

Supplementary Study 1 - Scenario Calibration Study

Experiment 1 supported Hypothesis 1 by showing that responders indicated greater minimum acceptable offers in the presence of a peer responder, when the offer to peer responder is unknown. In the next set of studies, we attempt to test Hypotheses 2 by making offers to peer responders known to participants.

In a Calibration Study, we first sought to test the robustness of our core result from Experiment 1 (expectations of what constitutes a fair offer are inflated in the presence of a peer responder who is receiving an unknown offer) on a different sample drawn from Amazon Mechanical Turk (AMT) using a scenario-based approach,

Participants

We recruited 508 participants (261 men, 229 women, 13 did not indicate gender) from the United States with an average age of 36.6 years from AMT for a scenario study consisting of two conditions. Participants were paid a fixed fee of 0.40 USD for completing the scenario study. At the time we ran this study, this compensation was considered the standard pay rate for the time it took participants to complete our study (estimated 5 minutes completion time which works out to USD 8 per hour as recommended by Amazon's best practices to pay according to minimum wage levels; also see Buhrmester, Kwang, & Gosling, 2011). We targeted 80 participants in each of the seven condition (1 UG condition, 6 variants of PUG condition). Eventually, we attained between 71 to 80 per condition.

Study Design

Participants were randomly assigned to one of seven conditions (*UG condition* and six variants of *PUG condition* described below). All participants played the role of responders. There were 71 participants in the *UG* condition and 437 participants in the *PUG* conditions. There were more participants in the *PUG* condition due to the two different roles of responders and three different order in which the dependent variable was presented to participants

(described below). As this is a scenario, participants were aware that they would only receive their study completion fee of 0.40 USD, and not the outcome of the game.

UG Condition

Participants read a scenario asking them to imagine themselves playing the UG in the role of a responder (see S-Appendix 1). In this scenario, there was an endowment of 5 USD to the offerer. Participants had to respond to two questions: 1) What is the MAO that you would be willing to accept from the offerer?; and 2) What do you think is the maximum total amount that the offerer can earn in total? We randomized the order in which these two questions were presented to the participants. Similar to Experiment 1, participants were aware that if the MAO is equal to or lesser than the offer from the offerer, then the responder receives the offer and the offerer receives the remaining. If the MAO is greater than the offer from the offerer, then both parties receive nothing. This serves as our control condition.

PUG Condition

Participants read a scenario asking them to imagine themselves playing the PUG game in the role of a responder (see S-Appendix 1). Participants were randomly assigned to be either responder_I or responder_J. In this scenario, there was an endowment of 5 USD to the offerer to be split with responder_I, and another endowment of 5 USD to the offerer to be split with responder_J. Participants had to respond to three questions: 1) What is the MAO that you would be willing to accept from the offerer?; 2) What do you think the MAO of the other responder will be?; and 3) What do you think is the maximum total amount that the offerer can earn in total? We counterbalanced the order in which these three questions were presented to the participants. We wanted to check whether asking these questions in a particular order would highlight equity considerations relative to the peer respondent or the offerer. There were no differences in the dependent variable between participants in the different roles and order of presentation, so we pooled their responses in a single *PUG* condition. Finally, participants were

aware that they will only receive their study completion fee and not the outcome of the game. This serves as our treatment condition.

Results and Discussion

<Insert Figure S1 About Here>

Figure S1 presents the mean MAOs of the responders across the two conditions. Replicating the results of Experiment 1, we found that mean MAOs in PUG ($M = 2.52$, [2.38, 2.65]) were greater than mean MAOs in UG ($M = 2.19$, [1.88, 2.49]; $p = .05$, 95% CI [.003, .661]). Recall that the sample is drawn from a different nationality and the presentation of materials was in a different format from Experiment 1. This enhances confidence in the validity of our results.

Robustness Checks

To test whether participants fully comprehended the instructions, we checked for differences in the maximum amount participants reported the offerer will obtain in UG and PUG. Recall that in both variants of the game, the maximum amount that offerers can obtain is identical i.e. \$5.

We found that in PUG, participants report a greater amount offerers can get ($M = 6.56$, [6.23, 6.90]) than participants in UG ($M = 4.99$, [4.47, 5.50]; $p = .00$, 95% CI [.97, 2.19]). This represents a potential misunderstanding of the instructions, as by design the offerer gets the same in UG and PUG. However, even after excluding the participants who indicated that the maximum amount offerers can earn is greater than \$5, as per our predictions the mean MAOs in PUG ($M = 2.58$, [2.40, 2.75]) were still greater than the mean MAOs in UG ($M = 2.20$, [1.87, 2.54]; $p = 0.05$, 95% CI [-.745, .002]). If we select only the participants who indicated that maximum amount offerers can earn is exactly \$5, we still find that mean MAOs in PUG ($M = 3.14$, [2.73, 3.55]) is higher than mean MAOs in UG ($M = 2.28$, [1.81, 2.75]; $p = .01$, 95% CI

[.25, 1.48]). Therefore, a mis-understanding of instructions, while evident in some cases, cannot provide an alternate explanation for our results supporting Hypothesis 1.

We also found that in PUG, mean MAO of what participants' thought the other responder will ask for ($M = 2.84$, [2.71, 2.98]) is higher than mean MAO of self ($M = 2.52$, [2.38, 2.66]; $p = .00$, 95% CI [.21, .44]). This suggests that participants thought peer responders will ask for greater amounts than what they would have asked for themselves. This is consistent with the asymmetric utility from receiving more vs. less than a peer, a central premise in our theory.

Supplementary Study 2 - PUG Scenario Study

Having established that the evidence we found in support of H1 with live interactions study (Experiment 1) is consistent with what we observe in a scenario study (Supplementary Study 1), we next tested Hypothesis 2 using scenario studies in the same population used for the scenario calibration study (AMT). More specifically, in this PUG scenario study, we examined whether knowledge of the actual offer to a peer would increase acceptance rates of offers to self, relative to cases where there was no peer or when the offer to peer was unknown (H2).

Participants

We recruited 563 U.S. participants with an average age of 30.8 years from AMT. We had exclusions in place to prevent those who participated in the prior calibration study on AMT to sign up for this study. Participants were paid a fixed fee of 0.40 USD for completing the scenario study. We targeted 40-50 participants for each variant within a condition, with yields being somewhat higher or lower because of the random timing of participation, and our study concluding at a particular time.

Study Design

Participants were randomly assigned to one of three different conditions in this study (*UG condition*, *PUG Secrecy condition*, and *PUG Transparent condition*). All participants played the role of responders. They were presented with four offer amounts of \$0.01, \$1.5, \$3.0 or \$4.5 in random order. We counterbalanced the scenarios across the first offer amount shown. Hence, each condition had four variants. There were 199 participants in the *UG condition*, 207 participants in the *PUG Secrecy condition*, and 157 participants in the *PUG Transparent condition*. Similar to the Scenario Calibration Study, participants were aware that they will only receive their study completion fee of 0.40 USD, and not the outcome of the game.

