Honesty on Trial: An Experimental Approach

(Revised version)

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Abstract

We study honesty using a two-player deception game, where players are required to report the group they belong to. The payoffs depend on the decisions of each pair of players, with lying yielding the highest individual payoff. Exploiting a between-subjects design, we examine the effect of time (delay and pressure) and information (about the decisions of her peers) on lying and investigate whether these effects differ by gender. Using a sample from two private universities in Peru, we find that, on average, participants lie less in the delay treatment compared to the time pressure treatment, and that only the time pressure treatment shows a differential effect by gender. Additionally, we observe heterogeneity between the two colleges in both cases. Among the numerous potential correlates we analyze, the propensity to follow rules, risk aversion, loss aversion, guilt, and beliefs about others' honesty all influence individual honesty.

Key Words: Honesty, experiments, incentives, gender, college students.

JEL Codes: C01, C16, C81, C92.

1 Introduction

What determines whether people lie or remain honest when they have the opportunity to profit from dishonest behavior? While moral philosophers (e.g., Kant (1949)) would argue that lying is wrong regardless of the outcome, in practice, some individuals choose to lie when it benefits them. In fact, under the standard *Homo Economicus* assumption, people will lie whenever it increases their well-being, especially under the premise that lying has no negative consequences, such as moral regret. Understanding the extent to which people are influenced by such non-consequentialist morality is crucial in contexts of asymmetric information, where there are clear incentives for misreporting private information or actions (e.g., cheating on college exams, shirking duties, misrepresenting the quality of a credence good in an exchange, filing fraudulent insurance claims, or presenting a false image in job interviews, just to name a few common situations in everyday life).

Previous studies have found that the introduction of monetary incentives increases dishonest behavior (e.g. Valens Cardell (2020) and Cohen et al. (2009)). Furthermore, in contrast to Greene and Paxton (2009), Capraro et al. (2019) find that subjects tend to act more honestly under time pressure in one-shot interactions and Lohse et al. (2018) report similar results when the opportunity to cheat is unexpected. These findings are consistent with the idea that honesty is intuitive (or comes naturally).[1]

In the context of asymmetric information, we can argue that providing information about others' choices may influence an individual's decision to lie. However, to the best of our knowledge, this issue has not been addressed in the existing literature. By gathering information on participants' (prior) beliefs about what others might choose when making their owns decision, introducing this information manipulation can be viewed as a method for obtaining posterior beliefs about choices.[2]

Building on the literature that examines whether honesty is intuitive or requires deliberation (which presents mixed results), we analyze the extent to which exposure to time constraints (i.e., are people more likely to lie when faced with limited time to make decisions?) and an information treatment (i.e., are people's behavior influenced by the actions of their peers?) can affect lying in the context of a deception game. We also examine whether treatment effects vary by gender and explore the role of several potential correlates of lying, including risk and loss aversion, inequity aversion, and the propensity to

[1] Capraro et al. (2019) use a deception game designed to control for certain confounders identified in earlier research (Capraro (2017)) but report similar results. In turn, Capraro et al. (2019) was inspired by mixed results from previous work.

[2] We thank an anonymous referee for pointing this out.

follow rules.[3] To our knowledge, no study has simultaneously addressed these three treatments, examined heterogeneous treatment effects by gender, and analyzed such a broad set of covariates within the context of a deception game.

Our hypothesis is that honesty may be malleable. Specifically, we posit that people are more honest under time pressure (consistent with recent findings by Capraro et al. (2019)), that honesty is influenced by information about group honesty (i.e., there are peer effects), that honesty is correlated with the propensity to follow rules, and that women are more affected by the treatments than men. [4]

Using a sample of college students from two top universities in Lima, Peru, we find that, on average, subjects lie less in the time delay treatment (compared to the time pressure treatment), but this effect is driven by one university; at the other university, we observe more lying in the time delay treatment. Our information treatment has no differential effect on choices. Additionally, several individual characteristics are correlated with lying, including the propensity to follow rules, risk aversion, loss aversion, inequity aversion, and the beliefs about others' honesty influence lying. Lastly, we find that only the time pressure treatment has a differential effect by gender across the entire sample (though we observe heterogeneity across universities).

