Are Unheard Promises Kept?

April 2014

Steven Schwartz, Binghamton University

Eric Spires, Ohio State University

Rick Young, Ohio State University

We acknowledge the financial support of the Accounting and MIS Department and Fisher College of Business at The Ohio State University and especially the assistance of Jing Davis, Austin Sudbury and Kunjue Wang.

Many researchers have noted that social norms such as trust, reciprocity, fairness and honesty are important lubricants to modern economies (Fehr and Gächter, 2000). The reasoning is that sometimes it can be too costly to rely solely on highly elaborate court-enforced contracts to ensure one party to a transaction meets the expectations of another. In fact, it has been suggested that in some circumstances, even if complete contracting is relatively costless, it may be preferable to rely on social norms (Falk and Kosfeld 2006, Sunder 2010).

With respect to norm adherence, many transactional settings take on the following general form. One party takes an initial action that creates vulnerability to a second party, referred to as *trust*. The second party may either reciprocate or exploit the trust shown by the first party. Either the trusting or reciprocation enhances social welfare. For example, social welfare is enhanced when a buyer receives an item she previously did not have from a seller who receives compensation for an item she no longer wants. Of growing importance are electronic transactions among strangers, where one party transfers funds to a second party and the second party transfers some good or service to the first party after the receipt of funds. The question is, once the seller receives the money, will she follow through and complete the transaction?

Experiments and field studies find that in strictly single-shot settings the levels of observed trust and reciprocation are well beyond predictions found from standard economic analyses. Also, in richer settings reputation systems, especially third-party reputation systems, further increase economic efficiency (Bolton et al. 2004).

One important aspect of trust and reciprocity settings is the role of promises. By promise, we refer to a communication of intent by one party that is not part of sub-game perfect play. We distinguish such promises from coordinating signals, where in the latter it is rational for a selfish player to follow through on his signaled intent given the other player relies on his signal. An example of a promise would be a communication offering a refund for goods or services that are found to be unsatisfactory. In a true one-shot setting there is no reason for a self-interested promisor to follow through on his promise. However, empirical research has found that individuals tend to keep their promises, despite having explicit or implicit private incentives to do otherwise.

The question that remains, however, is why do people keep their promises? One suggestion by Charness and Dufwenberg (2006) is individuals wish to avoid the guilt associated with breaking a promise. The thinking here is that in making a promise the promisor has changed the expectations of another, and so the promisor does not want to disappoint the promisee. We shall refer to this as the *expectations rationale*.

Charness and Dufwenberg (2006) (CD) runs a version of the trust game that parallels the commercial transactions described above. Player A (the trustor) first decides whether to choose OUT, leading to payoffs of (5, 5) for A and B (the trustee), or choose IN. If Player A chooses IN, Player B then has the opportunity to decide between ROLL and DON’T ROLL. If B chooses ROLL there is a 5/6 probability the payoffs are (12, 10) and a 1/6 probability the payoffs are (0, 10). If B chooses DON’T ROLL the payoffs are (0, 14). Thus, if A “trusts”, by choosing In, B can “reciprocate” by choosing ROLL and sacrificing 4 (for certain).[[1]](#footnote-1)

CD manipulates whether at the start of the game B can send non-binding messages to A using anonymous (not face-to-face) written free-form messages. In the communication treatment, B may make a promise to choose ROLL. Guilt aversion might motivate the trustee to choose ROLL if the trustee believes his communication to the trustor increased the trustor's belief that the trustee will choose ROLL. The novel aspect of the experiment is that CD elicits the trustees’ *second-order beliefs*. Initially, *trustors* were asked the probability the trustee would choose ROLL; these are the first-order beliefs of the trustor. The *trustees* were then asked to guess the average belief of trustors; these are the second-order beliefs of the trustee. CD finds that individuals tend to keep promises despite self-interest to the contrary, and that the tendency to keep promises is increasing in the promisor’s assessment of the promisee’s beliefs.  That is, the more the promisor (B) believes the promisee (A) believes the promise will be kept, the more the promisor will keep the promise. CD attributes this result to guilt aversion: the trustee/promisor does not want to let someone down who is counting on him.

Vanberg (2008) re-examines a similar setting, pointing out that there are alternative reasons besides guilt aversion that can explain the CD findings. Vanberg (2008) omits the first stage where Player A chooses IN or OUT. Vanberg refers to a player who chooses whether to roll the die as a dictator (B) and the other player in the pair as a recipient (A). In his experiment a pair of players could “chat” (send two messages each) before knowing which role each would have. Because the recipient takes no action in reliance on the “chatting”, the game involves neither trust nor reciprocity. A key aspect of his design is after communication half of the players were matched with a new partner, referred to as the “switch” condition. Thus, some players who were deciding whether to choose ROLL would be matched to a person with whom they had not communicated.