UG Condition

Participants read a scenario asking them to imagine themselves playing the UG game in the role of a responder (see S-Appendix 2). Similar to Experiment 2, there was an hypothetical endowment of 5 USD to the offerer. Instead of stating their MAOs, participants were asked whether they will be willing to accept or reject an offer amount.

PUG Secrecy Condition

Participants read a scenario asking them to imagine themselves playing the PUG game in the role of responder (see S-Appendix 2). Participants were all assigned to the role of Responder 2. Similar to *UG* condition, participants were asked to indicate whether they will accept or reject an offer amount from the offeror, without knowing the offer amount made to Responder 1.

PUG Transparent Condition

Similar to *PUG Secrecy* condition, participants read a scenario asking them to imagine themselves playing the PUG game in the role of responder (see S-Appendix 3). Participants were all assigned to the role of Responder 2. Transparency is obtained by making the offers to peer responders known. Similar to the other conditions, participants were asked whether they

will accept the offer after learning that the offeror had made an equal offer (of \$0.01, \$1.5, \$3.0 or \$4.5) to the other responder.

Results and Discussion

<<Insert Figure S2 about here>>

Each participant was shown one of the four offers first (i.e. \$0.01 offer to self, \$0.01 offer to peer, \$1.5 offer to self, \$1.5 offer to peer etc.) for four initial scenarios. We used the initial offer that a participant saw and his or her responses in this analysis. To test Hypothesis 2a, we compared the acceptance proportion of the pooled offers by UG and PUG Transparent. As expected, we found that across equal offers, the mean acceptance proportion in UG was lower ($M = 0.65$ [0.58, 0.72]) than that in PUG Transparent ($M = 0.76$ [0.69, 0.83]; $p = .02$, 95% CI [0.01, 0.2]), thus confirming our prediction that transparency coupled with equal offers would increase acceptance rates relative to situations when there are no peers.

To test Hypothesis 2, we compared the acceptance proportion of the pooled offers by PUG Secrecy and PUG Transparent. As expected, we found that across equal offers, the mean acceptance proportion in PUG Secrecy was lower ($M = 0.56$ [0.49, 0.63]) than that in PUG Transparent ($M = 0.76$ [0.69, 0.83]; $p = 0.00$, [0.10, 0.29]), thus confirming our prediction that transparency coupled with equal offers would increase acceptance rates relative to situations when offers to peers are unknown.

We also tested for the differences in acceptance proportion of the pooled offers by PUG Secrecy and UG. We found that the mean acceptance proportion in PUG Secrecy was lower ($M = 0.56$ [0.49, 0.63]) than that in UG ($M = 0.65$ [0.58, 0.72]; $p = 0.07$, [-0.01, 0.18]). Although not hypothesized, this finding is consistent with our theory that participants' expectations are higher in the presence of a peer whose allocation is unknown, relative to situations when there are no peer responders, hence resulting in lower acceptance rates.

In this study, the differences between conditions were strongest in the lower range of offers, suggesting that as the absolute amount offered increases, equity considerations become less important (see Figure S2).

Supplementary Study 3

We investigated the implicit assumption about offers to peers that a respondent seems to make when those offers are unknown. Such an assumption can be inferred from the estimated differences between the MAOs when the information on offers to peers is known and unknown (see Table S1).

Participants

We recruited 199 U.S. participants (97 male, 102 female) with an average age of 37.3 years from AMT for another scenario study. Participants were paid a fixed fee of 0.40 USD for completing the scenario study. We targeted 50 participants for each condition. Note that exclusion procedures were in place to ensure that participants who took part in the earlier experiments on AMT were not allowed to join this one.

Study Design

Participants were randomly assigned to one of four different conditions in this study. They were given instructions for the PUG game (see S-Appendix 3) and asked to indicate their MAO after learning that the offerer had made an offer to the other respondent.

Conditions. We randomly displayed one of the four following scenarios to the participants: 1. Offerer made an offer of \$0.01 to the other respondent; 2. Offerer made an offer of \$1.50 to the other respondent; 3. Offerer made an offer of \$3.00 to the other respondent; 4. Offerer made an offer of \$4.50 to the other respondent. After viewing the first scenario, participants were shown the three other scenarios in random order. However, we were only interested in the responses from the first scenario, which formed the basis of our conditions.

Results and Discussion

<Insert Figure S3 About Here>

<Insert Table S1 About Here>

The mean MAOs in the four offer scenarios were 1.61 [1.18, 2.04], 1.90 [1.58, 2.22], 2.68 [2.33, 3.02], and 3.48 [3.11, 3.85] (see Table S1). The only difference between the Supplementary Study 1-Scenario Calibration Study and Supplementary Study 3 was the secrecy (Supplementary Study 1-Scenario Calibration Study) or transparency of the offers (Supplementary Study 3) to peers. As shown in Table S1, the results of this comparison suggest that, within the lower range of offers, being informed of offers to peers lowers the MAOs and moves them closer to (and even lower than) those in UG. At the highest offer level (\$4.50), unsurprisingly, the reported MAOs were inflated with respect to those in UG. These results indicate that knowing the offer made to a peer significantly curbs the inflation of an MAO created by an unknown offer to peers.

In our data, the known offer to a peer that elicits the same MAO as an unknown offer is \$3.00 out of a pot of \$5.00 (60%). Thus given our offer levels and subject pool, if the actual offer to a peer is below this value, transparency will create less escalation of expectations than secrecy.

References

- Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data?. *Perspectives on Psychological Science*, 6(1), 3-5.

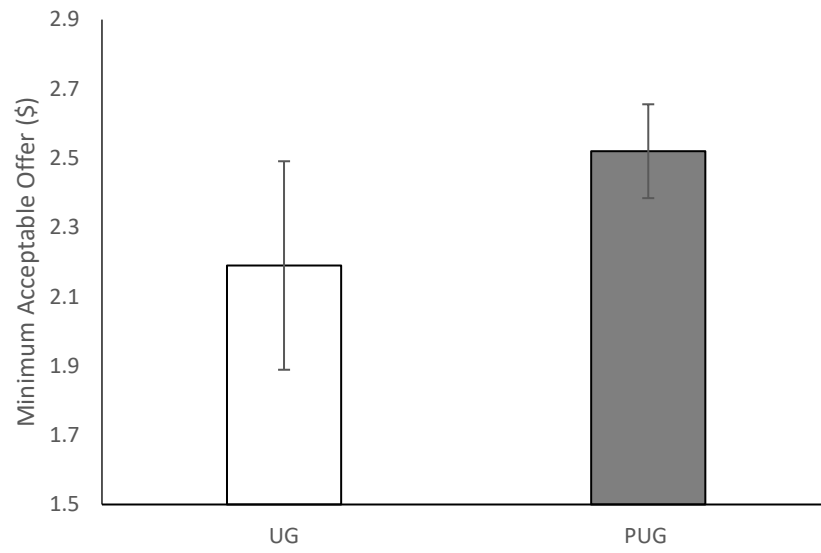
Table S1. Supplementary Study 3 Results. Comparing MAO when offer to peer is known with MAO from Supplementary Study 1 - Scenario