The remainder of the paper proceeds as follows. Section 2 briefly reviews the experimental literature on honesty and its correlates. Section 3 presents our experimental design and describes the data. Section 4 discusses the main results, and Section 5 concludes.

2 Related Studies

Whether people find honesty intuitive (i.e., telling the truth is an automatic response, and lying requires greater cognitive effort) or whether they view it as something that requires deliberation (i.e., honesty does not arise naturally) has been an important research topic, with mixed results. For example, a meta-analysis in psychology by Suchotzki et al. (2017) finds that lying takes more time (suggesting honesty is intuitive), while other studies report that, under time pressure, people may perceive dishonesty as self-serving when facing constraints (see Shalvi et al. (2012)). Although these studies do not exhaust the range of possibilities, it is reasonable to consider that certain factors may lead someone to engage in dishonest behavior, while others may encourage honesty.

Several experimental studies have examined honesty in incentivized contexts. Various

[3] Understanding the role of these covariates in lying may help address the problem.

[4] We hypothesize this based on some results suggesting that women are more honest than men (e.g. Grosch and Rau (2017)).

methods can be used to measure honesty experimentally. Fischbacher and Föllmi-Heusi (2013) introduced an approach to measure group honesty, where participants privately roll a six-sided die and report the outcome. While the experimenter knows the statistical distribution of outcomes, there are incentives to misreport (higher numbers lead to higher payoffs, with the exception of six, which pays nothing). These authors, along with much of the subsequent work, show that a non-trivial share of participants either lie to the greatest extent possible or are completely honest, while most are partial liars. Other studies, such as Crede and von Bieberstein (2020), reduce this ambiguity by making observability common knowledge (i.e., the experimenter does not observe the individual reports), resulting in negligible partial and complete lies. The authors attribute this to the effect of reputation, although it remains unclear whether experimenter effects (i.e., the feeling of being observed) might also influence behavior.

Another strand of the literature explores the factors correlated with honest behavior, such as the context in which participants make decisions. For instance, Lohse et al. (2018) conducted an experiment in which participants were given a random value, considered their income, and asked to report it, which would also determine their final payoff. In this case of misreporting opportunity, the authors used two exogenous levels of reaction time and found that time pressure le to more honesty.

In a similar study, Shalvi et al. (2012) used an anonymous die-under-cup task in which participants privately rolled a die and reported the outcome to determine their payoff. The authors also manipulated the time available to report their income. Their results showed that, in tempting situations, where people had to act quickly, they served their self-interest by cheating. However, when given more time to deliberate, they constrained the amount of their lying, either justifying it or avoiding it altogether.[5]

Furthermore, Van't Veer (2014) tested the conditions under which people make ethical decisions by increasing cognitive load (i.e., when individuals have more things think about while making decisions). The authors argue that telling a lie is more cognitively demanding than telling the truth. In their experiment, participants were asked to memorize letters and then make a decision–whether to lie or not. In the low cognitive load condition (fewer letters to memorize), participants were more likely to lie, but only when lying was beneficial to them. In contrast, when the cognitive load was higher (more letters to memorize), participants preferred to be honest, regardless of the benefit from lying. Further, Mazar et al. (2008) conducted six experiments to examine whether dishonesty is

[5]However, Van der Cruyssen et al. (2012) disputes these results, noting that while the findings were significant, a Bayesian analysis suggests they had low power. The time pressure treatment was found not to increase lying, indicating that the previous study may have overestimated the effect of time pressure on lying.

more closely tied to profitability (external rewards) or self-concept maintenance (internal rewards). They found that while people are willing to cheat when given the opportunity, the extent of cheating is typically low. Overall, their findings suggest that people's behavior is more responsive to contextual manipulations related to self-concept than to the external net benefits of dishonesty.