The dictators in Vanberg were informed they had been switched and would be provided with their new recipient’s communication received from their previous (pre-switch) dictator. Only the dictator would know whether the switch had occurred, so the recipient’s beliefs could not be affected by which condition they were assigned, and as a consequence the dictator’s second-order beliefs should not be affected either. Thus, a change in second-order beliefs could not cause a between-treatment difference. If dictators cared *only* about whether the recipient’s *expectations* were met, they would honor the promise made to the recipient whether switched or not. That is, they would be just as willing to honor a promise if it had been made by some other dictator as if they had made it themselves. More to the point, there should be no difference in giving behavior if dictators only cared about the recipient’s beliefs about the dictator’s behavior. It turned out that dictators were less giving in the switch condition, even though dictators’ second-order beliefs were not different. Vanberg finds that expectations are not relevant for switched partners, and so concludes that expectations of others are not that relevant in promise keeping.

Ellingsen et al. (2010) investigates a dictator game, a trust game with complete information, and a trust game similar to CD. While in prior studies trustees were simply asked what they thought the trustors believed, here the subjects were *told* what others believed. The purpose was to reduce the *false consensus effect*, in which trustees may believe that other trustees would behave as would they, and trustees who preferred to reward trust would be those who believed that trustors expect to be rewarded and so would (possibly falsely) imagine trustees had those beliefs. By simply eliciting first-order beliefs from trustors and then telling those beliefs to trustees, there is no potential for false consensus bias. They find that the expectations of the more vulnerable party (recipient or trustor) had little effect on the behavior of the more powerful party (dictator or trustee), thereby further putting into question the interpretation of CD.

 We believe the experimental designs of Vanberg (2008) and Ellingsen et al. (2010) still leave unanswered questions regarding the role of expectations in promise keeping. In both studies the individual whose expectations are the focus of the study was never made a promise by the person taking the relevant action.[[2]](#footnote-2) Further, in Vanberg the promisor never received any consideration from the promisee, as the promisor is a dictator, so there seems less reason for guilt.

As an analogy, if a person returns a lost item to its owner, it might be considered rude for the owner not to give a reward, although presumably the owner would use her judgment in deciding the reward amount. If on the other hand the owner promises a specific reward amount, she has set the expectation of the person returning the item and may well feel guilt if she did not pay the specified reward, even if this amount is above what she would pay if no reward was promised. In the former case there doesn’t appear to be any reason to feel guilty about not meeting the finder’s expectations while in the latter case there does. Hence, it may not be surprising that in situations where no promise was made, the expectations of one party are not of concern to the second party.

To continue the analogy above suppose the owner of the item made a promise of a reward for its return, but the returner never saw the promise (and the owner knows this). Should the promise still carry weight? That is, is the promised reward relevant, or would the owner choose the same reward as if no promise had been given? If we are to reject entirely the role of expectations in promise keeping, then it is not relevant whether the “promisee” saw the promise because his expectations are not relevant anyway. Our experiment looks at this issue.

 In our experiment a trustor and trustee play an investment game similar to Berg et al. (1996). A trustor can either invest money with a trustee or keep it. If invested the money grows substantially. Conditional on investment, the trustee can decide how much money, if any, to give back to the trustor. Because enforceable contracts are not permitted, the unique sub-game perfect solution is inefficient — no investments would be made. We augment the Berg et al. (1996) setting by allowing the trustee to send a message to the trustor before the trustor’s decision is made. While the message is not constrained with respect to content, we expect the majority to contain some sort of promise. The novel feature of our experiment is that a randomly selected 50% of pairs will have their messages intercepted and so they will not reach the trustor. Before choosing how much to return, the trustee will either see the message sent by the trustor or be informed that the message was intercepted. Further, the trustee will choose a “return strategy” conditional on whether the message was received by the trustor. Figure 1 describes the game in sequential form.

The results of our experiment indicate that the delivery of the promise is relevant to the behavior of the trustee. The amount returned by the trustee is 60% higher when the promise is delivered. Conditional on a positive return by the trustee, the promises are informative. Expectations appear to play the major role in promise keeping. We conclude that at least an extreme version of the non-expectations motive for promise keeping is false, simply writing the promise is not enough. Promise keeping requires mutual agreement between the promisor and promisee.

After analyzing the results of the first experiment and observing that trustees simply writing an undelivered promise led to approximately the same amount of reciprocation as similar experiments without promises, we designed a second experiment to look more closely at the role of promises as an inducement to trust. We alter the first experiment by either delivering the trustee’s message *before* the trustor makes her decision or *afterwards.* Only in the former case can the message be an inducement for the trustor to trust. If promisors experience guilt over not meeting the expectations of the promisee, promises may carry weight even if delivered too late to affect the trustor’s choice. In fact this is a strong test of the expectations hypothesis because it assumes: a) late promises affect expectations and b) promisors care about expectations even if the change in the promisee’s expectations did not induce them to choose the action desired by the promisor. An initial analysis of the second experiment indicates that promisors condition their response significantly less on the delivery of the promise. That is, there is a greater tendency by promisors to follow through regardless of the delivery outcome in the on-time/late delivery manipulation than in the delivery/no delivery manipulation. The results of the second experiment lend greater support to the notion that the expectations of the promisee are an important reason why promisors keep their promises.

