Norm-Based Enforcement of Promises

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Norm-Based Enforcement of Promises*

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Abstract

There is ample evidence that people are internally motivated to keep their promises. However, it is unclear whether promises alone create a meaningful level of commitment in many economically relevant situations where the stakes are high. In a between-subject design, we ask subjects to imagine they observed as third parties a promisor breaking her promise and could punish the promisor, at a cost to themselves, for her behavior. Our results suggest that the motivations third parties have to punish promise breakers have the same structure as the moral motivations of those deciding whether or not to keep their promises. That is, the same moral reasons that motivate promisors to keep their promises make third-party observers more likely to punish promise breaking. This suggests that the determinants of promise-keeping behavior will also drive non-legal enforcement mechanisms in relational contract settings and situations where third parties can punish promisors in a decentralized fashion, such that the moral forces of promise keeping can generate commitment even when the stakes are high.

Keywords: promises, norms, first-party enforcement, second-party enforcement, altruistic punishment.

JEL-Classification: K12, L14, D86, D91, C91.

1 Introduction

A series of experimental studies find that in the absence of legal enforcement and reputational concerns promisors are nonetheless motivated to keep their promises even when

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they have self-interested reasons to break them (Ellingsen and Johannesson 2004, Charness and Dufwenberg, 2006; Vanberg, 2008; Charness and Dufwenberg, 2010). Promisors are also more likely to keep their promises when a promisee expected the promisor to perform or invested more in reliance on the promise (Dufwenberg and Gneezy, 2000; Charness and Dufwenberg, 2006). And potential promisors are more sensitive to other’s expectations of cooperation and reliance investments when they promised to cooperate than when they merely stated an intention to do so—that is, without making any promises (Mischkowski, Stone, and Stremitzer, forthcoming; Ederer and Stremitzer, 2017; Stone and Stremitzer, forthcoming).

In these ways, promisors seem to be motivated by moral reasons when deciding whether to keep their promises. In particular, they seem to believe that it is morally worse to break a promise the more a promisee has relied upon it.

But the willingness of many to keep their promises in the face of self-interested reason to break them won’t guarantee performance of a promise—even one that has been relied upon extensively by the promisee—when the self-interested incentives to break it are large enough or when the promisor is a sophisticated self-interested actor who isn’t motivated by moral reasons to keep her promise. Thus, effective second- and third-party enforcement mechanisms are needed to give promisors incentives to perform such promises.

To what extent do the moral forces that seem to underpin promisor behavior influence the behavior of those who can enforce promise keeping? Centralized enforcement systems like the legal system can be, and arguably are, designed to reflect or at least support underlying moral practices of their subjects. But what about decentralized enforcement mechanisms, for example, decentralized enforcement by disinterested third-party observers? If promisor behavior is driven by moral norms that deem it wrong to break promises, and more wrongful to do so the more they have been relied upon, then we should also expect third-party observers to judge a promisor harshly when she breaks a promise and to judge her more harshly when the promisee relied upon the promise. And if those third parties have the opportunity to punish such a promisor even at some cost to themselves, then, given theory and evidence that suggests that persons are willing to altruistically enforce prevalent norms,
we should expect that those third parties will punish the promisor for promise breaking and punish her more harshly the greater was the promisee’s reliance.\textsuperscript{1} Reputational concerns that track agents’ moral beliefs would then make even self-interested promisors act \textit{as if} they had guilt-averse preferences, thereby reinforcing decentralized first-party mechanisms of enforcement.

In this paper we present experimental evidence in support of this hypothesis. Our subjects report a greater willingness to punish, at some cost to themselves, non-cooperative behavior when a potential promisor made a promise to cooperate than when he instead merely reported an intention to do so holding the potential promisee’s reliance constant (promising per se effect). They report a greater willingness to punish non-cooperative behavior the more the other party relied on an expectation of cooperation even when the potential promisor simply stated that he intended to cooperate, while explicitly disclaiming a promise (promising per se effect). Finally, the effect of greater reliance on the third-party’s reported willingness to punish non-cooperative behavior is enhanced when a promise to cooperate was made (interaction effect). That is, promising and reliance shape a third-party’s willingness to punish promise-breaking in much the same way that they shape a promisor’s willingness to keep her promises in the first place.