Another branch of the literature examines deception games, in which two players are paired and both benefit when they lie about their group assignments rather than reporting the truth, as in Capraro (2017) and Capraro et al. (2019). In this setting, where each participant's decision affects the payoff of the other, factors such as risk aversion, loss aversion, aversion to inequality, and demographic characteristics (e.g., gender) may play a role. However, this has been insufficiently explored in the literature.

There is growing evidence of gender differences in preferences and behavior, especially regarding dishonesty for monetary gains (Croson and Gneezy, 2009). For example, (Dreber and Johannesson, 2008) and Erat and Gneezy (2012) find that women are less likely to lie for monetary gains than men in experiments involving communication between participants. Other studies involving risk-taking and fairness show that women tend to tell the truth more often than men (Cappelen et al. (2013) and Rosenbaum et al. (2014)).

Several explanations for these differences have emerged. Women may have more self-control (Burton et al., 1998), a greater social value orientation (Grosch and Rau, 2017), and a stronger tendency to feel shame about dishonest actions (Rebellon et al., 2015). Women are also less likely than men to behave with immoral intentions (Ward and King, 2018). In addition, Houser et al. (2012) find that women are less likely to misreport the outcome of a coin toss than men.[6] Lastly, Arbel et al. (2014) examined the effect of religiosity and gender on honesty levels using dice-under-the-glass experiments. They found that religious female students were the most honest, while non-religious women were the least honest. In summary, there is evidence across different studies indicating a relationship between gender and behavior.

Regarding an information treatment in honesty settings, (Ackert et al., 2011) conducted a dictator game to examine how providing subjects with incentives to preserve their self-image and/or protect others influence lying behavior. They found that people tend to lie more when there is less information about the payoffs of other participants. Benistant et al. (2022) conducted a dice roll experiment and found that continuous feedback from

[6] However, in sender-receiver games, Childs (2012) find that, when the stakes are low, women exhibit greater aversion to lying than men, but this gender difference disappears as the stakes increase. Gylfason et al. (2023) find a similar result using a cheap-talk game.

previous decisions had no effect on participants' lying behavior in a competitive context. However, in a non-competitive context, knowing about the choices of their peers in previous rounds did increase the number of lies.

In conclusion, the evidence suggests that several factors correlate with honest behavior, including reaction time (Lohse et al. (2018), Shalvi et al. (2012)), information about other participants (Ackert et al. (2011), Benistant et al. (2022)), and behavioral differences by gender (Croson and Gneezy (2009), Dreber and Johannesson (2008), Erat and Gneezy (2012), Houser et al. (2012)). Given this, we aim to examine whether time pressure influences participants' decisions to lie in an experimental context. Furthermore, we analyze whether additional information about other participants, such as their gender or choices in previous rounds, affects their decision to lie.

3 Experimental Design and Data

3.1 Experimental Design

We conducted experiments using a *between-subjects* design with three treatments. Each experimental session included four parts: a two-person deception game to assess honesty (with three treatments), and three additional tasks designed to gather information about the correlates of honesty, which are described below. All sessions involved 12 participants, grouped into six pairs.

In the first part of the experiment (deception game), subjects are randomly assigned to one of two groups, labeled A and B. This group assignment is private information for each participant. pairs are then formed with one participant from each group (one from group A and one from group B), who play for 6 rounds without feedback. In each round, each participant must report which group they were assigned to. If they both truthfully report their group, each player will receive 60 points. If one participant lies and the other reports truthfully, the liar will receive 90 points while the truthful participant will receive 30 points. If both participants lie, they will each receive 90 points (see Table 1). This last outcome is the (dominant) Nash equilibrium of the game.