**Hypotheses**

 The setting we use to test our hypotheses is a trust game similar to Berg et al. (1995). The game consists of two people, a trustor and a trustee. Aside from show-up fees, the trustor is endowed with an amount *I*, where *I* > 0, which may be either retained or invested with the trustee. If retained, the trustor earns *I* and the trustee zero. If invested with the trustee, the investment becomes *Y* > *I*. The trustee may return an amount *R*, *R* ≤ *Y*, to the trustor keeping *Y*-*R* for himself. Because in the final move the trustee should set R=0, the unique sub-game perfect equilibrium is for the trustor not to invest.

 Before the trustor makes her investment decision, the trustee can send a short written message to the trustor. The message may have any content other than offensive or threatening language. We use free-form messages, rather than simply have trustees state how much they intend to return, because free form messages are more likely to be followed than parsimonious messages (Charness and Dufwenberg 2010; Lundquist et al. 2009). Therefore, free-form messages increase the power of our tests. It is common knowledge that 50% of the messages will be delivered and 50% will be intercepted by the experimenters.

There is substantial evidence that people keep their promises even at personal cost (Klein and O’Flaherty 1993; Ellingsen and Johannesson 2004a, 2004b). Therefore, to the extent that trustees use their messages to make a specific promise, we expect *R* to be increasing in the promised return.

*Hypothesis 1: The amount returned by trustees is increasing in the amount they promised to return conditional on the promise being delivered.*

 If we assume trustors anticipate the hypothesized behavior in Hypothesis 1, then it is also logical to assume that the their expectations about how much will be returned would be increasing in the amount promised to be returned. Therefore, the frequency of investment by trustors would be increasing in the promised *R*.

*Hypothesis 2: Conditional on the message being delivered, the frequency of investment is increasing in the amount promised to be returned.*

 One way to view promises is as a type of implicit commitment (Vanberg 2008). Commitments need not involve others and in fact private commitments can have an effect on behavior (Bobocel and Meyer 1994). If the expectations of others are irrelevant and a promise is a type of implicit commitment, even if the promisee is unaware of its existence it may affect the behavior of the promisor. On the other hand, the “guilt” motive is by definition external (Baumeister et al. 1993). Guilt occurs when others’ expectations have not been met, but only if there is a belief that one has the obligation to meet those expectations. The fundamental idea introduced by Charness and Dufwenberg (2006) is promises affect the expectations of others and the promisor, by making a promise, has some obligation to fulfill that promise. Therefore, if the promisor chooses to not fulfill the expectation he has created, he may feel what is properly called “guilt”. Of course, a necessary condition for the guilt motive to be relevant in explaining promisor behavior is the other party is aware of the promise. Given our experimental design, Hypothesis 3 follows from the guilt rationale because the promisor has not affected the promisee’s expectations in the event the promisee does not receive the promise. This is the main research hypothesis of the study.

*Hypothesis 3: Delivered promises to return are more likely to be kept by trustees than non-delivered promises.*

**Design**

 The experiment was conducted at a large Midwestern university, with student participants. Four sessions were run with 20, 22, 18 and 22 participants. The parameters used in the experiment are I = $5, Y= $19 and show-up fee =$10, and R must be in whole dollars. Using an odd number for Y removes the focal 50/50 split and makes the promises even more important for forming expectations.

Figure 1 displays the game. All aspects of the game were common knowledge. Trustors, referred to as Player B, had the opportunity to send a message to the trustee, referred to as Player A. It was common knowledge that only 50% of the messages were to be delivered and that a randomization device would determine which messages got through to trustors. If the trustee-trustor pair was chosen for interception, the trustor received a message from the experimenter that it was intercepted. In the case where the pair was chosen for delivery but the trustee chose not to send a message, a blank sheet was given to the trustor so that the trustor did not erroneously think a message was sent and intercepted. Otherwise the trustor received the message written by the trustee.

In addition to completing their message, trustees made their return choices using the strategy method. That is, they chose R conditional on the message being delivered and conditional on the message not being delivered. Clearly, if there is no investment R is irrelevant. The trustor made her investment decision after reading the message of the trustee or after learning the message was intercepted.

Upon arrival participants were handed instructions and given time to read. Instructions were then read aloud by an experimenter. Participants next correctly completed a quiz. After all participants successfully completed the quiz, slips of paper were shuffled and handed out, face down. These slips informed the participants of their roles. Players A were then relocated to another room. All decisions were made on paper. After all decisions were made, but before participants were informed of their earnings, they were asked to complete a short questionnaire. Payments were made privately so that no-one other than the participant knew their earnings. Sessions lasted about 75 minutes and average earnings were $18, including show-up fees.

**Results**

 The results of the experiment are presented in Table 1. One of the most striking features is the trustees’ high degree of reciprocity. The average returned amount, conditional on message delivery, is 6.88, which is almost a 38% return to trustors ((6.88-5)/5).[[3]](#footnote-3) The two-tailed p-value for returned amount not equal to 5 is .003. In contrast, Berg et al. (1995) showed a small loss to trustors who transferred a positive amount. This difference may indicate the effect of promises on trustworthiness. The average returned amount, conditional on message interception, is 4.83, and is not significantly different than 5 (p = .8) which is similar to Berg et al. (1995). Also similar to Berg et al. (1995), a large majority of trustors transferred money (30/41).