Calibration Study

Condition	Mean MAO with 95% CI	Difference from Mean MAO UG (M=2.19)	95% CI of difference in mean MAO	p-value	Difference from Mean MAO PUG (M=2.51)	95% CI of difference in mean MAO	p-value
PUG Offer to Peer \$.01	1.61 [1.18, 2.04]	-.58	[-1.09, -.06]	.03	-.91	[-1.36, -.46]	.00
PUG Offer to Peer \$1.50	1.90 [1.58, 2.22]	-.29	[-.72, .15]	.20	-.62	[-.96, -.27]	.00
PUG Offer to Peer \$3.00	2.68 [2.33, 3.02]	.49	[.04, .94]	.03	.16	[-.21, .52]	.39
PUG Offer to Peer \$4.50	3.48 [3.11, 3.85]	1.29	[.82, 1.77]	.00	.96	[.57, 1.35]	.00

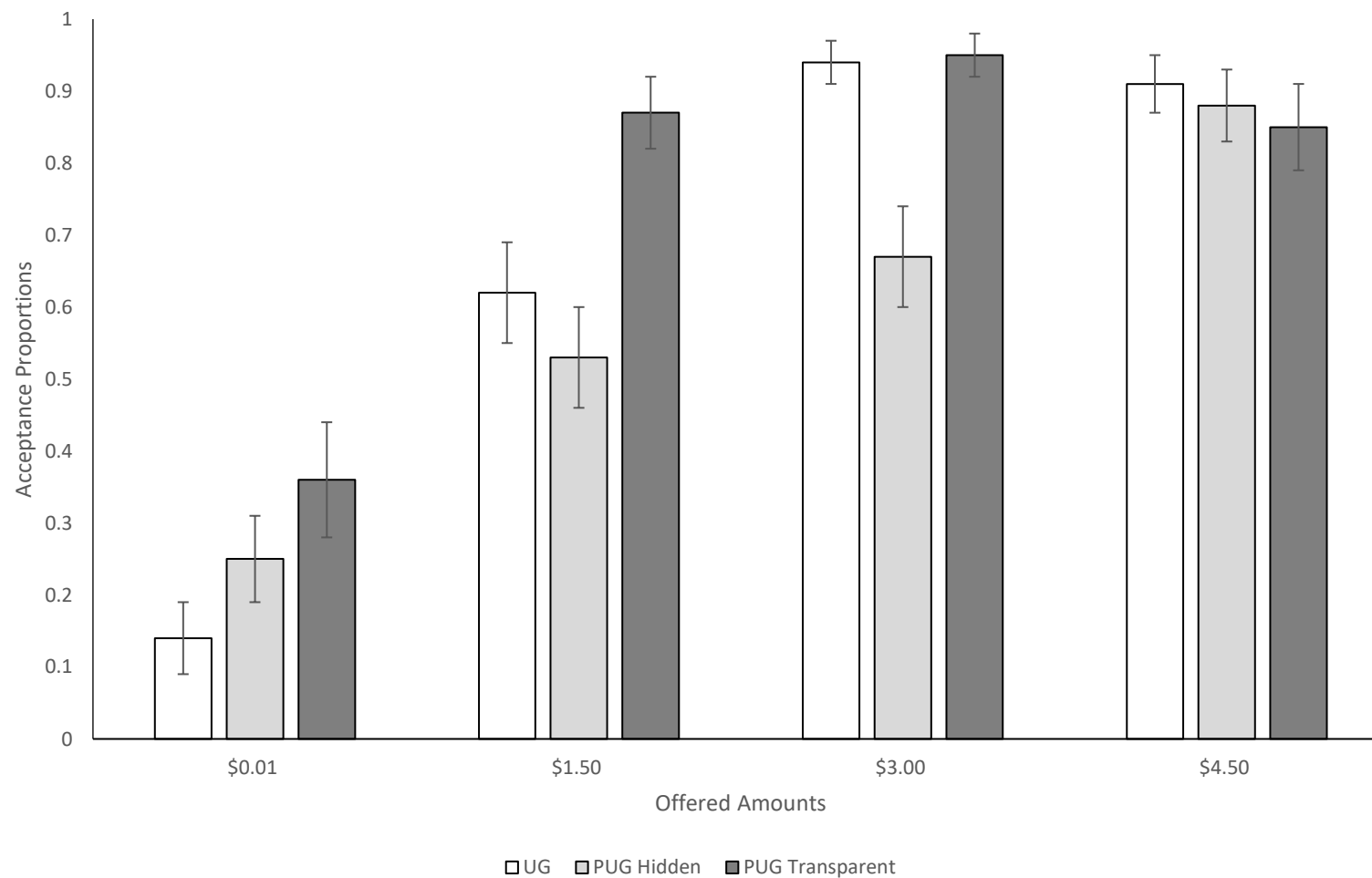
Note: Mean MAO UG and Mean MAO PUG are the mean MAO from Supplementary Study 1 - Scenario Calibration Study