Taking these results seriously has an important implication. They suggest that moral reasons to keep promises influence not only promisor behavior but also decentralized enforcement mechanisms. This is in line with Hart & Moore’s (2008) argument that contracts set reference points or expectations of contracting parties such that disappointed promisees react by punishing the promisor when these expectations are confounded by “shading” on their performance. Theirs is an argument about second-party enforcement. Our results suggest third-party behavior may similarly be shaped by underlying promissory norms. Our results are also in line with theoretical and empirical evidence that altruistically enforced social norms are central determinants of cooperative behavior (see, e.g. Gintis et al. (2005)).

\textsuperscript{1}Gintis et al. (2005) provide an overview of the theory and evidence that supports the existence of dispositions towards strong reciprocity. Fehr and Fischbacher (2004) provide experimental evidence of subjects’ propensities to punish third parties at a cost to themselves.
2 Experimental Design & Procedure

2.1 Design and Hypotheses

We built our experiment on the trust game that is depicted in Figure 1. In this game Player B must decide whether or not to join forces with Player A in some venture. Doing so is risky for B because A might exploit B and take the profits from the venture for herself. But if A decides not to exploit B, both players do better than if B had instead pursued the venture on his own. B’s profits from joining forces with A are also affected by the amount he subsequently invests in the project. His profits first increase and decrease in investment if A cooperates with B but they always decrease and do so at a greater rate if A exploits him. Thus, B’s investment further compounds the risk B incurs when he joins forces with A.\(^2\) Both players simply earn profits of 7 if B decides not to join forces with A. Before B makes this decision whether or not to join forces with A, A and B have a conversation in which A attempts to persuade B that she will cooperate with him if he joins forces with her.

\(^2\)The subgame that ensues if B decides to join forces with A is identical to the dictator game that subjects played in Stone Stremitzer (forthcoming) with B in the role of the Recipient and A in the role of the Dictator.
Subjects were instructed to imagine that they had observed as third parties six permutations of the scenario in which B joined forces with A, but A subsequently decided not to cooperate with B. There were three “Promise conditions” and three “No Promise conditions”, each one characterized by a particular investment level chosen by B: 0, 3, and 6. In the Promise conditions subjects were asked to imagine that A had promised B that she would cooperate with him if he joined forces with her (“I promise that I will cooperate with you”), while in the No Promise conditions they were asked to imagine that A had told B that she planned on cooperating with him without making any promises (“All I can say is that I plan to cooperate with you, though I can’t promise that I will do so.”). Following the presentation of each scenario, subjects were asked to report the likelihood that they would choose to inflict a punishment on A for not cooperating with B at some small but not insignificant cost to themselves.3

Each subject saw six scenarios in a randomized sequence.4 This allowed us to generate both between- and within-subject data. Subjects’ responses to the first condition they saw constitute the between-subject data. Subjects’ responses in their entirety constitute the within-subject data.

Our hypotheses follow from our assumption that punishment preferences by third parties mimic promisors’ preferences to keep their promises that have been revealed by previous experiments. These experiments suggest that potential promisors are more willing to cooperate when a promise has been made holding constant a potential promisee’s expectations of cooperation and reliance on such expectations (a promise per se effect). They suggest that they are more willing to cooperate the greater are promisees’ expectations and reliance investments, even when they made no promises to cooperate (an expectation or reliance per se effect). And they suggest that the effect of reliance and expectations on potential

3Specifically, we told subject that one way of inflicting punishment on A could consist of “boycotting A’s business which results in a monetary loss for A.” We also reminded them that “[i]nlicting this punishment, however, is not costless to you” as “boycotting a business that you have been buying from forces you to switch to another product requiring you to change your habits, pay more for the other product, consume a product that you like less, etc...”)."