 Hypothesis 1 predicts that the amount returned by trustees is increasing in their promise. In order to test the hypothesis we compare *promised* returns to the trustee’s decision regarding how much would be returned *conditional on delivery*. There are twenty instances where trustees promised to return an unambiguous amount.[[4]](#footnote-4) The average such promise was to return 9.5. A comparison of the twenty promises and return contingent on delivery of message yields no significant association (correlation coefficient r = 0.07). Of the twenty, five were promises of at least 9, but where the trustees actually chose to return 0. Excluding those five observations, we find a significant (positive) correlation, r = 0.74, between promises and returns (two-tailed p-value = .005).[[5]](#footnote-5) One might therefore conclude that conditional on trustees being trustworthy, their promises are informative about returns. A more inclusive test would compare trustees who made some sort of promise, including promises such as returning “more than was transferred”, to those who did not. We classify 9 trustees as having made no promise, the rest having made a promise, as shown in Table 1. The mean amount returned within the promise (no promise) group is 7.38 (5.11) p-value = .11 for difference in means. In summary, there is only weak support for our hypothesis that trustworthiness is generally increasing in the promised return.

 Hypothesis 2 predicts that trust is increasing in the promise received. Of the 41 trustors, 30 decided to invest the $5. If we divide the trustors as either a) receiving an unambiguous promise or b) receiving no message or an ambiguous message, 11 trustors fall in the former category and 30 in the latter category. Of those receiving an unambiguous promise, 8 of 11 transferred, of those not receiving an unambiguous promise, 22 of 30 transferred, with no significant difference in proportions. The data provide almost no support for Hypothesis 2.[[6]](#footnote-6)

An analysis of the post-experiment questionnaires reveals 15 of the 20 trustors who received a message said it affected their decision. Some trustors who indicated it had an effect explained that message gave them comfort, but they would have invested anyway. Only 8 of 20 trustors who did not receive a message said it *would have* affected their decision. However, the 8 who said it would have affected their decision included all 6 of the trustors who did not invest when not receiving a message. So essentially trustors who invested without a message said receiving a message would have had no effect, while trustors who did not invest without a message said receiving a message would have had an effect. Most of the trustors who invested without seeing a message mentioned that they thought the investment was worth the risk. Several specifically mentioned that they thought investment would be less risky, or that they would have received more money, had the message not been intercepted. That is, these trustors believed delivered messages carry more weight than intercepted messages.

Hypothesis 3 predicts that delivered promises are more likely to be kept by trustees than intercepted promises. We test Hypothesis 3 using the 32 trustees who made promises. We operationalize “keeping” a promise in two ways: (1) returning an amount greater than 5 and (2) returning an amount greater than or equal to the amount specified or implied in the message. The first assumes that the basic promise is that the trustor will be made better off if a transfer is made; thus if the trustee returns at least 6 the basic promise is deemed to have been kept. Under this rationale, if the trustee mentioned or implied an amount greater than 5 in the message, it is considered an exaggeration in order to encourage the trustor to transfer; the trustee is still better off having transferred. The second operationalization of keeping the promise is strict and literal: the promise is deemed to have been kept only if the trustee returns an amount equal to or greater than the amount specified or implied in the message.

To test Hypothesis 3, we counted the number of kept promises for delivered and intercepted messages under both definitions. Table 2 summarizes the results. Under the first definition, 27 (17) of 32 promises were kept for delivered (intercepted) messages. The difference in proportions between delivered and intercepted messages is significant (two-tailed p < 0.002 using the binomial test for correlated proportions described in Hays 1963). Under the second definition, the difference in proportions of kept promises for delivered messages (22/31) and intercepted messages (11/31) is significant at two-tailed p < 0.001. [[7]](#footnote-7) Hypothesis 3 is strongly supported: delivered promises are much more likely to be kept than are intercepted promises.

In Table 3 trustees’ promise keeping is categorized based on whether expectations or commitment seem to be driving their behavior. If a trustee kept a promise contingent on delivery, but returned a lower amount contingent on interception than contingent on delivery, we classified that trustee as being affected by trustors’ expectations. For those trustees, the amount returned depended on whether the message was delivered. On the other hand, if a trustee kept a promise contingent on delivery and returned the same amount contingent on interception as on delivery, we classified that trustee as being driven by commitment. For those trustees, the amount did not depend on whether the message was delivered; the important factor was that a promise had been made.

Under the first definition of promise keeping, 27 trustees kept their promise. Of these, 19 were seemingly affected by expectations of the trustor, 6 were driven by having made a commitment, and 2 were unclassified.[[8]](#footnote-8) Omitting the 2 unclassified, a binomial test shows that the frequencies for expectations-matter and commitment significantly differ (two-tailed p < 0.01). Using the stricter definition of keeping a promise, 23 trustees[[9]](#footnote-9) kept their promise contingent on delivery, with 15 affected by expectations, 6 driven by commitment, and 2 unclassified. A binomial test yields a moderately significant difference between frequencies for expectations-matter and commitment (two-tailed p = 0.078). These analyses support the table 2 analyses in that expectations of the trustor play a larger role than commitment in the keeping of promises in our study.