Figure S1: Supplementary Study 1 Mean MAO across Conditions



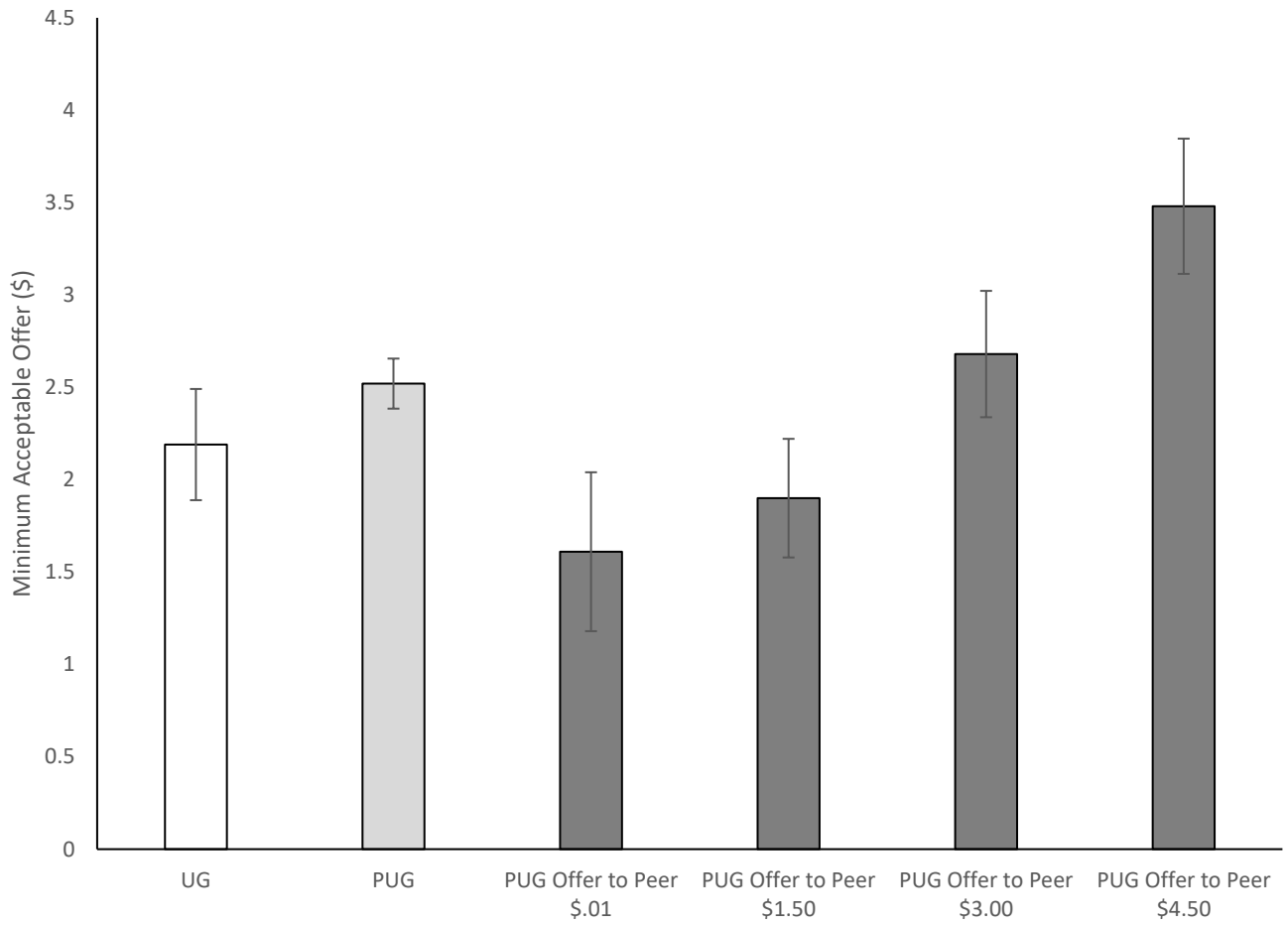
Note : Error bars are 95% confidence intervals.

Figure S2: Supplementary Study 2 Acceptance Proportion of the Responders by UG, PUG Secret and PUG Transparent



Note : Error bars are 95% confidence intervals.

Figure S3. Supplementary Study 3 Results Comparing Mean MAO across Conditions from
Supplementary Study 1 – Scenario Calibration Study



S-Appendix 1

Instructions for Supplementary Study 1 - Scenario Calibration Study

UG Instructions

Imagine that you are participating in the following exercise.

In this exercise, there are two players - Offerer and Respondent. You will be assigned to one of these roles once you have understood the structure of the exercise. The exercise will begin with the Offerer holding \$5.00.

The Offerer will make one offer to the Respondent as follows: 1) X to Respondent ranging from \$ 0.00 – \$ 5.00

Respondent will write down the minimum acceptable amount as follows: 1) Y for Respondent ranging from \$ 0.00 – \$ 5.00

If X is greater than or equal to Y , Respondent gets X and the Offerer gets $(\$ 5.00 - X)$ from this deal. If X is smaller than Y , both Respondent and the Offerer get nothing from this deal.

You have been allocated to the role of the Respondent.

PUG Instructions

Imagine that you are participating in the following exercise.

In this exercise, there are three players - Offerer and Respondent- i and Respondent- j . The exercise will begin with the Offerer holding \$.10.00. The Offerer will simultaneously make offers of X_1 ranging from \$.0.00 – \$.5.00 to Respondent- i and X_2 ranging from \$.0.00 – \$.5.00 to Respondent- j . Respondent- i and Respondent- j will write down the minimum acceptable amount they expect to get from Offerer.

For Respondent- i , If the amount offered by Offerer is more than or equal to Respondent- i 's minimum acceptable amount, Respondent- i gets to keep X_1 , and Offerer will get $(\$5.00 - X_1)/2$ from this deal. If the amount offered by Offerer is lesser than Respondent- i 's minimum acceptable amount, both Respondent- i and Offerer get nothing.

For Respondent-j, If the amount offered by Offerer is more than or equal to Respondent-j's minimum acceptable amount, Respondent-j gets to keep X_2 , and Offerer will get $(\$5.00 - X_2)/2$ from this deal. If the amount offered by Offerer is less than Respondent-j's minimum acceptable amount, both Respondent-j and Offerer get nothing.

Note your Offerer will be engaging with another respondent as well. You will not know the amount or the outcome of the offer to the other Respondent.

On the next page, your role will be assigned.

You have been allocated to the role of the Respondent-i.

S-Appendix 2

Instructions for Supplementary Study 2 - PUG Scenario Study

UG Condition

Imagine that you are participating in the following exercise.

In this exercise, there are two players - Offerer and Respondent. You will be assigned to one of these roles once you have understood the structure of the exercise. The exercise will begin with the Offerer holding \$5.00.

The Offerer will make one offer to the Respondent as follows:

- 1) X to Respondent ranging from \$ 0.00 – \$ 5.00

Respondent will decide to accept or reject the offer. If offer is accepted, Respondent gets X and the Offerer gets ($\$ 5.00 - X$) from this deal. If rejected, both Respondent and the Offerer get nothing from this deal.

You have been allocated to the role of Respondent.

Scenario 1

Indicate with a YES or NO if you would accept an offer from the Offerer.

You received an offer of \$.01.

- Yes
- No

PUG Secrecy Condition

Imagine that you are participating in the following exercise.

In this exercise, there are three players - Offerer and Respondent 1 and Respondent 2. The exercise will begin with the Offerer holding \$.10.00. The Offerer will simultaneously make offers of X1 ranging from \$.0.00 – \$.5.00 to Respondent 1 and X2 ranging from \$.0.00 – \$.5.00 to Respondent 2. Respondent 1 and Respondent 2 will decide whether to accept or reject the offers.

For Respondent 1, If offer is accepted, Respondent 1 gets to keep X1, and Offerer will get $(\$5.00 - X1)/2$ from this deal. If offer is rejected, both Respondent 1 and Offerer get nothing.

For Respondent 2, If offer is accepted, Respondent 2 gets to keep X2, and Offerer will get $(\$5.00 - X2)/2$ from this deal. If offer is rejected, both Respondent 2 and Offerer get nothing.

Note your Offerer will be engaging with another respondent as well. You will not know the amount or the outcome of the offer to the other Respondent. On the next page, your role will be assigned.

You have been allocated to the role of Respondent 2.

Scenario 1

Indicate with a YES or NO if you would accept an offer from the Offerer.

You received an offer of \$.01.

- Yes
- No

PUG Transparency Condition

Imagine that you are participating in the following exercise.