This is the same payoff used for all treatments: two time treatments and one information treatment. It is important to mention that for all treatments, in each round, every participant is paired with a different partner and we show the information about the partner's gender. We did this in part because we wanted to examine some gender effects and in part because we wanted to make more credible the information that the partner differs

Table 1 – Payoffs table

		Partner	
		Chooses right group	Chooses contrary group
You	Chooses right group	(60 , 60)	(30 , 90)
	Chooses contrary group	(90 , 30)	(90 , 90)

in every round. For more details, see the appendix B.1.

In Treatments 1 and 2 (the time treatments), subjects see a timer on their screen (set to either 10 or 30 seconds), which is not visible in the third treatment. In all three treatments, participants are presented with two buttons representing the groups (*A* or *B*) from which they must choose, one of which corresponds to their true group. The first treatment, *Time Pressure*, requires participants to make a choice within 10 seconds, forcing a quick decision that prioritizes following instructions rather than focusing on profits. Once these 10 seconds have elapsed, a button appears on the screen along with a prompt to press it to continue to the next page.

The second treatment, *Time Delay*, allows participants 30 seconds to make their decision, although they choose earlier if they wish. The third treatment, *Information*, provides participants with information about the groups assigned to other participants and their choices in each round. This treatment was designed to assess the existence of externalities or peer-effects in decision-making.[7] Further, as noted earlier, each participant in the sample is assigned to one of these treatments.

The subsequent parts of the experiment were designed to collect data on the correlates of participants' behavior in the deception game. In the second part, we implement (Kimbrough and Vostroknutov, 2018)'s abstract rule-following task, where each participant is asked to place 100 balls into two buckets: blue or yellow. The rule is to place *all* balls in the blue bucket, though following the rule is costly: placing a ball in the blue bucket earns the participant 0.15 points, while placing it in the yellow bucket earns 0.30 points (see Appendix B.2). This task allows us to calculate the participant's propensity to follow the rules (rule sensitivity), which is measured by the percentage of balls placed in the blue

[7] A referee pointed out that the time and the information treatments are not comparable since we provided feedback to participants in the latter treatment. This feedback allows participants to have an idea of the extent of lying by their peers (which could affect their posterior beliefs about others' lying), and to a lesser extent the outcome of their choices (which can only be imperfectly inferred by carefully looking at the choices by others). We believe that this does not introduce wealth effects in this treatment since, even if players knew the outcome in each round, the round for play was randomly drawn.

bucket.

The third part of the experiment uses the inequity list task proposed by Diaz et al. (2021), which estimates two parameters of inequity aversion from the equation proposed by Fehr and Schmidt (1999): "guilt" and "envy".[8] Each participant is randomly paired with an anonymous partner and must indicate their satisfaction level for each of 21 allocations of 30 points (payment profiles) on a Likert scale from 1 (extremely dissatisfied) to 7 (extremely satisfied). As shown in Appendix B.3, in all allocations, the participant's payoff is set to 20 points, while the partner's payoff ranges from 10 to 30 points in increments of 1. Using the participant's responses to those 21 items, we estimate the "guilt" parameter (when the participant has more monetary units than their partner: the first 10 allocations) and the "envy" parameter (when the participant has fewer monetary units than their partner: the last 10 allocations). Each parameter comes from separate regressions on the satisfaction levels for the first 10 items (guilt: β) and the last 10 items (envy: α).[9]

The fourth part of the experiment aims to estimate the participant's risk aversion and loss aversion parameters, using Tanaka et al. (2010)'s task. In this task, each participant faces a series of pairwise lottery choices (labeled plan A and plan B) and must select the switching point–the question at which their preference shifts from plan A to plan B. There are three series of choices, totaling 35 questions. The first and second series each have 14 questions and involve lotteries with positive gains, while the third series has 7 questions involving lotteries with losses (see Appendix B.4). The parameters of interest are derived from the switching points in the three series (as shown in Table 3 in Tanaka et al. (2010)). We also estimate a predicted weighting function parameter, although its inclusion does not affect the coefficient estimates for our main variables of interest.[10]

Monetary incentives (payoffs in PEN) for each part of the experiment are detailed in Appendix B.