As a final test of Hypothesis 3, we compare the mean amount returned conditional on delivery ($7.37, s.d. = 3.47) with the mean amount returned conditional on interception ($4.59, s.d. = 4.32) for the 32 trustees who made a promise. The difference of $2.78 is strongly significant (two-tailed p < 0.001), indicating again that the expectations of trustors play a large role.

The overwhelming response in the post-experiment questionnaires as to why trustees conditioned their response on the delivery of their message was that the trustors were relying on their “promise” and that they owed them more of a return. The word promise was used frequently. One trustor specifically mentioned they would feel no “guilt” if the message was intercepted and they took more. Others mentioned “feeling bad” if they didn’t follow through, conditional on the message being delivered, but not otherwise. The expectations of the trustor are clearly playing a role. Our results are consistent with the idea that a promise, if made and heard, creates an obligation to perform that would not otherwise be present. That is, without the delivery of the promise, the reciprocation of trust is lower. The result is even more striking when we consider that of the 20 trustees that conditioned their return in the hypothesized direction, 19 were those we identified as making a promise.Of the 13 trustees who made a promise but did not condition in the expected direction, 5 trustees returned nothing invariant to message delivery. We therefore might conclude they were not concerned about their promise.Of the 8 remaining trustees who made promises, 6 did not condition their return in either direction and 2 conditioned their return in the opposite of the hypothesized direction.[[10]](#footnote-10)

**Conclusion**

Prior research has found that in the absence of a promise, a trustee is not concerned about the expectations of a trustor. Obviously, this is not to say the expectations of the promisee are not important to promise-keeping. We extend this research and find that a written promise, if it is not seen by the trustor, is less relevant. If the trustor becomes aware of the promise, two things occur. The first is that she changes her expectations about the future actions, and second it leads to an increase in trusting behavior. Similar to Vanberg (2008), the link between *causing* the change in expectations and guilt is important.

 Table 1: Description of Results for Experiment 1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Player # | Delivered | Transfer | Ret|Del | Ret|Inter | Message | Prom | Amt |
| 1 | N | Y | 9 | 7 | We’ll both make more money | Y |  |
| 2 | Y | Y | 10 | 9 | Will return greater than 40% | Y |  |
| 3 | N | Y | 9 | 9 | Will return more than sent | Y |  |
| 4 | Y | Y | 0 | 0 | Will return of 10 | Y | 10 |
| 5 | N | Y | 9 | 8 | Will return more than 5 | Y |  |
| 6 | Y | Y | 6 | 8 | Good deal | N |  |
| 7 | N | Y | 0 | 0 | Will return 10 | Y | 10 |
| 8 | Y | Y | 9 | 5 | Will return 9 | Y | 9 |
| 9 | N | N | 9 | 9 | Transfer | N |  |
| 10 | Y | Y | 9 | 0 | Will return 10 | Y | 10 |
| 11 | N | Y | 0 | 5 | Wonderful day | N |  |
| 12 | Y | Y | 11 | 9 | The sky is blue | N |  |
| 13 | N | Y | 7 | 6 | Will return more than 5 | Y |  |
| 14 | Y | Y | 8 | 6 | Will return 11 | Y | 11 |
| 15 | N | Y | 8 | 6 | Will return 8 | Y | 8 |
| 16 | Y | Y | 4 | 4 | Hook a brother up | N |  |
| 17 | N | N | 9 | 7 | Will be fair, I promise | Y |  |
| 18 | Y | N | 8 | 0 | Will return 8 | Y | 8 |
| 19 | N | Y | 10 | 9 | Will return 10 | Y | 10 |
| 20 | Y | Y | 12 | 13 | Will return 12 | Y | 12 |
| 21 | N | Y | 10 | 10 | Will split money | Y | 9.5 |
| 22 | N | Y | 0 | 0 | 50-50 split | Y | 9.5 |
| 23 | Y | N | 0 | 0 | Blank Message | N |  |
| 24 | N | Y | 6 | 0 | More than 5 | Y |  |
| 25 | Y | Y | 9 | 9 | Will return 9 | Y | 9 |
| 26 | N | Y | 6 | 0 | Both of us better off | Y |  |
| 27 | Y | Y | 0 | 0 | Experimenters will confiscate | N |  |
| 28 | N | N | 0 | 0 | Will give you 9 | Y | 9 |
| 29 | Y | N | 9 | 9 | Bad not to give you at least 5 | Y |  |
| 30 | N | Y | 0 | 0 | Will give you 10 | Y | 10 |
| 31 | Y | Y | 6 | 0 | Will get more money if transfer | Y |  |
| 32 | N | N | 9 | 1 | Will return 9 | Y | 9 |
| 33 | Y | Y | 9 | 0 | You will get 10 | Y | 10 |
| 34 | N | N | 9 | 9 | I like cats  | N |  |
| 35 | Y | N | 9 | 6 | You will get 10 | Y | 10 |
| 36 | N | Y | 7 | 7 | Blank | N |  |
| 37 | Y | Y | 10 | 10 | We can both gain | Y |  |
| 38 | N | N | 9 | 10 | Was as fair as I could | Y |  |
| 39 | Y | N | 10 | 0 | I will return half | Y | 9.5 |
| 40 | N | Y | 10 | 0 | I will give you 10 | Y | 10 |
| 41 | Y | Y | 7 | 7 | I will give you 6 | Y | 6 |