In this exercise, there are three players - Offerer and Respondent 1 and Respondent 2. The exercise will begin with the Offerer holding \$.10.00. The Offerer will simultaneously make offers of X1 ranging from \$.0.00 – \$.5.00 to Respondent 1 and X2 ranging from \$.0.00 – \$.5.00 to Respondent 2. Respondent 1 and Respondent 2 will decide whether to accept or reject the offers.

For Respondent 1, If offer is accepted, Respondent 1 gets to keep X1, and Offerer will get $(\$5.00 - X1)/2$ from this deal. If offer is rejected, both Respondent 1 and Offerer get nothing.

For Respondent 2, If offer is accepted, Respondent 2 gets to keep X_2 , and Offerer will get $(\$5.00 - X_2)/2$ from this deal. If offer is rejected, both Respondent 2 and Offerer get nothing.

Note your Offerer will be engaging with another respondent as well. You will know the amount of the offer but not the outcome to the other Respondent.

On the next page, your role will be assigned.

You have been allocated to the role of Respondent 2.

Scenario 1

Indicate with a YES or NO if you would accept an offer from the Offerer if you knew that the offerer made the following offer to the other respondent 2.

You received an offer of \$.01. Other respondent received an offer of \$.01.

- Yes
- No

S-Appendix 3

Instructions for Supplementary Study 3

Imagine that you are participating in the following exercise.

In this exercise, there are three players - **Offerer** and **Respondent-I** and **Respondent-J**. You will be assigned to one of these roles once you have understood the structure of the exercise. The exercise will begin with the **Offerer** holding \$10.00.

The **Offerer** will simultaneously make two offers to both the respondents as follows:

- 1) X1 to **Respondent-I** ranging from \$ 0.00 – \$ 5.00
- 2) X2 to **Respondent-J** ranging from \$ 0.00 – \$ 5.00

Each Respondent will write down the minimum acceptable amount as follows:

- 1) Y1 for **Respondent-I** ranging from \$ 0.00 – \$ 5.00
- 2) Y2 for **Respondent-J** ranging from \$ 0.00 – \$ 5.00

If X1 is greater than or equal to Y1, **Respondent-I** gets X1 and the **Offerer** gets $(\$ 5.00 - X1)/2$ from this deal. If X1 is smaller than Y1, both **Respondent-I** and the **Offerer** get nothing from this deal.

If X2 is greater than or equal to Y2, **Respondent-J** gets X2 and the offerer gets $(\$ 5.00 - X2)/2$ from this deal. If X2 is smaller than Y2, both **Respondent-J** and the **Offerer** get nothing from this deal.

Note, you will not know the outcome of the offer to the other Respondent.

You have been allocated to the role of the **Respondent-I**.

\$0.01 Condition

You are aware that the **Offerer made an offer of \$0.01 to the other respondent**, Respondent-J.

What is the minimum acceptable amount that you will accept from the Offerer? (in \$, between \$0.00 and \$5.00) _____

Technical Appendix

A paired ultimatum game (PUG) involves an Offerer, a focal Respondent, and another peer Respondent. The allocation of each offer is materially independent; it comes out of different “pots” for the Offerer, and this is common knowledge among players. Following the strategy method, the Offerer records private Offers to each Respondent out of two different fixed pots of money, and the Respondents privately and simultaneously record what they think is a Minimum Acceptable Offer (MAO) to themselves. The experimenter then reveals the offers and MAO’s, and if the offer amount exceeds the MAO in each pairwise interaction, it is deemed to be accepted, and the Offerer and Respondent split the pot for that interaction accordingly.

In a simple Ultimatum Game (UG), there is only one Respondent and one Offeror. Otherwise procedures are identical as above

General formulation

The utility function of a Respondent can be written as $U_o + U_v + \delta U^e_L$ where U_o represents the utility from payoff to self, U_v represent utility from vertical (i.e. with respect to Offerer) equity, the δ term represents the weight on comparison with a Peer Respondent (if present), and U^e_L represents expected utility from lateral (i.e., with respect to Peer Respondent) equity.

The first two components of this utility function can be written as $U_o(x)$ and $U_v(x - (1 - x))$ respectively as the only relevant object of comparison is the Offerer, who gets $(1 - x)$ if the offer is accepted. We can combine these terms and denote simply as $U(x)$, so that the recipient’s utility reduces to $U = U(x) + \delta U^e_L(x)$.

Our theory about lateral equity concerns under secrecy assumes that a) U^e_L is “small” (in a sense to be made precise below - see [1]) and b) that the utility of a transparent equal offer ($x = x^p$, the allocation to Peer Respondent) is non-negative, $U(x = x^p)_L \geq 0$. Given these conditions, we show why our two hypotheses follow.

Let p be the probability of receiving an offer of x , which is declining in x . Then the expected utility to a Respondent from an offer of x is $[p.U] = (p(x).[U(x) + \delta U^e_L(x)])$

Let $x^* = \text{argmax } [p.U]$, which is assumed to exist and be an internal solution. Then,

$$F = \frac{\partial U}{\partial x} p + U \frac{\partial p}{\partial x} = 0 \text{ at } x = x^* \text{ and } \frac{\partial F}{\partial x} < 0.$$

Using implicit function theorem,

$$\frac{\partial x^*}{\partial \delta} = - \frac{\frac{\partial F}{\partial \delta}}{\frac{\partial F}{\partial x}}$$

$$\Rightarrow \text{Sign of } \frac{\partial x^*}{\partial \delta} = \text{Sign of } \frac{\partial F}{\partial \delta}$$

$$\frac{\partial F}{\partial \delta} = \frac{\partial p}{\partial x} \cdot \frac{\partial U}{\partial \delta} + \frac{\partial U^e_L}{\partial x} \cdot p$$

$$\frac{\partial F}{\partial \delta} = \frac{\partial p}{\partial x} \cdot U^e_L + \frac{\partial U^e_L}{\partial x} \cdot p$$

$$\text{Since } \frac{\partial p}{\partial x} < 0, \frac{\partial F}{\partial \delta} > 0 \Rightarrow \frac{\partial x^*}{\partial \delta} > 0 \text{ if } \frac{\partial p}{\partial x} \cdot U^e_L + \frac{\partial U^e_L}{\partial x} \cdot p > 0$$

$$\text{i.e. if } U^e_L \leq 0, \text{ or if } \left| \frac{\partial p}{\partial x} \cdot U^e_L \right| < \left| \frac{\partial U^e_L}{\partial x} \cdot p \right| \quad [1]$$

As long as lateral utility w.r.t. a Peer Respondent under secrecy is negative (or even positive but small at any value of x , as noted in [1]), it follows that $\frac{\partial x^*}{\partial \delta} > 0$. Thus, as the weight on comparison with Peer Respondents receiving an unknown allocation increases (i.e. δ), so should the reported MAO. This weight is necessarily larger in PUG than UG, since there is no peer in UG. Therefore, reported MAO should be higher in PUG than in UG (**Hypothesis 1**)

Since $U(x=x^p)_L \geq 0$, then $U(x) + \delta U(x=x^p)_L \geq U(x)$ if $\delta > 0$. Thus, a transparent equal allocation to a Peer Respondent should increase the acceptance of offers relative to the case where the offer to Peer Respondent is unknown within a PUG (**Hypothesis 2**).

