agreements with greater likelihood of enforcement of those agreements to improve the frequency of entering into trades. The open question is the interaction effect.

[4] The behavior coincides with the frequently cited definition of trust provided by Rousseau *et al.* (1998), "trust is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (p. 395).

Does trade escalate amongst those without the level of trust that would encourage them to invest in its absence, or does the facilitation of trade come from an escalation of investment by those who have stronger social preferences?

We present evidence that trust and contract enforcement are complements. We first demonstrate that higher enforcement leads to a greater probability of an agreement being reached and larger investments being made. Second, we establish that more trusting individuals are more likely to enter into a contract and, again, make larger investments. Third, our primary result is that there is a strong interaction effect. Trade escalates amongst those with greater levels of trust in the high enforcement treatments. In other words, with uncertain enforcement mutually advantageous agreements arise when individuals trust one another and those who trust others disproportionately benefit from enhanced contract enforcement.

A standard risk assessment, initially developed by Holt and Laury (2002), is administered as well. One would presume enforceable contracts would facilitate investments, especially by risk averse individuals. Furthermore, risk attitudes may correlate with trust. We show that the generosity of the proposed returns on the investment is driven to a large degree by one's risk preferences. Risk averse individuals propose contracts with greater returns to the investor, presumably to encourage performance mitigating risks of deviation. Trust and contract enforcement, while encouraging more and larger investments, do not drive the distribution of the "pie". Additionally, the rate of contract formation and size of the investments are unrelated to risk preferences. Thus, risk preferences and the social preference of trust are distinct.

Furthermore, it is a subject's willingness to trust others, rather than his or her trustworthiness that explains contract formation and, consequently, wealth. A subject's willingness to reciprocate trusting investments explains, partially, the generosity of the proposed returns.

While numerous studies have explored alterations in the basic framework of the Trust Game, a complementary literature has grown using it as an assessment tool to measure social preferences as is done here. Barr (2003), for example, investigated the strength of social norms in Zimbabwean villages with differing histories. It has been used to address cultural differences across the world (Buchan, Croson, and Dawes, 2002; Holm and Danielson, 2005; Ashraf, Bohnet, and Painkov, 2006) and gender differences across countries (Croson and Buchan, 1999). The Trust Game has been used to explain repayment of microfinance loans in Peru (Karlan,

2003), assess social preferences and expectations of Pakistani students at western universities and madrassas (Delavande and Zafar, 2011), examine behavior in virtual worlds (Atlas and Putterman, 2011; Fiedler, Haruvy, and Li, 2011), introduce context and narratives (Osborn, Wilson, and Sherwood, 2015), interact income inequality with in- versus out-groups (Lei and Vesely, 2010), and quantify the effect of violence in slums in Nairobi (Becchetti, Conzo, and Romeo, 2014). It has also been used as a tool to assess the impact of an education in finance (McCannon and Peterson, 2014) and economics (McCannon, 2014) on behavior. We follow this literature's lead using the Trust Game to measure social preferences.

Others have investigated the role of communication in this environment. See, for example, Valley, Moag, and Bazerman (1998), Fiedler and Haruvy (2009), Ben-Nur and Putterman (2009), and Balliet (2010). Communication in bargaining, differentiating cheap talk from binding contracts, is studied by Feltovich and Swierzbinski (2011). The impact of social preferences, in the form of deviation from one's word inducing a self-imposed moral cost, on contract formation has been investigated by Charness, Du, Yang, and Yao (2013). Also, a related literature of note is the building of trust in repeated games. See Bohnet and Huck (2004), King-Casas *et al.* (2005), Engle-Warnick and Slonim (2006), Sloof and Sonnemans (2009), and Bigoni, Bartolotti, Casari, and Gambetta (2013) as examples. These two strands of literature do not consider formal agreements and, therefore, cannot address the substitutes versus complements issue.

We are not the first to investigate, experimentally, the role of social preferences in contracting. Lazzarini, Miller, and Zenger (2004) address the question of whether social norms and formal arrangements are substitutes or complements. They operationalize in their experiments social norms as reputation in repeated play and uncertainty as a probability less than one of the game continuing for another round. They find evidence that contracts complement social norms, similar to what is is argued here. Specifically, in their environment, there are both contractual and non-contractual dimensions to a deal. When the probability of continuation of the interaction is low, contracts facilitate self-enforcement in a non-contractible dimension. Rather than treat social norms as repeated play, we focus on direct measurements of social preferences. In other words, Lazzarini, Miller, and Zenger (2004) investigate the ability to achieve cooperative outcomes in a repeated game that are not equilibria of the stage game, while we measure nonmonetary components of utility and whether they act to build or destroy wealth.

Bohnet, Frey, and Huck (2001) consider a theoretical environment where some incur a psychological cost to breaching a contract. The model allows for preferences of individuals in the population to change over time. In their environment when contract enforcement is low, trade flourishes when individuals have these social preferences and, thus, evolution encourages them (a "crowding-in" effect). If contract enforcement is greater, opportunistic behavior crowds out other-regarding preferences. Hence, they argue that legal institutions can influence preferences. They provide experimental evidence that play evolves over time, consistent with the model. Here, we do not consider the evolution of preferences, as opportunistic behavior always generates a greater gain in our environment, and they do not measure individual levels of social preferences and, thus, do not investigate the interaction between enforcement and trust. Similarly, Malhotra and Murnighan (2002) experimentally investigate the effect of contracts on trust. They show that individuals who first experience a history of non-binding agreements see less reduction in trust when the ability to form an agreement is lost than those who first have experience with binding agreements.

Additionally, Fehr, Gächter, and Kirchsteiger (1997) consider labor contracts, reciprocity, and effort. With uncertain enforcement they provide experimental evidence that reciprocal motives increase the set of enforceable contracts. They do not vary enforcement probabilities and do not attempt to measure individual-level social preferences. Eigen (2012) presents experimental work on willingness to breach a contract (unwillingness to perform an undesirable task) illustrating that framing matters for subject decision making.

Two closely related works also allow for an agreement stage prior to engaging in a trusting investment decision. Ben-Nur and Putterman (2009) consider the interaction between communication and enforceable contracts in the Trust Game. In their design treatments vary by both the ability to send messages along with the option to propose contracts. They propose that the costly, enforceable contracts can substitute for insufficient trust. They find that the ability to form agreements prior to making their investment decision increases trusting contributions.[5] Their design allows for costly contracts that are perfectly enforceable and do not focus on individual-level differences. Thus, while highlighting the value of communication and pre-play

[5] Interestingly, in their experiment 71.8% of the dyads choose an unenforceable agreement, rather than select a costly, enforceable contract (either with or without penalties). This is consistent with our claim that enforceable agreements are not necessarily substitutes for low trust, but complementing the social preferences of the players.

agreements, their results do not address the main question investigated here of potential complementarities of social preferences and contract enforcement.

Second, the work of Deck (2010) is closely related to ours. He also considers a variant of the Trust Game to analyze agreement formation. In his setup individuals negotiate over the price to be paid before performing the agreement sequentially. The treatments differ in the order of the decisions. The results indicate that success in trade escalates when the buyer moves first with payment as it, presumably, facilitates trust. Our work differs in that we use behavior in the standard Trust Game to differentiate subjects and allow for enforcement of agreements. Also, our design allows for an analysis of the size of the investments made. The results presented here complement his in illustrating that initial contract formation prior to engaging in trade in the experiments improves contract performance.

Finally, Engel and Kurschligen (2013) investigate the impact of customary law by using laboratory experiments of the Public Goods Game. While they study a different legal issue, we share with them the interest in investigating the relationship between formal law, specifically its enforcement, and pro-social and anti-social behaviors of individuals in the lab.[6]

Thus, the distinct contribution of the work presented here is an identification of the degree of an individual's social preferences of trust and trustworthiness to study its interaction with the contracting environment. The main result, that trust and contract enforcement are complements, coincides with the research on the influence of contracts on social norms calling into question the substitutability of formal enforcement and "social enforcement" of agreements.