Player #: Player B identifier; Delivered: Whether Player B’s message was delivered; Y = yes, N = No

Transfer: Whether Player A chose to transfer $5 to Player B; Y = yes, N = No

Ret|Del: Amount returned by Player B conditional on message delivered

Ret|Inter: Amount returned by Player B conditional on message intercepted

Message: Excerpt from Player B’s message; Prom: Y = some form of promise; N = no promise

Amt: Amount of a specific promise, promises of half are coded 9.5.

Description of Results for Experiment 2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Player # | OT | Transfer | Ret|OT | Ret|Late | Message | Prom | Amt |
| 1 | Y | N | 10 | 10 | Equality is a good thing | Y |  |
| 2 | N | N | 9.5 | 9.5 | Have fun with the money | N |  |
| 3 | Y | Y | 6 | 0 | Will return more  | Y |  |
| 4 | N | Y | 10 | 10 | Will return 10 | Y | 10 |
| 5 | Y | Y | 10 | 8 | Will send back 10 | Y | 10 |
| 6 | N | Y | 10 | 10 | Will give you 10 | Y | 10 |
| 7 | Y | N | 0 | 0 | Will send 11 | Y | 11 |
| 8 | N | Y | 6 | 8 | Use opportunity to your adv | N |  |
| 9 | Y | Y | 9 | 9 | Will split evenly, I promise | Y | 9.5 |
| 10 | N | N | 10 | 10 | You will get 10 | Y | 10 |
| 11 | Y | Y | 9 | 9 | Will split 9 and 10 | Y | 9 |
| 12 | N | N | 7 | 7 | The weather is nice | N |  |
| 13 | Y | Y | 10 | 10 | I guarantee you 10 | Y | 10 |
| 14 | N | Y | 10 | 0 | Will return half | Y | 9.5 |
| 15 | Y | Y | 9 | 9 | Will give you 9 | Y | 9 |
| 16 | N | Y | 9 | 8 | More than 7 | Y |  |
| 17 | Y | Y | 10 | 10 | Will give you 10 | Y | 10 |
| 18 | N | Y | 9 | 9 | Will give you 9 | Y | 9 |

Table 2: Hypothesis 3 Tests

Panel A: Define “kept” promise as amount returned is greater than 5

|  |  |
| --- | --- |
|  | Message Delivered |
| Message Intercepted | Promise Kept | Promise Broke |
| Promise Kept | 17 | 0 |
| Promise Broke | 10 | 5 |

Panel B: Define “kept” promise as amount returned is greater than or equal to amount specified or implied in message

|  |  |
| --- | --- |
|  | Message Delivered |
| Message Intercepted | Promise Kept | Promise Broke |
| Promise Kept | 11 | 0 |
| Promise Broke | 11 | 9 |

Cells include counts of the trustees who kept or broke promises. In Panel B, trustee #17 (see Table 1) was not included because it is indeterminable whether the promise was kept if the message was intercepted.

Table 3: Hypothesis 3—Expectations versus Commitment

|  |  |
| --- | --- |
|  | Kept Promise Defined as: |
|  | Return|Del > 5 | Return|Del ≥ amt promised |
| PROMISE KEPT |  |  |
|  Expectations matter: |  |  |
| 1. Ret|Del > 5 or ≥ amt promised; Ret|Inter = 0
 | 9 | 7 |
| 1. Ret|Del > 5 or ≥ amt promised; Ret|Inter > 0

 and Ret|Del > Ret|Inter | 10 | 8 |
|  Total expectations matter | 19 | 15 |
|  Commitment matters: |  |  |
|  Ret|Del > 5 or ≥ amt promised; Ret|Del = Ret|Inter | 6 | 6 |
|  Unclassified: |  |  |
|  Ret|Del > 5 or ≥ amt promised; Ret|Del < Ret|Inter | 2 | 2 |
| Total Promise Kept | 27 | 23 |
|  |  |  |
| PROMISE BROKE |  |  |
|  Ret|Del < 6 or < amt promised | 5 | 9 |
|  |  |  |
| Total Promises Made | 32 | 31 |

Table values are counts of trustees.

Ret|Del: Amount returned by Player B conditional on message delivered

Ret|Inter: Amount returned by Player B conditional on message intercepted

References

Baumeister, R., A. Stillwell and T. Heatherton. 1994. Guilt: An interpersonal approach. *Psychological Bulletin*. 115(2): 243-267.

Berg, J., J. Dickhaut and K. McCabe. 1995. Trust, reciprocity and social history. *Games and Economic Behavior*. 10(1): 122-142.