Illustrative functional form

Let the utility a Respondent in UG derives from receiving amount x be denoted by $x \in [0,1]$. Let $p(x) = 1 - \theta x$ be the probability of receiving an offer that meets or exceeds x . The parameter $\theta \in [0,1]$ captures the sensitivity of the offer probability to x ; when $\theta = 0$, there is no sensitivity, when $\theta = 1$, then the probability of receiving an offer $\geq x$ is $1-x$, and of $x=1$ is zero. **If** the

Respondent knows θ (a property of the Offerer), their expected utility is $x(1-\theta x)$, which the Respondent optimizes by stating $MAO_{UG} = 1/2\theta$. **If** the Offerer knows that Respondent knows θ , the Offerer makes an offer of $1/2\theta$ (plus ϵ), and the offer clears.

In a PUG (under secrecy), given that Respondent 1 does not know the offer to Respondent 2 and vice versa, let the utility a Respondent in PUG derives from receiving an offer of x be denoted by $x-\phi$ where $x, |\phi| \in [0,1]$. The parameter ϕ captures the utility created by the presence of a Peer Respondent who is receiving an unknown offer ($U^e_L \leq 0$ in condition [1] above, so that $\phi \geq 0$), or a known equal offer ($U(0)_L \geq 0$, and $\phi \leq 0$).

As before, $p(x) = 1-\theta x$ is the probability of receiving an offer that meets or exceeds x . **If** the Respondent knows θ (a property of the Offerer), their expected utility is $(x-\phi)(1-\theta x)$, which the Respondent optimizes by stating $MAOP_{PUG} = (1+\phi\theta)/2\theta$. **If** the Offerer knows ϕ and that the Respondent knows θ , the Offerer makes an offer of $(1+\phi\theta)/2\theta$ (plus ϵ), which then clears.

It follows that $MAOP_{PUG} > MAO_{UG}$ (Hypothesis 1) if

$$(1+\phi\theta)/2\theta > 1/2\theta$$

\Rightarrow if $\phi/2 > 0$ \square Hypothesis 1)

A non-negative utility from transparent and equal offer to Peer Respondent corresponds to a case where $\phi \leq 0$. In this case, it follows that $MAOP_{PUG} \text{ (Transparent Equal Offer)} > MAOP_{PUG} \text{ (Secret Offer to Peer Respondent)}$ (Hypothesis 2).

Appendix 1

Instructions for Experiment 1

UG Condition - Offerer

In this exercise, there are 2 players - **Offerer** and **Respondent**. The exercise will begin with the **Offerer** holding Rs.500.00. The **Offerer** will make an offer of X ranging from Rs.0.00 – Rs.500.00 to the **Respondent**. If the amount offered by **Offerer** is more than or equal to the **Respondent's** minimum acceptable amount, then **Respondent** gets to keep X, and **Offerer** will get Rs.500.00 - X. If the amount offered by **Offerer** is lesser than the **Respondent's** minimum acceptable amount, then both **Respondent** and **Offerer** get nothing.

The next round will start with **Offerer** holding Rs.500.00 again and the same instructions apply.

This exercise will go on for ten consecutive rounds. At the end of the 10 rounds **we will pick one round at random** and pay all parties based on the outcome of that round. So it is important that you take all rounds seriously.

You have been assigned the role of **Offerer**. For all the 10 rounds you will be in the same role and interact with the same counter party.

Please remain on the appropriate round and **DO NOT** move to the next round until you are instructed to do so.

Offerer	Respondent's outcome		
		<u>To be filled by the experimenter</u>	
	Column A	Column B	Column C
	What is the amount you offer to pay to Respondent (between Rs.0.00 and Rs500.0)	Was your offer greater than or equal to the minimum acceptable amount indicated by Responder	If column B is No then = Rs.0.00 otherwise= Rs.500.00 - Column A
<i>Round 1</i>		Yes /No	
<i>Round 2</i>		Yes /No	
<i>Round 3</i>		Yes /No	
<i>Round 4</i>		Yes /No	
<i>Round 5</i>		Yes /No	
<i>Round 6</i>		Yes /No	
<i>Round 7</i>		Yes /No	
<i>Round 8</i>		Yes /No	
<i>Round 9</i>		Yes /No	
<i>Round 10</i>		Yes /No	

UG Condition – Respondent

In this exercise, there are 2 players - **Offerer** and **Respondent**. The exercise will begin with the **Offerer** holding Rs.500.00. The **Offerer** will make an offer of X ranging from Rs.0.00 – Rs.500.00 to the **Respondent**. If the amount offered by **Offerer** is more than or equal to the **Respondent's** minimum acceptable amount, then **Respondent** gets to keep X , and **Offerer** will get Rs.500.00 - X . If the amount offered by **Offerer** is lesser than the **Respondent's** minimum acceptable amount, then both **Respondent** and **Offerer** get nothing.

The next round will start with **Offerer** holding Rs.500.00 again and the same instructions apply.

This exercise will go on for ten consecutive rounds. At the end of the 10 rounds **we will pick one round at random** and pay all parties based on the outcome of that round. So it is important that you take all rounds seriously.

You have been assigned the role of **Respondent**. For all the 10 rounds you will be in the same role and interact with the same counter party.

Please remain on the appropriate round and **DO NOT** move to the next round until you are instructed to do so.

	Column A	<u>To be filled by experimenter</u>	
		Column B	Column C
Respondent	What is the minimum acceptable amount that you will accept from the O (in Rs, between Rs0.00 and Rs.500.00)	Amount offered by O (Rs.)	Your Pay-out is =Rs.0.00 if Column A > Column B, otherwise it is amount in Column B (Rs.)
<i>Round 1</i>			
<i>Round 2</i>			
<i>Round 3</i>			
<i>Round 4</i>			
<i>Round 5</i>			
<i>Round 6</i>			
<i>Round 7</i>			
<i>Round 8</i>			
<i>Round 9</i>			
<i>Round 10</i>			

PUG Unaware Condition - Offerer

In this exercise, there are three players - **Offerer** and **Respondent1** and **Respondent2**. The exercise will begin with the **Offerer** holding Rs.1,000.00. The **Offerer** will simultaneously make offers of X1 ranging from Rs.0.00 – Rs.500.00 to **Respondent1** and X2 ranging from Rs.0.00 – Rs.500.00 to **Respondent2**. **Respondent1** and **Respondent2** will write down the minimum acceptable amount they expect to get from **Offerer**.

For **Respondent1**, If the amount offered by **Offerer** is more than or equal to **Respondent1's** minimum acceptable amount, **Respondent1** gets to keep X1, and **Offerer** will get $(Rs.500.00 - X1)/2$ from this deal. If the amount offered by **Offerer** is lesser than **Respondent1's** minimum acceptable amount, both **Respondent1** and **Offerer** get nothing.