Section 2 presents the experimental design and procedures used. An initial analysis of the results is done in Section 3, while an econometric investigation presenting the formal findings is provided in Section 4. Section 5 concludes.

2. EXPERIMENTAL DESIGN

The presentation of the design of the experiment is broken into subjects, design, procedure, risk assessment, and preliminary findings.

[6] Relatedly, Deck, Farmer, and Zeng (2007) provide another example of the value of using laboratory experiments to study the economics of the legal system, focusing there on arbitration mechanisms.

2.1 Subjects

We conducted experiments with undergraduate students at a small, private university in upstate New York. Subjects were recruited from classes within the business school, targeting students in both classes taken by underclassmen and those taken by upperclassmen. An online reservation manager was used to recruit and schedule the sessions. The number of participants in each session ranged from thirteen to twenty-six, with ninety-five experimental subjects in total.[7] Five experimental sessions, each lasting approximately one hour in the evening, were conducted in February 2014. Within each session subjects completed three tasks. After providing informed, signed consent subjects engaged in the experiment. Second, a risk assessment was completed. Finally, at the end of each session, subjects completed a background information questionnaire.

2.2 Game Design

Two related games were played. In the first, subjects played the Trust Game initially created by Berg, Dickhaut and McCabe (1995). In this game, one subject takes on the role of "Player A", while a second is "Player B." Player A is endowed with five experimental dollars (E$) and chooses how much to give to Player B. Any amount (0, 1, 2, 3, 4, or 5) could be given. The amount contributed to Player B triples. Player B, then, is given the choice of how much of the tripled amount to give back.

Thus, there is no external enforcement mechanism to ensure a return of the investment or encourage an interest payment. There is no communication or repeated interaction to facilitate wealth creation.

In the second game, which we refer to as the Contract Game, Player B first makes a proposal. The proposal identifies how much of Player A's 5 E$ endowment is to be given. The proposal also announces how much of the tripled contribution is to be returned. Knowing this proposal, Player A then chooses how much to give and Player B selects how much of the tripled amount to give back. As in the Trust Game, Player A is free to give any amount. If Player A

[7] The reservation manager scheduled twenty subjects per session. In four sessions, some subjects did not show-up, while in the fifth session, a programming glitch allowed for the more than the twenty-person cap to enroll.

gives the amount requested in the proposal, then an agreement is reached. When this occurs, if Player B does not return the amount specified in the contract, then the agreement is breached. When breach occurs, the agreed upon terms are enforced with a probability *p*. With probability 1 – *p*, whatever amount B chooses to return is done so. If Player A gives an amount different from what was proposed, an agreement is not reached. Again, Player B is free to return any amount desired.

Thus, one can think of the type of contract being considered as form-adhesion contracts (Eigen, 2012) rather than negotiated contracts or those with, for example, executory consideration (Parisi, Luppi, and Fon, 2011), costly verification (Choi and Triantis, 2008), or agency relationship (Rasmusen, 2004) concerns. Additionally, one can interpret the enforcement mechanism to be a decision requiring specific performance (Avraham and Liu, 2006).

2.3 Procedure

In all five experimental sessions, the subjects first played four rounds of the Trust Game followed by four rounds of the Contract Game. In each round of each game a new random pairing was made. Subjects were informed of their earnings from the previous round before making their selections in the next. Each subject was given a letter ID to preserve confidentiality and they did not know who they were paired with when making their choices to facilitate anonymity. Therefore, decisions could not depend on factors such as gender (Landry *et al*., 2006) and race (Fong and Luttmer, 2011).

The session began, after introductions and informed consent, with a description of the game. Printed instructions were distributed and PowerPoint slides were presented providing the rules. After explanation of the Trust Game, subjects were given the opportunity and encouraged to ask questions. Finally, a short proficiency quiz was administered before the first round of play to ensure that the rules of the game were completely understood.

In the Trust Game each subject made his/her choices if selected to be Player A and also if selected to be Player B at one time on a paper form. They first had to respond to the question, “if you are selected to be Player A how much of your 5 E$ would you like to give to Player B?” The amount selected by a player *i* in round *r* is denoted A_{ir} in the analysis. Second, each subject had to respond to a series of five questions, “if you are selected to be Player B and Player A gives

you 5 E$ (which triples to 15 E$), how much of your 15 E$ would you like to give back?" The amount selected for this question by player *i* in round *r* is the variable $B5_{ir}$. The following four questions were phrased identically, except the amount given was 4, 3, 2, and 1 respectively, creating the variables $B5\text{-}4_{ir}$, $B5\text{-}3_{ir}$, $B5\text{-}2_{ir}$, and $B5\text{-}1_{ir}$. Thus, each subject provided a full contingency plan. Responses were collected and randomly separated into two stacks (an "A" group and a "B" group). One from the A group was paired with one in the B group, scored, and the results were posted on a spreadsheet projected at the front of the room. The pairing and scoring was done in front of the subjects. This procedure was used to ensure that the subjects knew that parings were random and arbitrary. This is the same method employed by McCannon (2014), for example.

In sessions with an odd number of subjects, one subject was randomly selected to sit out of each round. The selection made by this player, though, was done prior to being chosen to sit out and, thus, the datum is available.

Next, subjects played four rounds of the Contract Game. Each round differed in the probability of contract enforcement, *p*. We selected $p = 0, 1/6, 1/2$, and 5/6. Again, printed instructions, slides, and a question-and-answer session occurred before the first round of play. In a round with $p = 1/6$ subjects were informed before they made any selections that an agreement, if reached, would be enforced if a role of the die came up with only one pip. After selections were made the die was rolled with one subject selected to monitor and announce the outcome out loud. Similarly, in a round with $p = 5/6$ subjects were informed that an agreement if reached would be enforced unless a one came up on the role of the die. The publicly-viewable randomization was done to ensure the subjects knew the actual enforcement probability. For a round with $p = 1/2$ a coin flip, with heads as enforcement and tails resulting in no enforcement, was conducted in full view of the subjects, again with one subject selected as a monitor announcing the outcome. In the first two sessions the four rounds were ordered with $p = 0, 1/6, 1/2$, and then 5/6, while in the third and fourth session the rounds were ordered with $p = 5/6, 1/2, 1/6$, and then 0. In the fifth and final session the ordering of the rounds of play was $p = 0, 5/6, 1/6$, and then 1/2. The purpose for varying the sequence of enforcement probabilities is to disentangle any potential learning and adaptation that may arise from the actual effect of the enforcement regime being considered.

In each round of the Contract Game, each subject first provided, on a paper form distributed, what their proposal would be if selected as Player B. Specifically, they were asked to complete the message, "if you give me ___, then I will return ___ to you." The messages were collected, random pairings were done at the podium in front of the subjects, and pairings along with the proposals were presented on the overhead. With the message, knowledge of which role he or she will take (either A or B), and information of the enforcement probability, each subject then completed the form used in the Trust Game. A distinction between the procedure of the Trust Game and the Contract Game is that in the former the subjects did not know their role (A or B), while in the latter only in the stage-0 message selection did they not know their role. After the actual contributions decisions were made, the public randomization was done and the round was scored. In all rounds of each, outcomes of a round were known by the subjects before proceeding to the next round of play.

Finally, before the first round of play, subjects were informed that they would be financially compensated for their play. Specifically, they were informed that a minimum payment of $10 would be earned, as a guaranteed profit for participating. They were also told that they could earn more as they played the games, but how much they earned depended on their decisions, choices made by others, and luck. For the Trust and Contract Game, they were informed that one round would be selected at random and the amount earned in that game would be paid in "real" dollars.