4The order was not completely random. Subjects either saw all three promise conditions first in a randomized order and then all three no promise conditions in a randomized order or vice versa.
promisors’ willingness to cooperate are enhanced when they promised to cooperate rather
than merely stating their intention to do so (an interaction effect).\footnote{The hypothesis would follow from a model of the observer’s preferences that resembles in all important respects the promisor’s preferences in Mischkowski, Stone, and Stremitzer (forthcoming). For simplicity, our theoretical model makes the extreme assumption that reliance is irrelevant in the absence of a promise. But our main point is that reliance matters more in the presence of a promise.}

**Hypothesis 1** *The average reported likelihood of punishment will increase with B’s investment level if A made a promise (H1.1) and, possibly, if A made no promise (H1.2). This increase will be greater in the Promise conditions than in the No Promise conditions (H1.3). For all investment levels, the average reported likelihood of punishment will be greater in the Promise conditions than in the No Promise conditions (H1.4).*

### 2.2 Procedure

We programmed the vignettes using Qualtrics and recruited 1200 subjects from Amazon Mechanical Turk’s pool of MTurk workers who had a HIT (Human Intelligence Task) approval rate of 95% or greater. We determined our sample size using a simulation based on pilot data on 300 subjects.\footnote{We excluded the pilot data from our subsequent analysis. However, including the data does not change the statistical significance of any of our results.} Subjects were asked control questions to ascertain whether they had read and understood the scenario, and they were not allowed to proceed until they answered those questions correctly. At the end of the survey subjects were asked several other questions to assess how carefully and honestly they responded to the questions. We also elicited subjects’ demographic characteristics.\footnote{See Appendix D for a breakdown of subjects’ responses to these questions.}

Before subjects were presented with the scenarios, they were informed that they would be paid $1.50 for participating, and that the task would take approximately 10 to 15 minutes. The announced hourly wage was therefore $6 to $9 per hour. Thus, on average subjects could expect to receive more than the current federal minimum wage ($7.25 per hour) and expected payments were much higher than the wages MTurk workers typically earn.\footnote{Studies have found a median hourly wage of $1.38 (Horton & Chilton, 2010) and a typical payment of $0.01-$0.10 per HIT (Mason & Watts, 2010).}
average our subjects took 6.8 minutes to complete the task. Thus, the effective average hourly wage was $13.24. We reproduce screenshots from the experiment in Appendix B.

3 Results

Table 1 and Figure 2 summarize the mean reported likelihood of punishment by treatment condition. Descriptively, both our within-subject and between-subject data are in line with our hypotheses. Subjects reported a higher average likelihood of punishing A the greater was B’s investment level in both the Promise and No Promise conditions, so both lines in Figure 2 are upward sloping (H.1 and H1.2). The increase in the average reported likelihood of punishing A caused by higher investment is larger when subjects had been told that A made a promise to cooperate with B, so the Promise lines in Figure 2 are steeper than the No Promise lines (H1.3). Subjects reported a higher average likelihood of punishing A when they had been told that A made a promise to cooperate with B, so the Promise lines in Figure 2 lie above the No Promise lines (H1.4).

We excluded the responses of the 126 subjects who reported in the post experimental survey that they did not or only “kind of” understood how A’s and B’s actions affected their payoffs. We also excluded the responses of four subjects who reported that they had done the study before. We have no good explanation as to why four subjects reported having taken the survey before. We provided links to participants which were only good for a single log in. We implemented filters preventing subjects (as identified by their MTurk IDs) from participating who had participated in pilots of our experiment or similar experiments we had run in the past. So the only explanation for the four self-reported repeat takers could be that subjects have multiple MTurk IDs or mistakenly checked the wrong box. Including these data does not, however, change the results. Similarly, results do not qualitatively change when we exclude subjects who report that they did not “take the scenario seriously,” that they did not “carefully read the instructions,” and that they chose their answers to make themselves “seem like a good person.”
Figure 2: Average Reported Likelihood of Punishing Across Conditions

Table 1: Mean Reported Willingness to Punish

<table>
<thead>
<tr>
<th>Observed Investments in the Relationship</th>
<th>0</th>
<th>3</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between-Subject</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Promise</td>
<td>2.47 (N=173)</td>
<td>2.90 (N=183)</td>
<td>2.84 (N=183)</td>
</tr>
<tr>
<td>Promise</td>
<td>2.85 (N=156)</td>
<td>3.73 (N=194)</td>
<td>3.89 (N=186)</td>
</tr>
<tr>
<td>Within-Subject (N=1075)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Promise</td>
<td>1.92</td>
<td>2.55</td>
<td>2.76</td>
</tr>
<tr>
<td>Promise</td>
<td>2.75</td>
<td>3.81</td>
<td>4.11</td>
</tr>
</tbody>
</table>