For **Respondent2**, If the amount offered by **Offerer** is more than or equal to **Respondent2's** minimum acceptable amount, **Respondent2** gets to keep X2, and **Offerer** will get $(Rs.500.00 - X2)/2$ from this deal. If the amount offered by **Offerer** is lesser than **Respondent2's** minimum acceptable amount, both **Respondent2** and **Offerer** get nothing.

The next round will start with **Offerer** holding Rs.1,000.00 again and the same instructions apply.

This exercise will go on for ten consecutive rounds. At the end of the 10 rounds **we will pick one round at random** and pay all parties based on the outcome of that round. So it is important that you take all rounds seriously.

You have been allocated to the role of the **Offerer**. For all the 10 rounds you will be in the same role and interact with the same counter parties. Note the Respondents do not know that you as an **Offerer** will be engaging with two of them.

Please remain on the appropriate round and **DO NOT** move to the next round until you are instructed to do so.

PUG Unaware Condition – Respondent

In this exercise, there are two players - **Offerer** and **Respondent**. The exercise will begin with the **Offerer** holding Rs.500.00. The **Offerer** will make an offer of X ranging from Rs.0.00 – Rs.500.00 to the **Respondent**. The **Respondent** will write down the minimum acceptable amount he/she expects to get from the **Offerer**.

If the amount offered by **Offerer** is more than or equal to the **Respondent's** minimum acceptable amount, the **Respondent** gets to keep X, and **Offerer** will get (Rs.500.00 – X) from this deal. If the amount offered by **Offerer** is lesser than **Respondent's** minimum acceptable amount, both **Respondent** and **Offerer** get nothing.

The next round will start with **Offerer** holding Rs.500.00 again and the same instructions apply.

This exercise will go on for ten consecutive rounds. At the end of the 10 rounds **we will pick one round at random** and pay all parties based on the outcome of that round. So it is important that you take all rounds seriously.

You have been assigned the role of **Respondent**. For all the 10 rounds you will be in the same role and interact with the same counter party.

Please remain on the appropriate round and **DO NOT** move to the next round until you are instructed to do so.

	Column A	<u>To be filled by experimenter</u>	
		Column B	Column C
Respondent	What is the minimum acceptable amount that you will accept from the O(in Rs., between Rs.0.00 and Rs.500.00)	Amount offered by O (Rs.)	Your Pay-out is =Rs.0.00 if Column A> Column B, otherwise it is amount in Column B (Rs.)
<i>Round 1</i>			
<i>Round 2</i>			
<i>Round 3</i>			
<i>Round 4</i>			
<i>Round 5</i>			
<i>Round 6</i>			
<i>Round 7</i>			
<i>Round 8</i>			
<i>Round 9</i>			
<i>Round 10</i>			

PUG Aware Condition – Offerer

In this exercise, there are three players - **Offerer** and **Respondent1** and **Respondent2**. The exercise will begin with **Offerer** holding Rs.1,000.00. The **Offerer** will simultaneously make offers of X1 ranging from Rs.0.00 - Rs.500.00 to **Respondent1** and X2 ranging from Rs.0.00 – Rs.500.00 to **Respondent2**. **Respondent1** and **Respondent2** will write down the minimum acceptable amount they expect to get from **Offerer**.

After each responder has indicated their minimum acceptable offer, both the responders will know the offer and the outcome of themselves and the other responder.

If the amount offered by **Offerer** is more than or equal to **Respondent1**'s minimum acceptable amount, **Respondent1** gets to keep X1, and **Offerer** will get $(Rs.500.00 - X1)/2$ from this deal. If the amount offered by **Offerer** is lesser than **Respondent1**'s minimum acceptable amount, both **Respondent1** and **Offerer** get nothing. For **Respondent2**, If the amount offered by **Offerer** is more than or equal to **Respondent2**'s minimum acceptable amount, **Respondent2** gets to keep X2, and **Offerer** will get $(Rs.500.00 - X2)/2$ from this deal. If the amount offered by **Offerer** is lesser than **Respondent2**'s minimum acceptable amount, both **Respondent2** and **Offerer** get nothing. The next round will start with **Offerer** holding Rs.1,000.00 again and the same instructions apply.

This exercise will go on for ten consecutive rounds. At the end of the 10 rounds **we will pick one round at random** and pay all parties based on the outcome of that round. So it is important that you take all rounds seriously.

You have been assigned the role of **Offerer**. For all the 10 rounds you will be in the same role and interact with the same counter parties.

Write only on the current round, and **do not** move to the next round until you are instructed.

PUG Aware Condition – Respondent

In this exercise, there are three players - **Offerer** and **Respondent1** and **Respondent2**. The exercise will begin with **Offerer** holding Rs.1,000.00. The **Offerer** will simultaneously make offers of X1 ranging from Rs.0.00 – Rs.500.00 to **Respondent1** and X2 ranging from Rs.0.00 – Rs.500.00 to **Respondent2**. **Respondent1** and **Respondent2** will write down the minimum acceptable amount they expect to get from **Offerer**.

Note, **Respondent1** will know the outcome of the offer (whether it was successful or not) made to **Respondent2** by the **Offerer** and NOT the amount offered by **Offerer** to **Respondent2** after **Respondent1** has stated his/her minimum acceptable amount. The same will hold for **Respondent2**. **Respondent2** will know the outcome of offer made(whether it was successful or not) and the NOT the amount offered by **Offerer** to **Respondent1** after **Respondent2** has already indicated his or her minimum acceptable amount to the experimenter.

If the amount offered by **Offerer** is more than or equal to **Respondent1's** minimum acceptable amount, **Respondent1** gets to keep X1, and **Offerer** will get $(Rs.500.00 - X1)/2$ from this deal. If the amount offered by **Offerer** is lesser than **Respondent1's** minimum acceptable amount, both **Respondent1** and **Offerer** get nothing. For **Respondent2**, If the amount offered by **Offerer** is more than or equal to **Respondent2's** minimum acceptable amount, **Respondent2** gets to keeps X2, and **Offerer** will get $(Rs.500.00 - X2)/2$ from this deal. If the amount offered by **Offerer** is lesser than **Respondent2's** minimum acceptable amount, both **Respondent2** and **Offerer** get nothing. The next round will start with **Offerer** holding Rs.1,000.00 again and the same instructions apply.

This exercise will go on for ten consecutive rounds. At the end of the 10 rounds **we will pick one round at random** and pay all parties based on the outcome of that round. So it is important that you take all rounds seriously.

You have been assigned the role of **Repondent1**. For all the 10 rounds you will be in the same role and interact with the same counter parties.

Write only on the current round, and **do not** move to the next round until you are instructed.

Appendix 2

Scenario for Experiment 2

Imagine that you just graduated and applied for a management trainee position with a reputable company. There are many other candidates who applied for the same position. After going through three rounds of interviews, you are informed that you stand a high chance of getting a job offer.