2.4 Risk Assessment

The second component of each experimental session was the completion of a risk assessment. To gauge subject's risk preferences, the tool developed by Holt and Laury (2002) was given. Specifically, the exact same set of choices and payoffs as used in Deck, Lee, Reyes, and Rosen (2012) was administered. In the risk assessment, subjects made ten separate choices. For each choice two lotteries were presented and the subject selected the one he or she preferred. The first option was for a relatively safer gamble where either $10 or $8 could be earned. The second option was for a riskier lottery receiving either $19.25 or $0.50. The ten choices differed in the probability of obtaining the higher of the two outcomes. A random number generator

selected an integer between one and ten to determine which outcome arose. Table 1 presents the risk assessment used.

[Insert Table 1 here.]

Thus, a risk neutral individual would select option (a) for the first five choices and option (b) for the last five. A risk averse individual will select (a) for more than five choices and the more risk averse an individual is the more times (a) will be selected. Alternatively, a risk loving subject will select option (a) fewer than five times. We define $Safe_i$ as the number of times option (a) is selected by the subject.[8] Consequently, as used in previous research on decision making under uncertainty (Deck, Lee, Reyes, Rosen, 2012), $Safe_i$ is used to measure the degree to which a subject is risk averse in the experiment.[9]

Along with a full explanation of the decision problem, subjects were informed that they would be financially compensated for their selection in one of the ten choices. Which choice would be paid would be determined at random. Specifically, they were informed that a random number generator would be used to determine, for each subject, which choice would be paid, and a random number generator would be used to determine how much would be paid (select an integer between one and ten).

The total monetary gains of a subject in the experiment is comprised of the amount earned in a randomly selected round from the Trust and Contract Game and the choice between the lotteries made in the randomly-selected decision problem. As stated, a minimum wage was imposed for each subject in each session where we guaranteed that $10 would be earned. Thus, subjects earned between $10 and $34 in the experiment, with a mean payout of $16.45.

Finally, at the end of each session, subjects completed a background questionnaire. Table 2 provides descriptive statistics for the variables measured and used in the analysis.

[Insert Table 2 here.]

[8] Choice 1 is included to have a nice, even ten question instrument but, also, to identify unreliable decision making. In no circumstance did a subject choose (b) for Choice 1.

[9] One can be concerned about the behavior of a subject without "standard" risk preferences, since in expected utility theory, regardless of the type of risk preference a person has, a switching point in the decision problem arises. A small portion of the sample switched between (a) and (b) more than once. A dummy variable capturing these subjects can be included in the specification. The results presented in the next section are robust to its inclusion.

The sample is disproportionately men from New York majoring in business, which is due primarily to the recruitment strategy used. The low voter turnout rate is due in part to young students who would not have been able to vote in November 2012. On average, individuals registered as being risk averse choosing more safe lotteries than risky ones.

3. PRELIMINARY FINDINGS

To operationalize the social preferences, a subject's level of trust is captured by the amount offered when in the role of Player A in the Trust Game. The analysis presented uses the average of the trusting investments made in all four rounds of the Trust Game, $TrustA_i = 0.25\sum_{r=1}^{4} A_{ir}$. The reciprocity is the amount a subject is willing to give back when in the role of Player B in the Trust Game. The analysis presented uses the average amount returned when offered all five experimental dollars, $ReciprocityX_i = 0.25\sum_{r=1}^{4} B5_{ir}$ (where X denotes the role of the subject in the Contract Game, $X = A$ or B). If a subject i is in the role of Player A in the Contract Game, then $TrustA_i$ is his/her level of trust and $ReciprocityA_i$ is his/her level of trustworthiness. If subject i is in the role of Player B in the Contract Game, then $ReciprocityB_i$ is his/her level of reciprocity. Alternatively, we could have used decisions made in the first or fourth rounds in the Trust Game, for example, arguing that the former is devoid of a history of past outcomes, or the latter allows for learning about the game to have occurred. Correlation between the first round, fourth round, and the average is high. $TrustA_i$ has correlation coefficients in excess of 0.73 with A_{i1} and A_{i4}, while $ReciprocityB_i$ has correlation coefficients over 0.76 with $B5_{i1}$ and $B5_{i4}$.[10]

As has been commonly observed in the literature, trust degrades over finitely repeated rounds (Engle-Warnick and Slonim, 2006). Here, the mean value of A_{i1} is 2.95 while it is 2.79 for A_{i4}. Thus, there is a slight reduction across the rounds. As will be discussed in the upcoming results section, the main conclusions presented continue to hold if A_{i1} or A_{i4} is used in the analysis.

[10] Similarly, there are high levels of correlation between amount returned if offered 5 E$ and other levels of giving. The correlation in the Trust Game between the amount returned if 5 E$ is given and 4, 3, 2, and 1 is 0.92, 0.83, 0.75, and 0.42, respectively.

As can be seen in Table 2, individuals in the Contract Game typically request a full investment of all of Player A's endowment and, on average, offer a 39.6% return on the investment. Agreements are reached just less than one-half of the dyads, which is not surprising given that many negotiations take place with very little enforcement and there is no sanction for breaching the contract when it is enforced. The actual amount given by Player A in the Contract Game, across all treatments, is greater than in the Trust Game. This suggests that, unsurprisingly, the ability to enter into contracts promotes investment.

Consider, first, the contract offers made. In the data set 73.0% of all groupings had a proposed contract that requested an offer from Player A of all five experimental dollars, rather, a full investment. The contract proposal requested an offer of four in another 15.7% of the groupings. Figure 1 provides the proportion of groups where a contract was agreed to, for each contract proposal made.

[Insert Figure 1 here.]

A full table describing the contract proposals, including average values of *Safe*, *Trust*, and *Reciprocity*, used to construct Figure 1 are given in Table A1 in the appendix. As one would expect, when the proposed contract offers more generous terms, acceptance of the agreement is more frequent. As proposed returns decrease so too does the acceptance rate. For the most part, a similar pattern exists when a proposed investment of four is requested.

To initially address the relationship between contract enforcement, acceptance, and trust Figure 2 presents a breakdown of the sample reporting the proportion of pairings that are able to reach an agreement. Since the subject in the Player A role must make the decision to accept the proposed contract, the social preferences of these subjects can be considered.

[Insert Figure 2 here.]

As one can see, contract formation rates escalate with increased enforcement. Low enforcement occurs when the probability of mandating performance is either 0 or 1/6, while in high enforcement it is either a probability of 1/2 or 5/6. In Figure 2 high trust is the subsample of those who contributed, on average, more than 4 E$, while low trust are those averaging less than

2 E$. Overall (middle columns), high enforcement leads to an increased frequency of contract formation, increasing the rate over 15 percentage points. Also, as one can see, those with low levels of trust consistently avoid entering into contracts, as compared to those with higher levels of trust. Thus, contract enforcement and strong pro-social preferences facilitate trade. While Figure 2 clearly illustrates that trust and enforcement are important drivers of contract formation, it is not obvious what the interaction between them is.

Is there evidence of a relationship between trust and the size of the investments made? As shown in Table 2, actual offers made tend to exceed the level of trusting investments previously given. Thus, on average the ability to enter into imperfectly enforced agreements increases the amount invested. In the sample, 65% of the subjects in the role of Player A in the Contract Game gave a greater investment than in the Trust Game. As stated previously, contract proposals, for the most part, request a full investment. In only 9.7% of the pairings did the proposed investment request less than the amount the subject, in the role of Player A, had given in the Trust Game. In this subsample, only 22.2% of the time did the subjects comply with the proposal and form a contract. In 64.3% of the scenarios where an agreement did not form, the subject made an offer greater than what was requested. In fact, in 57.1% of these scenarios the subject gave strictly more than they had in the Trust Game. Thus, even when confronted with a situation where less is being requested than the subject would typically give, the individual did not reduce his or her contribution. Hence, the amount invested increased and poor proposals did not draw down the contributions of the offer recipient.