To test our hypotheses using the within-subject data we use the Wilcoxon sign-rank test, and we find support for all four hypotheses.\(^{10}\) To test our hypotheses using the between-subject data we primarily use the Wilcoxon rank-sum test. In support of H1.1 we find that reliance matters if there was a promise.\(^{11}\) Reliance also matters if there was no promise, but only for the (0-3) and (0-6) investment intervals.\(^{12}\) This offers partial support for H1.2.

\(^{10}\)We generally obtain significance at the 1% level. Only under a very restrictive definition of our data pool (eliminating all observations that might be invalid in the light of our post-experiment survey) do we find p=0.02.

\(^{11}\)The effect is significant at the 1% level for the (0-3) and (0-6) intervals, and at the 5% level (p=0.02) for the (3-6) interval.

\(^{12}\)We find support for H6.2 at the 1% level for the (0-3) and the (0-6) intervals. For the (3-6) interval,
For each level of investment, we find support for H1.4, our hypothesis that subjects are more willing to punish non-cooperation when there was a promise.\footnote{The result is significant at the 1\% level.} Finally, we perform a bootstrapping procedure to generate a non-parametric test of H1.3,\footnote{The bootstrapping procedure requires us to simulate synthetic samples and is described in detail in Appendix E.} and find confirmation of our hypothesis that reliance matters more when there has been a promise.\footnote{The tests yields statistical significance at the 1\% level for the (0-6) interval. The Wilcoxon rank-sum test is unavailable for testing H6.3 given the between-subject design. To test the interaction effect, we would have to compare the difference in the reported likelihood of punishment for different reliance levels in the Promise and the No Promise conditions. The Wilcoxon ranksum test would allow us to test for the difference between unmatched data but, as we have to test for the difference in differences, we would need within-subject data for different reliance levels to conduct this test.}

4 Discussion

In Stone and Stremitzer (forthcoming) we found evidence that the increased willingness of a promisor to keep a promise on which the promisee had relied more created an incentive for promisees to strategically overinvest in reliance in order to psychologically lock the promisor in to keeping her promise. This overinvestment disappeared when the promise was enforced with expectation damages, as the promisee could then rely on the legal regime rather than overinvestment to motivate the promisor to keep her promise. This suggests that legal enforcement not only has the potential to mitigate problems of underinvestment—the focus of the literature on breach remedies and the hold-up problem.\footnote{On breach remedies in particular, see, e.g., Shavell (1980, 1984), Rogerson (1984), Cooter and Eisenberg (1985), Edlin and Reichelstein (1996), Edlin (1996), Che and Chung (1999), Schweizer (2006), Ohlendorf (2009), Stremitzer (2012). On the hold-up problem generally, see, e.g., Williamson (1979, 1985), Grout (1984), Grossman and Hart (1986), Hart and Moore (1988), Chung (1991), Aghion, Dewatripont, and Rey (1994), Noeldeke and Schmidt (1995), Che and Hausch (1999).} It may also reduce overinvestment arising from psychological lock-in.

In the present study we conclude that third-party observers report they are willing to punish a non-cooperative player A more in the Promise conditions than in the No Promise conditions. This willingness to punish increases with the investment B made in the relationship creating another channel for lock-in. In contrast to the mechanism posited in Stone mean effort goes down but the effect is not significant at any level (p=0.63).
and Stremitzer (2017), such a reputation-based lock-in mechanism doesn’t rely on the internal moral motivations of the promisor. Thus, promisees should be able to harness this reputation-based lock-in mechanism by increasing their reliance investments, and so may have an incentive to overinvest even if faced with a self-interested promisor. Notice also that we find that there is something distinctively promissory about this effect, as the willingness to punish increases more with B’s investments if A made a promise.