Charness G. and M. Dufwenberg. 2006. Promises and Partnership. *Econometrica*. 74(6): 1579-1601.

Charness, G. and M. Dufwenberg 2010. Broken promises: An experiment. *Economic Letters*. 107(2): 281-283.

Bolton, G., E. Katok and A. Ockenfels. 2004. How effective are electronic reputation mechanisms? An experimental investigation. *Management Science* 50 (11) 1587–1602.

Ellingsen, T. and M. Johannesson 2004a. Promises, threats and fairness. *The Economic Journal*. 114(April): 397-420.

Ellingsen, T. and M. Johannesson 2004b. Is there a hold-up problem? *The Scandinavian Journal of Economics*. 106(3): 475-494.

Ellingsen, T., M. Johannesson, S. Tjøtta and G. Torsvik. 2010. Testing guilt aversion. *Games and Economic Behavior*. 68(1): 95-107

Falk, A. and M. Kosfeld. 2006. The hidden costs of control. *American Economic Review*. 96(5): 1611-1630.

Fehr, E. and S. Gächter. 2000. Fairness and retaliation: The economics of reciprocity. *Journal of Economic Perspectives*. 14(3): 159-181.

Hays, W. 1963. *Statistics*. Holt, Rinehart and Winston: New York.

Klein, D. and B. O’Flaherty. 1993. A game-theoretic rendering of promises and threats. *Journal of Economic Behavior and Organizations*. 21(3): 295-314.

Lundquist, T., T. Ellingsen, E. Gribbe and M. Johannesson 2009. The aversion to lying. *Journal of Economic Behavior and Organizations.* 70(1-2): 81-92.

Sunder, S. 2010. Adverse effects of uniform written reporting standards on accounting practice, education, and research. *Journal of Accounting and Public Policy*. 29: 99-114.

Vanberg, C. 2008. Why do people keep their promises? An experimental test of two explanations. *Econometrica*. 76: 1467-1480.

**Appendix A: Instructions for message intercepted treatment**

**Instructions**

Thank you for participating in our experiment. During the experiment you will make decisions that along with the decisions of others and random outcomes will determine the payment you receive. The experimenters will randomly assign you to be Player A or Player B. You will learn your role when the experiment begins. At the end of the experiment you will be paid in cash, in private. Your decisions and the payment you receive will not be shared with anyone. **At this time we must ask that you do not talk with any of the fellow participants until the experiment is over. If you have a question, please ask the experimenters only.**

**Player A:** Player A begins with $5. The player has a choice of two options, either keep the $5 and the game ends, or transfer it to Player B. If transferred the amount becomes $19. If a transfer is made, Player B decides how much of the $19, if any, to return to Player A. Before Player A makes a decision on the transfer, he or she may receive a message from Player B as described below.

**Player B:** Player B has two tasks. First, the player chooses whether to write a short message to Player A. The message may not contain any threatening or offensive language, nor may it contain any self-identifying information. After the message is written, there is a 50% chance the message will be “intercepted” by the experimenters and not sent to Player A. Thus, before Player A makes the decision to transfer, Player A will either (1) receive a message, (2) be informed that a message was intercepted or (3) be informed that Player B did not send a message.

Second, Player B decides how much of the $19 to return to Player A (1) if the message is received by Player A and (2) if the message is intercepted. These decisions will be made prior to knowing Player A’s transfer decision and Player A will not be aware of these amounts prior to deciding whether to make a transfer. (Clearly if Player A chooses not to transfer, Player B’s decisions will not impact the payments.)

**Other information:** Pairings of Players A and B will be made randomly by the experimenters; you will not know who you are paired with. The experiment will be played only once, and exactly as described above. In addition to the earnings described as part of the game, each person who participates will receive a $10 show-up payment.

**Game sequence:**

* Player A has an option to keep $5 or transfer it to Player B. If transferred, the $5 becomes $19.
* Player B decides whether to write a message to Player A. If Player B writes a message, there is a 50% chance that the message will be intercepted and therefore not received by Player A.
* Player B decides how much of the $19 to return to Player A, conditional on transfer and whether any message is delivered or intercepted. Player A is unaware of these amounts.
* Player A reads any message received from Player B and decides whether to keep $5 or transfer it to Player B.
* Players are paid based on whether Player A makes the transfer and Player B’s decisions on how much to return conditional on transfer and whether any message is intercepted.

**Examples (all payments exclude show-up payment of $10)**

Example 1:

Player B chooses to write a message intended for Player A.

Player B chooses to return $7, conditional on the message being delivered.

Player B chooses to return $9, conditional on the message not being delivered.

The message is delivered.

Player A chooses to transfer.

Payment to Player A: $7

Payment to Player B: $19 - $7 = $12

Example 2:

Player B chooses to write a message intended for Player A.

Player B chooses to return $9, conditional on the message being delivered.

Player B chooses to return $9, conditional on the message not being delivered.

The message is not delivered.

Player A chooses not to transfer.