Similarly, contract enforcement encouraged greater investments. With high contract enforcement the average amount actually invested was 3.42. With low enforcement, though, investment was only 2.85, which is close to the mean value of *Trust* of those in the role of Player A, 2.91. Thus, in low enforcement treatments individuals, as to be expected, behave similarly to the game without communication (and without enforcement). The introduction of contract enforcement increases investment.

Consequently, one can summarize the experiments and appreciate the role of trust and contract enforcement by looking at the descriptive statistics from the outcomes generated in the

Contract Game. Table 3 presents the ending wealth in a meeting for Player A and Player B. The data is broken down into subsamples to compare subjects with different previous outcomes.[11]

[Insert Table 3 here.]

Player B's generate more wealth due to the strategic advantage second movers have in the game. Contracts improve wealth for both players, consistent with the argument that contracts facilitate mutually-advantageous trade. High contract enforcement is valuable to the investor as it reduces uncertainty, encouraging investments. Contract enforcement is disadvantageous to Player B since it limits opportunistic behavior.

Interestingly, trusting individuals (in the role of Player A) earn less, presumably because they are willing to make contributions without enforcement. Reciprocating individuals (those in the role of Player B) earn less wealth due to the fact that they are defined as those willing to return more of the investment. Trustworthy individuals (reciprocity of those in the role of Player A) earn similar amounts as those lacking trustworthiness. This is evidence that contrasts in behavior and outcomes is stronger for trust than it is for trustworthiness.

Finally, there is little difference in outcomes between the second-mover, risk averse investors and those less risk averse. The slight increase could be due to lower contributions when contract enforcement is low (risk loving individuals actually offer 9.0% more than risk averse investors). Risk-loving subjects earn more when in the role of Player A.

Thus, the data analysis provides evidence that the social preferences of trust and reciprocity, along with contract enforcement, affect the decision to enter into a contract and the size of the investment made and the ending wealth levels. An econometric investigation is needed to ensure that these effects are not misattributed to other measureable drivers of behavior and to investigate, formally, the interaction between trust and contract enforcement.

4. RESULTS

[11] Both Figure 2 and Table 3 divide the sample into those with trust and reciprocity below two and above 4. These are arbitrary cutoffs used simply to illustrate the effects. In the formal econometric analysis of the upcoming section, these thresholds will not be employed.

When individuals have the ability to enter into contracts, do higher levels of social preferences complement the enforcement of contracts or do enforced contracts thrive when social preferences are low? To formally test this question, we first consider the pairwise-level data. Binary probit models are estimated with the indicator variable *Contract* as the dependent variable. Table 4 presents the results. Each specification includes a set of control variables and session fixed effects. Standard errors are clustered by round.

[Insert Table 4 here.]

As to be expected, choices made with a reduced probability of agreement enforcement (*Low Enforcement* = 1) leads to a decrease in the likelihood of a contract being made. While the risk preferences are unrelated to the formation of a contract, more generous contract terms lead to more agreements.

As postulated, individuals who exhibit higher levels of trust in the standard Trust Game also see greater rates of agreements being reached. When the individual who is offered a contract trusts others, then s/he is more likely to accept the offer made. The marginal effect, estimated at the mean, is that one more dollar given in the Trust Game is associated with a 10.3 percentage point increase in the likelihood of a contract being agreed to.

Also, the trustworthiness of Player A (*ReciprocityA*) and the reciprocity of Player B (*ReciprocityB*) are unrelated to the likelihood of a contract formation. Additionally, while the results presented in Table 4 consider the trust of Player A and his or her trustworthiness, the correlation between the two is high ($r = 0.4$; p-value < 0.0001). Having only *ReciprocityA* in the specification (I), i.e., dropping *TrustA*, results in it having an insignificant coefficient. This is further evidence that it is the trusting behavior of Player A, and not his trustworthiness that matters. Thus, it is the trust that is the important driver of the outcome.

The second column allows for an interaction effect. The negative and statistically significant coefficient on *TrustA* x *Low* provides evidence that social preferences complement formal contracting. When contract enforcement is low, trusting individuals, while more likely to enter into an agreement than those who exhibit low levels of trust, do not form contracts very often. When contract enforcement is greater, the probability of joining into an agreement

escalates. This is evidence that those who exhibit high degrees of trusting behaviors flourish when contract enforcement is high.

At the mean, in specification II, the marginal effect of *TrustA* is 0.124, while the marginal effect of the interaction term is -0.043. Given that for the overall sample contracts arise in 44.3% of pairings (Table 2), the role of both trust and contract enforcement has an economically significant impact on contract formation. To illustrate, consider Figure 3 where fitted values of the probability of entering into a contract is graphed for different levels of *TrustA*.[12]

[Insert Figure 3 here.]

As one can see, being in a low contract enforcement treatment shifts down and flattens the estimated relationship between social preferences, as measured by trusting investments (on the x-axis), and the likelihood of entering into a contract.

Column II only includes the interaction between low enforcement and trust for the subject in the role of Player A since trustworthiness is unrelated to contract formation. If this measurement is interacted with the enforcement regime the interaction term is insignificant as well, while the statistical significance of the interaction between *TrustA* and *Low Enforcement* remains. Again, trust is the important determinant of behavior.

These main results are robust. The significance of trust and contract enforcement continue to hold when alternative standard errors are calculated (e.g. heteroskedastic-robust) or if binary logit or linear probability models are estimated. Additionally, their significance holds if a pooled regression without session fixed effects is estimated.[13] Furthermore, the results are not sensitive to the way in which trust, trustworthiness, and reciprocity are measured. As stated, the specification presented averages the amount of trusting and reciprocating choices in the Trust Game over the four rounds of play. Instead, if only the first or last round is considered, the results continue to hold in that trust has a positive and statistically significant relationship to contract formation.[14]

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[12] To make it visually appealing, Figure 3 presents the fitted value of *Contract* from a linear probability model, including all independent variables used in II of Table 2. The mean value of each independent variable, other than *TrustA* and *Low Enforcement* is used to identify the intercept for each line.

[13] Since rounds differ by contract enforcement treatments, round fixed effects cannot also be included. The order of the enforcement regimes differ by session. Thus, session fixed effects capture any order effects that may have arisen.

[14] The same holds for trustworthiness of Player A and reciprocity of Player B.

One also would imagine that entering into a contract is thought of as a risky decision. While the results in Table 4 control for the risk preferences of each player, the impact of a subject's risk aversion can be expected to be more pronounced when contract enforcement is weak. If *Safe* is interacted with *Low Enforcement* and included in the specification, the interaction is statistically insignificant, but the relationship between Player A's trust and contract formation persist. Similarly, an interaction between Player A's trust and his or her risk preference does not have a significant impact on the likelihood of contract enforcement.

Finally, instead of combining the enforcement probabilities into the binary variable *Low Enforcement*, if four variables are created to capture the four treatments (enforcement probabilities of 0, 1/6, 1/2, and 5/6) the primary results continue to hold. Using the enforcement probability of $5/6^{th}$ as the omitted variable, indicator variables for each level of enforcement have negative coefficients and the interaction terms have statistically significant relationships.[15] Thus, the main findings in Table 4 are robust.

Now that the relationship between trust and contract enforcement in the formation of agreements has been established, the investigation can turn to the terms of the proposals made. The escalation in the frequency of agreements identified can be thought of as illustrating the expansion of the extensive margin generated by trusting individuals with improved contract enforcement. The complementary issue of the impact on the intensive margin, namely the size of the investment made, deserves investigation. Thus, consider the amount requested in the proposal. Table 5 presents the results. Since, in the experimental design each subject makes a proposal not knowing his or her role, information for all subjects can be used. Hence, the individual-level data set is analyzed. The results with standard OLS regressions with *Proposed Offer* as the dependent variable are presented. Additionally, since 73.0% of dyads had a proposal requesting all five, an indicator variable, *Prop5*, is defined equal to one if and only if *Proposed Offer* = 5. Results from a binary probit model estimation is presented as well. Again, individual background control variables are included and standard errors presented are clustered by rounds of play.