The purely hypothetical nature of the question that we posed to subjects raises a question about the external validity of our results. We might wonder whether subjects will punish in the manner that our results suggest that they will when the monetary costs of punishing are real. But the purpose of this experiment is not to provide convincing evidence that people do in fact engage in altruistic punishment. That people exhibit such a propensity is well-supported by other work (Gintis et al., 2005). Rather, we view our results as providing evidence for the claim that to the extent that people exhibit such a propensity, they will exhibit a greater willingness to punish promise-breaking when the promisee’s reliance on the promise was greater. We think a study such as ours can provide useful evidence about the relative strength of any such effect, even if the absence of monetary stakes weakens conclusions that may be drawn about the absolute magnitude of effect and thus the behavioral relevance of the propensity to altruistically punish norm violations in the first place.

5 Conclusion

Third-parties observing an interaction between a promisor and promisee are more willing to punish the promisor for breaking her promise the more the promisee has relied upon the promise. That is, third parties seem to be sensitive to the same underlying morality of promising that appears to motivate promisors: they view breaking a promise as morally worse—and so as more deserving of punishment—the more the promisee has relied upon the promise. This suggests that reputational forces may provide a promisee with a mechanism for locking in the promisor who isn’t herself motivated by moral forces: by investing more, the promisee increases the chance that third-parties who are sensitive to these moral forces
will punish the promisor should she break the promise.

Our results also highlight a more general point. Studying the reasons why people voluntarily keep their promises sheds light on the dynamics of altruistic punishment, and, we conjecture, the dynamics second-party enforcement mechanisms that are embedded in relational contracts. The norms that make a promisor keep a promise also make seem to inform the behavior of those who can punish promise breakers. This suggests that there is a stronger link between relational contracting, altruistic punishment, and voluntary promise keeping than has been noticed in the contract theory literature to date.
References


We performed a two-step bootstrapping procedure in order to generate a non-parametric test of H1.4 on the (0-6) gap. Let $\hat{\theta}_r$ and $\theta_r$ be the estimators of the mean reported likelihood of punishment in the Promise and No Promise conditions respectively when the promisee’s reliance investments are $r$. We observe that $(\hat{\theta}_6 - \theta_6) - (\hat{\theta}_0 - \theta_0) = 0.67$. That is, the difference in means between the Promise and the No Promise samples is higher if promisees’ reliance investments are 6 than if they are 0. We want to know the probability with which we would observe this positive difference-in-difference of means by chance. In other words, we want to test the null hypothesis that $(\hat{\theta}'_6 - \theta'_6) - (\hat{\theta}'_0 - \theta'_0) = 0$, where $\hat{\theta}'_1, \theta'_1, \hat{\theta}'_0, \theta'_0$ are the means of the underlying distributions from which our samples are drawn.

We tested the null hypothesis in two steps (see, e.g., Efron and Tibshirani, 1993, pp. 220-223). First, we recentered the original samples to conform with the null hypothesis. Specifically, we subtracted from each observation in each of the four samples the respective sample means and then added to each observation in the two Promise samples the mean effect of promising. In other words, if the mean for the combined No Promise samples is $\bar{x}$ and the mean for the combined Promise samples is $\bar{y}$, we added $(\bar{y} - \bar{x})$ to each observation in the two Promise samples.\(^\text{17}\)

We then created four synthetic samples with sample sizes equal to our real samples by randomly drawing with replacement from each of the four samples that were constructed above. We then calculated the difference-in-difference $(\hat{\theta}''_6 - \theta''_6) - (\hat{\theta}''_0 - \theta''_0)$, where $\hat{\theta}''_1, \theta''_1, \hat{\theta}''_0, \theta''_0$ are the means of these synthetic samples. After repeating this procedure 10,000 times, we obtained a simulated distribution of the differences-in-differences of the means that would arise if the null hypothesis were true (that is, if the difference of means between the Promise and the No Promise conditions was equal across different reliance levels).

\[\begin{align*}
\text{Simulated Distribution for the (0-6) gap}
\end{align*}\]