Three days later, you received an email from the company. The director is impressed with your performance and wants to make you a job offer. In a follow up email, the human resource officer asked you for your expected salary. From your own research, you learned that the average market rate salary is \$2,500 per month. The minimum rate in the market is \$2,000 and the maximum rate in the market is \$3,000.

*You found out that **there is another job candidate** who performed well enough to also receive a job offer from the same company. The company **will (NOT) be able to inform you how much that other job candidate will be offered**. Similarly, that other job candidate will **(not)** be informed how much you will be offered.*

*You received an offer for **\$2,000 (\$2,300)** a month. You are (informed by the company that the other job candidate was **also offered \$2,000 (\$2,300)**) **(not aware of how much the other job candidate is offered)**.*

Appendix 3

Scenarios for Experiment 3

*Condition 1: Full Secrecy, Low, Equal**

Information:

You received an offer of **\$1.50** from the Offerer.

There is no information about past offers from the Offerer to Respondent-I and Respondent-J.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 2: Partial Secrecy, Low, Equal

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically equal**. You have reason to expect the Offerer to behave consistently.

You **have no idea at all** about the amount offered to Respondent-J.

Condition 3: Risk, Low, Equal

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically equal**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** might be **between \$1.00 to \$2.00**.

Condition 4: Transparent, Low, Equal

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically equal**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** is **\$1.50**.

Condition 6: Partial Secrecy, Low, Advantageous Inequity

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 7: Risk, Low, Advantageous Inequity

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** might be **between \$0.00 to \$1.00**.

Condition 8: Transparent, Low, Advantageous Inequity

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** is **\$0.50**.

Condition 10: Partial Secrecy, Low, Disadvantageous Inequity

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 11: Risk, Low, Disadvantageous Inequity

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** might be **between \$2.50 to \$3.50**.

Condition 12: Transparent, Low, Disadvantageous Inequity

Information:

You received an offer of **\$1.50** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** is **\$3.00**.

*Condition 13: Full Secrecy, High, Equal**

Information:

You received an offer of **\$3.00** from the Offerer.

There is no information about past offers from the Offerer to Respondent-I and Respondent-J.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 14: Partial Secrecy, High, Equal

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically equal**. You have reason to expect the Offerer to behave consistently.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 15: Risk, High, Equal

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically equal**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** might be **between \$2.50 to \$3.50**.

Condition 16: Transparent, High, Equal

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically equal**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** is **\$3.00**.

Condition 18: Partial Secrecy, High, Advantageous Inequity

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 19: Risk, High, Advantageous Inequity

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** might be **between \$1.00 to \$2.00**.

Condition 20: Transparent, High, Advantageous Inequity

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** is **\$1.50**.

Condition 22: Partial Secrecy, High, Disadvantageous Inequity

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You **have no idea at all about the amount** offered to Respondent-J.

Condition 23: Risk, High, Disadvantageous Inequity

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** might be **between \$4.00 to \$5.00**.

Condition 24: Transparent, High, Disadvantageous Inequity

Information:

You received an offer of **\$3.00** from the Offerer.

Information about **past offers** from the Offerer shows that offers made to Respondent-I and Respondent-J were **typically not the same**. You have reason to expect the Offerer to behave consistently.

You learned that **the amount offered to Respondent-J** is **\$4.50**.

Appendix 4

Sample Size Information for Experiments 1 - 3

Experiment 1

Total	Male	Female	Missing Data	Age
166	92	71	3	18.7 yrs

N	UG	PUG Unaware	PUG Aware
Offerer	26	18	20
Respondent	26	36	40

Age

	Offerer	R1	R2
UG	18.2 yrs	18.5 yrs	
PUG Unaware	19.1 yrs	18.7 yrs	18.9 yrs
PUG Aware	18.9 yrs	18.8 yrs	18.7 yrs

Gender

N	Offerer		R1		R2	
	Male	Female	Male	Female	Male	Female
UG	19	7	19	4		
PUG Unaware	7	11	8	10	9	9
PUG Aware	11	9	10	10	9	11

Experiment 2

Total	Male	Female	Age
91	37	54	22.1 yrs

PUG Secrecy \$2300	PUG Secrecy \$2000	PUG Transparent \$2300	PUG Transparent \$2000
22	24	21	24

Age

PUG Secrecy \$2300	PUG Secrecy \$2000	PUG Transparent \$2300	PUG Transparent \$2000
22 yrs	22 yrs	22.4 yrs	21.9 yrs

Gender

PUG Secrecy \$2300		PUG Secrecy \$2000		PUG Transparent \$2300		PUG Transparent \$2000	
Male	Female	Male	Female	Male	Female	Male	Female
11	11	9	15	6	15	11	13

Experiment 3

Total	Male	Female	Age
1000	393	607	36.3 yrs

Condition	Uncertainty	Level of Pay to Self	Inequity	Total	Male	Female	Age
1	Full Secrecy	Low	Equal	51	18	33	33.5 yrs
2	Partial Secrecy	Low	Equal	49	15	34	36.7 yrs
3	Risk	Low	Equal	51	23	28	39.2 yrs
4	Transparent	Low	Equal	51	19	32	36.6 yrs
5	<i>Full Secrecy</i>	<i>Low</i>	<i>Advantageous Inequity</i>	-	-	-	-
6	Partial Secrecy	Low	Advantageous Inequity	48	21	27	34.4 yrs
7	Risk	Low	Advantageous Inequity	52	18	34	35.1 yrs
8	Transparent	Low	Advantageous Inequity	51	22	29	37.1 yrs
9	<i>Full Secrecy</i>	<i>Low</i>	<i>Disadvantageous Inequity</i>	-	-	-	-
10	Partial Secrecy	Low	Disadvantageous Inequity	49	14	35	36.3 yrs
11	Risk	Low	Disadvantageous Inequity	51	17	34	36.3 yrs
12	Transparent	Low	Disadvantageous Inequity	50	27	23	34.6 yrs
13	Full Secrecy	High	Equal	48	19	29	34.0 yrs
14	Partial Secrecy	High	Equal	49	19	30	37.4 yrs
15	Risk	High	Equal	49	20	29	37.8 yrs
16	Transparent	High	Equal	51	23	28	40.2 yrs
17	<i>Full Secrecy</i>	<i>High</i>	<i>Advantageous Inequity</i>	-	-	-	-
18	Partial Secrecy	High	Advantageous Inequity	51	18	33	35.6 yrs
19	Risk	High	Advantageous Inequity	48	21	27	35.4 yrs
20	Transparent	High	Advantageous Inequity	52	13	39	37.0 yrs
21	<i>Full Secrecy</i>	<i>High</i>	<i>Disadvantageous Inequity</i>	-	-	-	-
22	Partial Secrecy	High	Disadvantageous Inequity	48	21	27	34.9 yrs

23	Risk	High	Disadvantageous Inequity	51	23	28	35.3 yrs
24	Transparent	High	Disadvantageous Inequity	50	22	28	37.1 yrs