[15] Specifically, the interaction term *TrustA* x *p=1/2* has a statistically significant, positive coefficient when $p = 5/6$ is the omitted variable. An F-test of the joint null hypothesis that the interaction terms, collectively, are insignificant reveals their joint significance ($F = 21.3$; $p < 0.001$). Furthermore, tests of linear restrictions reveal that the indicator variable for $p = 0$ is statistically indistinguishable from $p = 1/6$ and $p = 1/2$ is indistinguishable from $p = 5/6$. Thus, the coarser control, *Low Enforcement*, is presented in Table 4.

[Insert Table 5 here.]

The social preferences of trust and reciprocity in I reveal that they are important determinants of proposals made. Trusting individuals ask for larger investments. Interestingly, given the person's level of trust, those who reciprocate more ask for smaller investments.[16]

Columns II and III include interaction terms with the enforcement regime. Trusting individuals make larger proposals, but when contract enforcement is high, the effect is magnified. This is captured in both an increase in the forecasted size of the investment and the likelihood of proposing a contract for a full investment. Risk preferences do not play a role. Hence, the increased rate of contract formation also corresponds to larger investments, or rather, expands the intensive margin.

Similarly, the generosity of the proposed return on the offer can be considered. While the previous results focus on the role of social preference of trust and contract enforcement promote wealth-creating trade, it is worthwhile to investigate the role of social preferences (namely reciprocity) in the generosity of the terms of the contract (i.e., return on investment). Table 6 presents the results. Again, since individuals make the proposed returns not knowing which role they will take, information for all subjects can be used. Background control variables are included and standard errors clustered by round of play are presented.

[Insert Table 6 here.]

The generosity of the terms of the contract is determined, primarily, by one's risk preference and degree of reciprocity. More risk averse individuals offer better returns in the proposal, as does those willing to reciprocate the trusting investments of others. The former can be explained by larger returns acting as a form of insurance against a failed negotiation. The latter can be explained by reciprocity capturing altruistic, inequality averse preferences with a gain from sharing with others. No statistically significant interaction effects exist. Thus, risk preferences and altruism have distinct effects on the terms of trade.

[16] Since Table 5 studies the individual-level data, there is not a differentiation between reciprocity and trustworthiness.

Finally, we turn to the subset of observations in which an agreement was reached to investigate the determinants of breach of contract. Since the decision is solely that of the recipient of the investment (Player B), the characteristics of the receiver are considered. Table 7 presents the results.

[Insert Table 7 here.]

Breach of contract is mostly determined by the probability of enforcement and the terms of the agreement. As to be expected, breach of contract is more likely when contract enforcement is low. In the second column, contract breach is also correlated with one's history of reciprocity. Those who reciprocate more in the Trust Game are less likely to break an agreement when reached. Column III indicates that there is not a strong interaction effect with reciprocity and probability of contract enforcement.

In the mechanism studied, the idiosyncratic drivers of individual behavior and the proposed terms of the agreement are the only mechanisms available to deter breach. The framework does not consider the breach deterrent considerations, such as the litigation versus arbitration decisions (Drahozal and Hylton, 2003) and the role of consent on performance (Eigen, 2012).

4. Conclusion

A common argument is that when social norms of honoring agreements are lacking, formal, enforceable contracting and pro-social behaviors substitute. We investigate the alternative hypothesis that social preferences and contract enforcement are complements. The Trust Game is used as an assessment tool to measure individuals' levels of trust, trustworthiness, and reciprocity. A Contract Game is established where individuals can first enter into an agreement before making the investments. It is shown that people who exhibit higher levels of trust are more likely to reach an agreement and make larger investments. Also, increased contract enforcement does both as well. The contribution of this paper is to show that there is a significant interaction effect. Trusting individuals outpace those with lower levels of trust, in both the

frequency of entering into an agreement as well as the size of the investment made, when contract enforcement is high. Thus, social preferences and contract enforcement are complements rather than substitutes.

The results here complement, but do not overlap, with the related literatures on formal incentives crowding out pro-social behaviors and the impact of contracts on the building of social preferences. Together, these results highlight the need for a careful consideration of the role of social preferences in economic environments.[17]

The environment considered could be expanded to gain a deeper understanding of this relationship. For example, the experimental design employed does not allow for sanctions, either retaliation inflicted by parties to the agreement or external punitive punishments. This is done to replicate actual contract law (of form-adhesion contracts), which does not utilize sanctions, but also to limit the complexity of the environment to be able to focus on the enforcement probability. Not including punishments strengthens the results as well. A selfish individual always has the incentive to breach an agreement reached in this environment and, thus, by not discouraging breach, allows for only social preferences of reciprocity and trust to be expressed. It seems reasonable to presume that the effect of punishment on the expression of social preferences may be an important factor. Also, a specific type of contract is considered here, which is referred to in law as *adhesion contracts* where there is no back and forth bargaining between the parties. One would like to appreciate the role of social preferences in other type of contracting environments as well. Finally, while previous research has studied repeated play to mimic the evolution of social norms, the analysis here focuses on measuring levels of social preferences. One may want to combine the two approaches to allow for the development of norms to alter preferences and their combined impact on contracting. These extensions, though, are left for future analysis.

An open question, then, is that the results indicate that improved legal institutions will have limited effects in situations where social norms are weak. How to improve these pro-social behaviors, to allow for the formal institutions to succeed, is an important direction for future research. Furthermore, the concept of social preferences is broad. A further delineation of the

[1717] For an example of this, von Siemans (2010) explores optimal contracting amongst workers with social preferences and differing abilities.

exact nature of these preferences, and the influences on their expression, provides the opportunity to expand our understanding of institutional design and success.

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APPENDIX

Table A1 presents information on the contract proposals made in the sessions.

[Insert Table A1 here.]

While Figure 1 in the text presents the frequency of contract formation across contract offers, Figures A1 and A2 illustrate the associated average levels of trust and reciprocity of the proposer of the contract. The average choices over the four rounds of the Trust Game are reported.

[Insert Figure A1 here.]

The average level of trust is rather consistent across the contract proposals. This indicates that it is the social preferences of the investor (Player A) that is driving the outcomes of the experiment.

Figure A2 considers the measured level of reciprocity in Player B, the proposer of the contract offer.

[Insert Figure A2 here.]

Again, the level of reciprocity exhibited by the subject in the Trust Game is rather unrelated to the generosity of the proposed contract made. Some decline arises for those who offer less generous contracts. Thus, those who are less willing to make the reciprocating return in the Trust Game also propose contracts with less of a return. Table A2 presents a break-down of outcomes across enforcement regimes, rounds, and sessions.

[Insert Table A2 here.]

Figure A3 depicts these outcomes across rounds of play.

[Insert Figure A3 here.]

Behavior does not seem to vary systematically across rounds of play. This is confirmed in the analysis in the text since the main results are not sensitive to the inclusion or exclusion of round fixed effects. Figure A4 depicts the outcomes across enforcement regimes.

[Insert Figure A4 here.]

The proposed offer is greater for higher enforcement treatments than lower enforcement treatments, which is consistent with the econometric results presented. The proposed return takes a distinct inverted-U shape. When enforcement probabilities are low proposers likely acknowledge that Player A has little confidence in very generous contract offers and, consequently, propose more realistic returns. When the probability of enforcement is very high, the proposer does not want to make a generous offer because there is a good chance it will be enforced.