\(^{17}\)By subtracting the sample means, we made our data conform to the hypothesis $\hat{\theta}_6 = \theta_6 = \hat{\theta}_0 = \theta_0 = 0$. In doing so, we eliminated all of our hypothesized effects from our data. By adding back $(\bar{y} - \bar{x})$ to the observations in the promise samples, we effectively added back in the expectations-independent effect of promising, so that our data ended up conforming to our less restrictive null hypothesis $(\hat{\theta}_6 - \theta_6) - (\hat{\theta}_0 - \theta_0) = 0$. We didn’t add back in the effect of reliance alone, because doing so would leave this hypothesis unchanged.
The area under the curve to the right of the observed estimator 0.67 corresponds to the probability that a greater or equal difference-in-difference would have been observed if the null hypothesis were true. This value, 0.004, is small enough for us to reject the null hypothesis at the 1% level.
UNIVERSITY OF CALIFORNIA LOS ANGELES
STUDY INFORMATION SHEET

Professors Alexander Stremitzer (PhD) and Rebecca Stone (PhD), from the School of Law at the University of California, Los Angeles (UCLA) are conducting a survey. You were selected as a possible participant because you are subscribed to Amazon Mechanical Turk as an MTurk Worker. Your participation is voluntary.

Why is this survey being done?
We are conducting this survey in order to investigate how people make decisions.

What will happen if I participate?
If you volunteer to participate, the researcher will ask you to do the following:
- Read a case study and make decisions based on the given situation
- Provide demographic data

How long will the survey take?
The survey will take a total of about 10 to 15 minutes.

Are there any potential risks or discomforts that I can expect from participating?
There are no anticipated risks or discomforts.

Are there any potential benefits if I participate?
You will not directly benefit from your participation.

The results of the research may improve our general understanding of which factors are important when people make decisions in their everyday life.

What other choices do I have if I choose not to participate?
You are free to choose any other HIT ("Human Intelligence Task") on Amazon Mechanical Turk or refrain from any participation on any task.

Will I be paid for participating?
You will receive $1.50 for completing the survey. The payment will be transferred to your account a few days after you complete it.

Will information about me and my participation be kept confidential?
Any information that is obtained in connection with this survey that can identify you will remain confidential. It will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of limiting the access to the data only to the investigators, using it only for research purposes and collecting only information that does not allow anyone to draw conclusions about your identity.

What are my rights if I participate?
You can choose whether or not you want to participate, and you may withdraw your consent and discontinue your participation at any time. Whatever decision you make, there will be no penalty to you, and no loss of any benefits to which you were otherwise entitled. You may refuse to answer any questions that you do not want to answer.

Who can I contact if I have questions about this study?
The research team:
If you have any questions, comments, or concerns about the research, you can talk to the one of the researchers. Please contact:

Alexander Stremitzer: alexander.stremitzer@law.ucla.edu, phone: +1 (310) 206-4683

UCLA Office of the Human Research Protection Program (OHRRP):
If you have questions about your rights while taking part in this survey, or you have concerns or suggestions, and you want to talk to someone other than the researchers, please call the OHRRP at (310) 206-7122 or write to:

UCLA Office of the Human Research Protection Program
11022 Wilshire Avenue, Suite 211, Box 99194
Los Angeles, CA 90095-1949

☐ I have read and agree to the terms and conditions
Thank you for participating in this survey. The purpose of this survey is to study how people make decisions in certain situations. You will earn $1.50 for completing the survey. The survey will take approximately 10-15 minutes.
Imagine you witness the following:

Two people, A and B, have an opportunity to cooperate with each other.

B must first choose between two alternatives (see diagram above): going it alone, or joining forces with A.

The upside of joining forces with A is that the combined monetary payoff of the two parties is much higher than if B were to go it alone.

The downside is that by joining forces with A, B puts himself at the mercy of A. This is because once B has decided to join forces with A, A can unilaterally decide not to cooperate with B in which case A gets all the profit from the venture. In other words, if B thinks that A is not going to cooperate, B is better off going it alone. However, that would leave both A and B worse off than if B had joined forces with A and A had cooperated.

If B decides to join forces with A, then, before A makes the decision whether to cooperate or not, B may invest in their cooperative venture. B’s investment is lost if A does not cooperate. The higher B’s level of investment, the higher will be B’s loss (see right payoff table). However, if A cooperates with B, B’s profits initially increase with his investment but then decrease once his investment rises beyond a certain point (see left payoff table).
Preliminary Questions

1) What are the parties' profits when A cooperates and B has invested 3?