Payment to Player A: $5

Payment to Player B: $0

Example 3:

Player B chooses to return $11, conditional on the message being delivered.

Player B chooses to return $9, conditional on the message not being delivered.

Player B sends a message to Player A.

The message is not delivered.

Player A chooses to transfer.

Payment to Player A: $9

Payment to Player B: $19 - $9 = $10

Example 4:

Player B chooses not to write a message.

Player B chooses to return $11

Player A is informed Player B did not write a message.

Player A chooses to transfer.

Payment to Player A: $9

Payment to Player B: $19 - $9 = $10

**Appendix B: Questionnaires for message intercepted treatment**

**Player A**

1. Did Player B send you a message? (Circle one.)

**Yes No**

**Next, please answer question 2 or 3, but not both.**

**Answer question 2 only if you answered question 1 with Yes.**

2. Did Player B’s message affect your transfer decision? (Circle one.)

**Yes No Did not receive a message**

3. **Answer questions 3a and 3b only if you answered question 1 with No.**

3.a. Did the fact that Player B chose not to send you a message affect your transfer decision?

**Yes No**

3.b. If you would have received a message from Player B do you think it would have affected your transfer decision? (Circle one.)

**Yes No**

Below, please explain your answer to question 2 or 3, whichever applies to you.

**Player B**

1. Did you send a message to Player A? (If you answer No, do not answer question 2.)

1. **Yes** **No**

\* Answer question 2 below only if you chose to send a message.

2. Was the amount you chose to return to Player A affected by whether Player A received your message? (Circle one.)

**Yes** **No**

2. Please explain below your answer to question 1. That is, if you responded “Yes” to question 1, explain why the amount you returned was affected by whether Player A received your message. If you responded “No” to question 1, explain why it did not matter whether Player A received your message

.

Figure: Experimental Task

Do Not Invest NotIInvestInvest

Choose both

RDEL, RINT  {0, . . ., 19}

.5

.5

.5

10 + RDEL, 29 - DEL

10 + RDEL, 29 - RDEL

Send Message

Send Empty Message

Deliver

Intercept

Deliver

Intercept

Invest

Invest

Invest

Invest

10 + RINT, 29 - RINT

10 + RINT, 29 - RINT

15, 10

15, 10

15, 10

15, 10

.5

Player A

Player A

Nature

Player B

Do Not Invest

Do Not Invest

Do Not Invest

1. The die rolling aspect of the trustee’s last move is not fundamentally of importance in CD. The important part is that choosing ROLL is costly to the trustee and benefits the trustor relative to choosing DON’T ROLL. [↑](#footnote-ref-1)
2. We are referring to the recipient with a switched dictator in Vanberg (2008); there were no promises at all in Ellingsen (2010). [↑](#footnote-ref-2)
3. In our experiment I = 5 dollars grew to Y = 19 dollars While it is true that the growth factor Y/I is somewhat higher in our experiment than Berg et al. (1995), 3.8 versus 3, the meta-analysis of Johnson and Mislin (2011) suggests that once the growth factor becomes this large trustees tend to keep for themselves any profit due to the increased factor. [↑](#footnote-ref-3)
4. In those instances where a promise of “half” was made, we code as 9.5. Coding as either 9 or 10 would not change the nature of the results. [↑](#footnote-ref-4)
5. The correlation between the promised return and the decision regarding how much would be returned if the message was *not* delivered is 0.13, not significantly different from zero. [↑](#footnote-ref-5)
6. Of the 11 trustors who did not invest, six had messages that were intercepted, one received a blank message, one received a vague statement stating the trustee would be “terrible” not to return at least 5, and three received unambiguous promises. Thus, those who chose not to invest had approximately the same percentage of intercepted messages as those who did invest. [↑](#footnote-ref-6)
7. Table 2 indicates that trustee #17 was omitted from the second-definition tests. This trustee’s promise was “will be fair, I promise.” Because there are two reasonable ways to define fairness (return more than 5 or return approximately half, i.e., 9 or 10), we were not comfortable in classifying this trustee’s promise contingent on interception because the Ret|Inter amount was 7. In the table 2 analysis we required observations under both conditions and so had to delete that observation. [↑](#footnote-ref-7)
8. The two unclassified trustees returned more contingent on interception than contingent on delivery. [↑](#footnote-ref-8)
9. As mentioned in a previous footnote, in the table 2 analysis we required observations under both conditions and so deleted that observation. In table 3, however, we need only classify the promise contingent on delivery. Trustee 17’s Ret|Del amount is 9, which can be classified as a kept promise. The observation is therefore included in table 3. [↑](#footnote-ref-9)
10. With respect to the four trustees who conditioned their response in the direction opposite of the hypothesis (i.e., greater return for intercepted message), two of the four neither made a promise nor acknowledged in the post-experimental questionnaire that they had returned more for an intercepted message. In the third case the trustee justified his choice by noting that he wanted to “reward the player for taking a chance…on a blind deal”, in essence recognizing that trustors would be reluctant to invest without a promise. The fourth trustee stated he/she only felt justified taking more than half (10/19) if the message had been delivered. [↑](#footnote-ref-10)