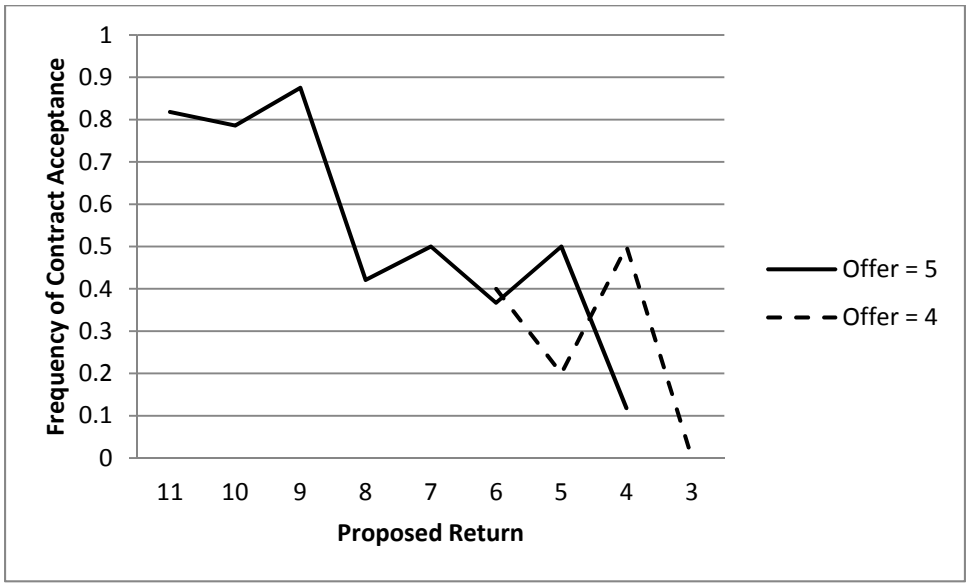
TABLE 1: Decision Problem

	Option (a)		**Option (b)**	
(1)	\$10	if X	\$19.25	if X
	\$8	if 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	\$0.50	if 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
(2)	\$10	if 1	\$19.25	if 1
	\$8	if 2, 3, 4, 5, 6, 7, 8, 9, 10	\$0.50	if 2, 3, 4, 5, 6, 7, 8, 9, 10
(3)	\$10	if 1, 2	\$19.25	if 1, 2
	\$8	if 3, 4, 5, 6, 7, 8, 9, 10	\$0.50	if 3, 4, 5, 6, 7, 8, 9, 10
(4)	\$10	if 1, 2, 3	\$19.25	if 1, 2, 3
	\$8	if 4, 5, 6, 7, 8, 9, 10	\$0.50	if 4, 5, 6, 7, 8, 9, 10
(5)	\$10	if 1, 2, 3, 4	\$19.25	if 1, 2, 3, 4
	\$8	if 5, 6, 7, 8, 9, 10	\$0.50	if 5, 6, 7, 8, 9, 10
(6)	\$10	if 1, 2, 3, 4, 5	\$19.25	if 1, 2, 3, 4, 5
	\$8	if 6, 7, 8, 9, 10	\$0.50	if 5, 6, 7, 8, 9, 10
(7)	\$10	if 1, 2, 3, 4, 5, 6	\$19.25	if 1, 2, 3, 4, 5, 6
	\$8	if 7, 8, 9, 10	\$0.50	if 7, 8, 9, 10
(8)	\$10	if 1, 2, 3, 4, 5, 6, 7	\$19.25	if 1, 2, 3, 4, 5, 6, 7
	\$8	if 8, 9, 10	\$0.50	if 8, 9, 10
(9)	\$10	if 1, 2, 3, 4, 5, 6, 7, 8	\$19.25	if 1, 2, 3, 4, 5, 6, 7, 8
	\$8	if 9, 10	\$0.50	if 9, 10
(10)	\$10	if 1, 2, 3, 4, 5, 6, 7, 8, 9	\$19.25	if 1, 2, 3, 4, 5, 6, 7, 8, 9
	\$8	if 10	\$0.50	if 10

TABLE 2: Descriptive Statistics

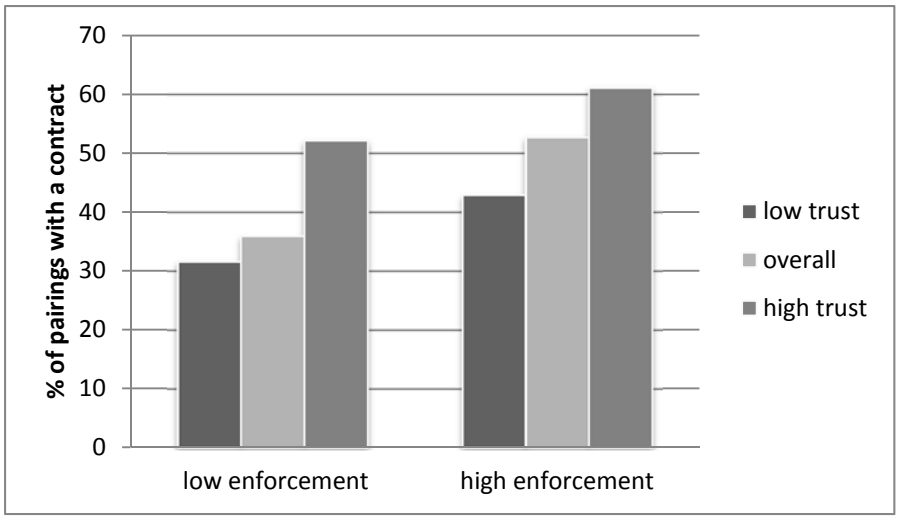
Variable	Description	Mean
Individual-Level Data		
Female	= 1 if the subject is a woman	0.274
NY	= 1 if the subject is from New York state	0.737
Business	= 1 if the subject is a business major	0.853
Vote	= 1 if the subject voted in the Nov. 2012 election	0.274
Safe	number of safe selections (out of 10) in the risk assessment	5.511
Trust	average amount given in the Trust Game	2.953
Reciprocity	average amount returned (if given 5) in the Trust Game	3.463
Group-Level Data		
Proposed Offer	proposed amount by B to be invested by A	4.513
Proposed Return	proposed amount by B to be returned by B	6.301
Actual Offer	amount invested by A	3.136
Actual Return	amount returned by B	3.120
Contract	= 1 if actual contribution equals *Proposed Offer*	0.443

FIGURE 1: Contract Proposals and Formation



When the offer is for 5, all proposed returns greater than 11 are included in the 11, while proposed returns less than 4 are included in the 4 category. Similarly, when the offer is for 4, proposed returns greater than 6 are included in it, while proposed returns less than 3 are included in 3.

FIGURE 2: Contract Formation, Contract Enforcement, and Trust



High trust individuals averaged contributions greater than 4 in the Trust Game, while low trust individuals averaged less than 2. Low enforcement are those rounds with $p = 0$ or $p = 1/6$, while high enforcement are those with $p = 1/2$ or $p = 5/6$

TABLE 3: Wealth Creation in the Contract Game

Subsample Considered	Avg. Wealth for A	for B	Subsample Considered	Avg. Wealth for A	for B
Overall	5.24	6.07	*Trust* > 4	4.45	
			Trust < 2	6.01	
Contract = 1	6.10	8.31			
Contract = 0	4.56	4.28	*Reciprocity* > 4	5.08	5.94
			Reciprocity < 2	5.31	6.57
Low Enf. = 0	4.39	6.38			
Low Enf. = 1	6.03	5.69	*Safe* > 5	5.46	6.26
			Safe < 5	5.15	6.33

TABLE 4: Contract Formation
(binary probit, dep. var. = *Contract*, *N* = 183)

	I	**II**
Low Enforcement	-0.492 (0.208) **	-0.323 (0.401)
TrustA	0.261 (0.046) ***	0.316 (0.041) ***
ReciprocityA	-0.004 (0.038)	
ReciprocityB	0.013 (0.036)	-0.004 (0.052)
TrustA x *Low*		-0.101 (0.054) **
ReciprocityB x *Low*		0.043 (0.057)
Safe A	0.131 (0.102)	0.128 (0.103)
Safe B	0.089 (0.090)	0.085 (0.088)
Safe A x *Safe B*	-0.021 (0.015)	-0.021 (0.016)
Proposed Offer	-0.011 (0.114)	0.013 (0.106)
Proposed Return	0.167 (0.022) ***	0.172 (0.018) ***
Controls?	YES	YES
Session Controls?	YES	YES
McFadden R^2	0.208	0.210
AIC	239.1	240.5
% correct	72.7%	71.6%

Controls for Player A include *Vote* and a dummy variable for having "nonstandard" risk preferences, for Player B is *Vote*, and along with a constant term for both include *NY x NY*, *Female x Female*, and *Business x Business*.
*** 1%; ** 5%; * 10%
Standard errors are clustered by round of play.