Profit of A: 

Profit of B: 

2) What are the parties' profits when A doesn't cooperate and B has invested 3?

Profit of A: 

Profit of B: 

3) If B thinks that A won't cooperate, which action will give B a higher profit?

☐ Going it alone

☐ Joining forces with A
Imagine, you witness the following conversation:

B says to A:

“I would really like to join forces with you, but how can I be sure that you will cooperate with me rather than going it alone and taking all the profit for yourself?”

A responds:

“All I can say is that I plan to cooperate with you, though I can't promise that I will do so.”

B listens carefully and decides to join forces with A.

A decides not to cooperate with B. Remember: A made no promise to cooperate with B. You observe this.

Imagine you can inflict a monetary punishment on A for not cooperating (e.g., by boycotting A's business which results in a monetary loss for A). Inflicting this punishment, however, is not costless to you (boycotting a business that you have been buying from forces you to switch to another product requiring you to change your habits, pay more for the other product, consume a product you like less, etc...).
Go back to display scenario instructions again

What is the likelihood you would choose to inflict the punishment on A if B has invested 3 knowing that A did not make a promise?

Very Unlikely  Unlikely  Undecided  Likely  Very Likely
○  ○  ○  ○  ○
What is the likelihood you would choose to inflict the punishment on A if B has invested 0 knowing that A did not make a promise?

- Very Unlikely
- Unlikely
- Undecided
- Likely
- Very Likely
What is the likelihood you would choose to inflict the punishment on A if B has invested & knowing that A did not make a promise?

Very Unlikely  Unlikely  Undecided  Likely  Very Likely

☐ ☐ ☐ ☐ ☐
Imagine, you witness the following conversation:

B says to A:

“I would really like to join forces with you, but how can I be sure that you will cooperate with me rather than going it alone and taking all the profit for yourself?”

A responds:

“I understand that you are worried I could take advantage of you, but I promise I will cooperate with you.”

B says:

“Okay, if you promise to cooperate with me, let’s work together.”

B subsequently decides to join forces with A.

A decides not to cooperate with B. Remember: A promised to cooperate with B. You observe this.

Imagine you have the power to inflict a punishment on A for breaking the promise to B (e.g., by boycotting A’s business which results in a monetary loss for A). Inflicting this punishment, however, is not costless to you (boycotting a business that you have been buying from forces you to switch to another product requiring you to change your habits, pay more for the other product, consume a product you like less, etc...).
What is the likelihood you would choose to inflict the punishment on A if B has invested 6 in reliance on A's promise?

<table>
<thead>
<tr>
<th></th>
<th>Very Unlikely</th>
<th>Unlikely</th>
<th>Undecided</th>
<th>Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
What is the likelihood you would choose to inflict the punishment on A if B has invested 3 in reliance on A's promise?

- Very Unlikely
- Unlikely
- Undecided
- Likely
- Very Likely

[ ] Go back to display scenario instructions again
☐ Go back to display scenario instructions again

What is the likelihood you would choose to inflict the punishment on A if B has invested 0 in reliance on A’s promise?

Very Unlikely  ☐  Unlikely  ☐  Undecided  ☐  Likely  ☐  Very Likely  ☐
Did you understand how A's and B's actions affect their profits?

- Yes
- No
- Kind of

Finally, please answer the following questions:

- I didn’t take the scenario seriously. I just wanted to earn the $1.50 fee as quickly as possible.
- I carefully read the instructions.
- I chose my answers in order to make myself seem like a good person.
- This is the first time I have completed this survey.
Please provide some demographical information.

What is your age?

What is your gender?

- Female
- Male

Is English your first language?

- Yes
- No

What is your highest level of schooling?

- Master's, doctoral, or professional degree such as medicine or law
- Bachelor's degree
- Associate's degree
- Vocational or technical certificate / diploma after high school (such as cosmetics)
- High school diploma
- I did not complete high school

Are you an mTurk Master Worker (your response to this questions will have no effect on your payout)?

- Yes
- No
- I do not know what an mTurk Master Worker is.
Thank you for participating in the survey.

Here is your MTurk Code: 752790

To receive payment for participating, click “Accept HIT” in the Mechanical Turk window, enter this code, and then click “Submit”.