FIGURE 3: Likelihood of Forming a Contract

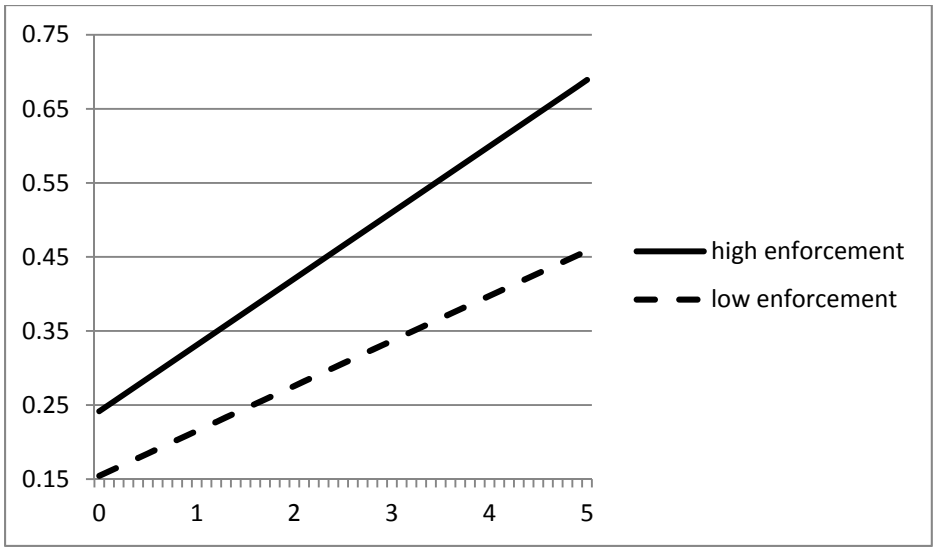


TABLE 5: Offers
(N = 376)

Dep. var. =	***Proposed Offer***	***Proposed Offer***	***Prop5***
Model =	**OLS**	**OLS**	**binary probit**
	I	**II**	**III**
Low Enforcement	-0.122 (0.074)	0.278 (0.142) *	0.060 (0.317)
Trust	0.205 (0.041) ***	0.256 (0.035) ***	0.514 (0.067) ***
Reciprocity	-0.054 (0.026) **	-0.041 (0.032)	-0.187 (0.067) ***
Trust x *Low*		-0.105 (0.063) *	-0.141 (0.061) **
Reciprocity x *Low*		-0.025 (0.063)	0.032 (0.085)
Safe	0.015 (0.031)	0.015 (0.030)	0.028 (0.031)
Controls?	YES	YES	YES
Session Controls?	YES	YES	YES
adj R^2	0.102	0.105	0.164
AIC	1022.7	1023.4	404.6
% correct			76.3%

Controls include *Vote*, a dummy variable for having "nonstandard" risk preferences, *NY*, *Female*, and *Business*, along with a constant term.
*** 1%; ** 5%; * 10%
Standard errors are clustered by round of play. McFadden R^2 presented in III.

TABLE 6: Returns
(OLS, dep. var. = *Proposed Return*, *N* = 376)

	I	**II**	**III**
Low Enforcement	0.450 (0.545)	0.448 (0.542)	1.824 (1.952)
Trust		0.120 (0.084)	0.219 (0.187)
Reciprocity		0.161 (0.108)	0.276 (0.060) ***
Trust x *Low*			-0.186 (0.462)
Reciprocity x *Low*			-0.237 (0.174)
Safe	0.081 (0.028) ***	0.090 (0.035) **	0.090 (0.032) ***
Proposed Offer	1.420 (0.090) ***	1.388 (0.078) ***	1.357 (0.083) ***
Controls?	YES	YES	YES
Session Controls?	YES	YES	YES
adj R^2	0.049	0.102	0.105
AIC	1042.4	1022.7	1023.4

Controls include *Vote*, a dummy variable for having "nonstandard" risk preferences, *NY*, *Female*, and *Business*, along with a constant term.
*** 1%; ** 5%; * 10%
Standard errors are clustered by round of play.

TABLE 7: Breached Contracts
(binary probit, dep. var. = *Breach*, $N = 81$)

	I	**II**	**III**
Low Enforcement	1.075 (0.287) ***	1.177 (0.341) ***	1.498 (0.075) ***
Reciprocity		-0.237 (0.037) ***	-0.211 (0.048) ***
Reciprocity x *Low*			-0.084 (0.099)
Safe	0.061 (0.089)	-0.019 (0.082)	0.029 (0.076)
Proposed Offer	0.577 (0.209) ***	0.499 (0.242) **	0.492 (0.246) **
Proposed Return	0.090 (0.034) ***	0.131 (0.043) ***	0.135 (0.048) ***
Controls?	YES	YES	YES
Session Controls?	YES	YES	YES
McFadden R^2	0.243	0.317	0.320
AIC	109.8	103.6	105.4
% correct	77.8%	77.8%	77.8%

Controls include *Vote*, *NY*, *Male*, and *Business*, along with a constant term.
*** 1%; ** 5%; * 10%
Standard errors are clustered by round of play.

TABLE A1: Proposed Contracts

Proposed Offer: Return	**# of obs.**	**% with a contract**	**average: *Safe***	***Trust B***	***Reciprocity B***
5: 11+	11 (6%)	0.818	4.545	2.727	2.932
5: 10	15 (8%)	0.786	5.143	3.304	4.857
5: 9	8 (4%)	0.875	7.625	2.906	2.656
5: 8	19 (10%)	0.421	6.053	3.724	4.078
5: 7	42 (23%)	0.500	5.262	3.387	3.494
5: 6	19 (10%)	0.367	6.158	3.237	3.118
5: 5	4 (2%)	0.500	5.750	2.375	2.063
5: 4-	17 (8%)	0.118	5.000	3.382	2.456
4: 6+	15 (8%)	0.400	5.333	2.917	4.217
4: 5	9 (5%)	0.200	6.667	2.633	3.900
4: 4	2 (1%)	0.500	6.500	2.875	2.500
4: 3-	3 (2%)	0	5.667	1.192	3.750
3: 4+	14 (8%)	0.500	5.778	2.300	3.950
3: 3	2 (1%)	0	5.500	2.625	1.000
3: 2-	2 (1%)	0	5.000	1.825	1.250
2: 3	1 (1%)	0	5.000	1.750	3.500
1: 1	1 (1%)	0	5.000	2.250	1.250
0: 0	4 (2%)	0.250	4.750	2.375	2.000

FIGURE A1: Contract Proposals and Trust

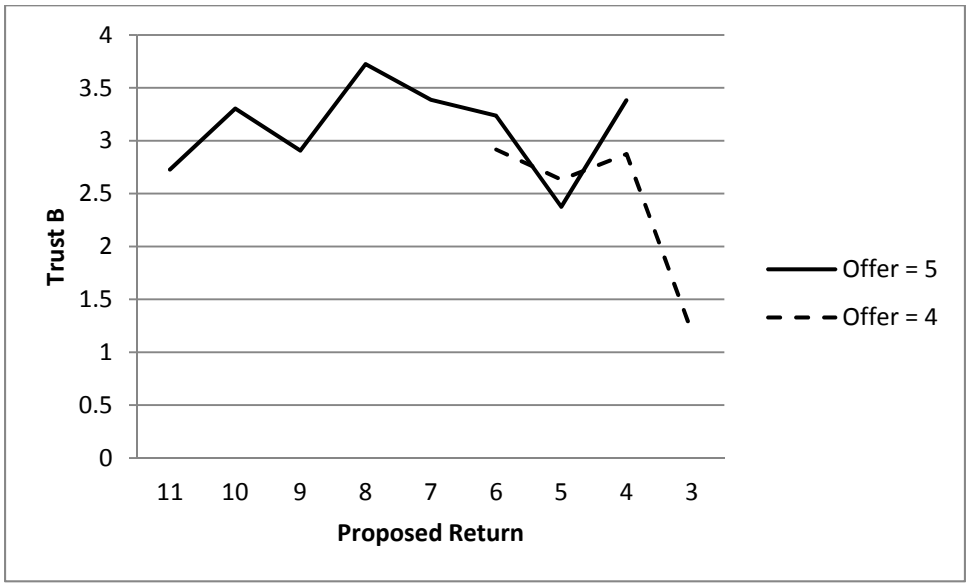


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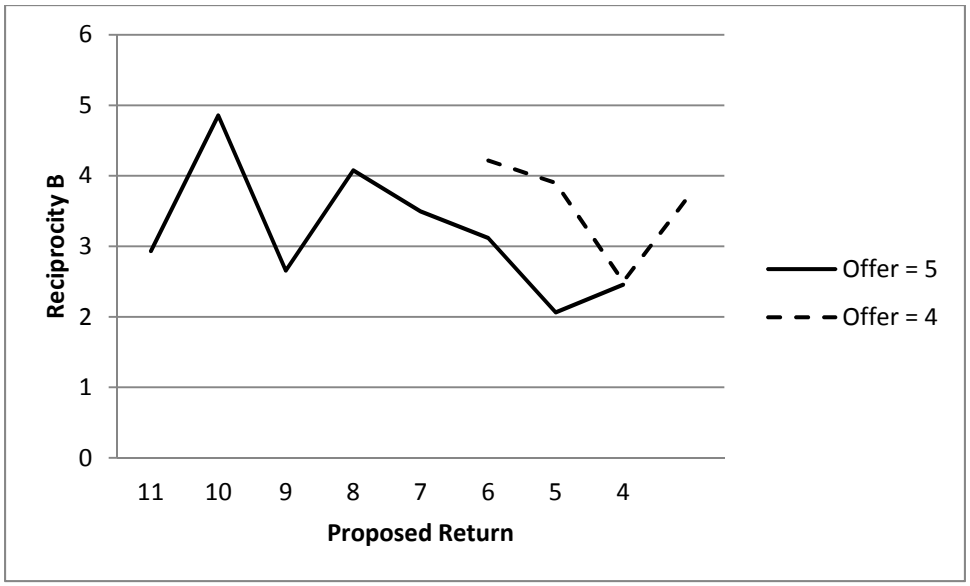
FIGURE A2: Contract Proposals and Reciprocity



When the offer is for 5, all proposed returns greater than 11 are included in the 11, while proposed returns less than 4 are included in the 4 category. Similarly, when the offer is for 4, proposed returns greater than 6 are included in it, while proposed returns less than 3 are included in 3.

TABLE A2: Outcomes

Subsample	Proposed Offer	Proposed Return	% with a contract	% with a breach	Wealth A	B
cheap talk	4.478	5.916	35%	50%	4.543	6.328
p = 1/6	4.434	6.565	37%	76%	4.239	6.434
p = 1/2	4.652	7.163	53%	33%	6.611	5.456
p = 5/6	4.522	5.978	52%	25%	5.598	6.033
round 1	4.478	4.624	44%	35%	5.207	7.033
round 2	4.282	5.902	41%	31%	5.076	6.293
round 3	4.674	7.261	51%	48%	6.267	5.356
round 4	4.652	6.022	41%	58%	4.435	5.565
session 1	4.138	5.444	36%	61%	5.278	4.861
session 2	4.556	5.444	43%	47%	5.400	5.866
session 3	4.875	6.333	38%	45%	5.167	5.750
session 4	4.833	6.917	50%	44%	4.500	7.306
session 5	4.385	7.404	50%	31%	5.633	6.308

Breach is measured as the proportion of groups who have reached an agreement experiencing a breach.

FIGURE A3: Outcomes across Rounds

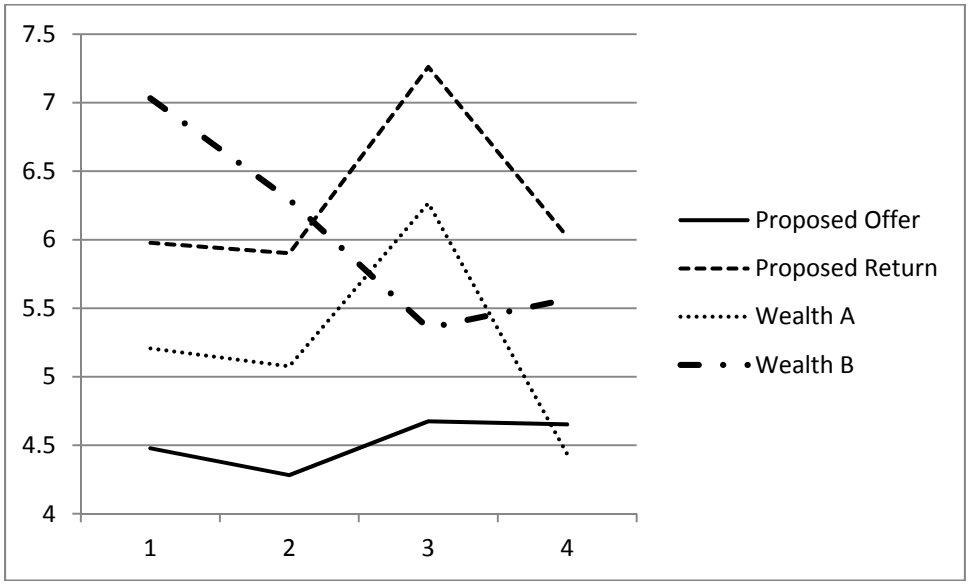
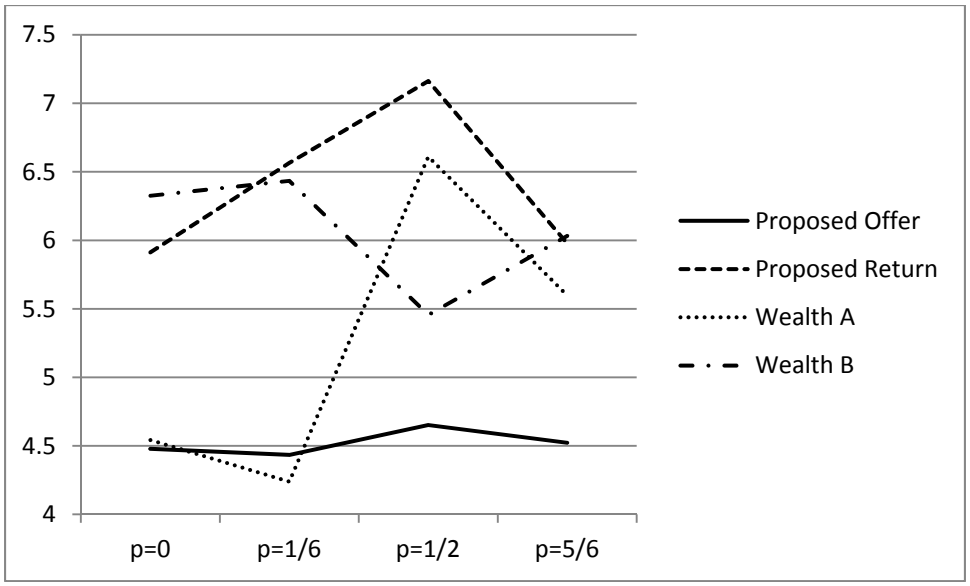



FIGURE A4: Outcomes across Sessions