[8] The Fehr and Schmidt (1999)'s utility function from which the individual "i"'s envy (α_i) and guilt (β_i) parameters can be estimated is: $U_i(x) = x_i - \alpha_i max\{x_j - x_i, o\} - \beta_i max\{x_i - x_j, 0\}$.

[9] Following Diaz et al. (2021), we run this regression specification for each individual: $Satisfaction_{ik} = \gamma_i \overline{x} + \beta_i x_{jk} + u_k$, for $x_j \leq \overline{x}$ (guilt) and $Satisfaction_{ik} = \delta_i \overline{x} + \alpha_i x_{jk} + u_k$, for $x_j \geq \overline{x}$ (envy), where $\overline{x}$ denotes individual $i's$ payoff (set to 20) and x_j denotes the partner's payoff (which goes from 10 to 30), and k refers to allocation or payment profile k. A zero value of these estimates would indicate no regard for inequity.

[10] Under the umbrella of Tversky and Kahneman (1992)'s cumulative prospect theory, Tanaka et al. (2010) assumes a power utility function, $v(x) = x^{\sigma}$ (for $x > 0$), $v(x) = -\lambda(-x)^{\sigma}$ (for $x < 0$), and a probability weighting function, $w(p) = \frac{1}{exp[ln(1/p)]^{\alpha}}$, which weighs Bernoulli's utility functions. Thus, σ measures the curvature of the utility function (with $\sigma = 1$ denoting risk neutrality and $1 > \sigma > 0$ representing risk aversion), λ denotes de degree of loss aversion (with larger values denoting greater loss aversion), and α represents the subjective probability distortions (α = 1 makes $w(p)$ linear, thus (together with $\lambda = 1$) recovering the expected utility framework, $\alpha < 1$ implies an inverted S-shaped weighting function, and $\alpha > 1$ implies an S-shaped weighting function).

3.2 Estimation

We estimate the following base specification, using individual-level data:

$$y_i = \phi_0 + \Sigma_{k=1}^{2} \phi_k Treatment_{k,i} + \Phi X^T + \varepsilon_i, \quad (1)$$

where y_i takes the value of 1, if the individual i lied (i.e., if she did not report truthfully the group she was assigned to) and 0, otherwise. $Treatment_{1,i}$ is an indicator that takes the value of 1, if the individual participated in the *Time Delay* treatment ($k = 1$), and 0, otherwise. $Treatment_{2,i}$ is an indicator for the *Information* treatment ($k = 2$) (with the *Time Pressure* treatment as the base treatment).[11] X^T is a vector of demographic and other participant characteristics, including age, gender, and college, in addition to our main variables of interest: an indicator of the propensity to follow rules, levels of inequity aversion (envy or guilt), risk aversion, loss aversion, and beliefs about other participants' (both female and male) propensity to tell the truth.[12] ε represents the usual disturbance term.

Using this specification, estimated by ordinary least squares (OLS), we test our hypotheses by examining the statistical significance and signs of ϕ_1 and ϕ_2 (our measures of treatment effects), as well as $\phi_{rule\_following}$, ϕ_{envy}, ϕ_{guilt}, $\phi_{risk\_aversion}$, $\phi_{loss\_aversion}$ y $\phi_{steoretype}$. We then extend this specification to test for the existence of heterogeneous effects by gender, as follows:

$$y_i = \psi_0 + \psi_1 TimeDelay_i + \psi_2 Information_i + \psi_3 Woman_i + \psi_4 TimeDelay_i \times Woman_i + \psi_5 Information_i \times Woman_i + \Psi Z^T + \varepsilon_i, \quad (2)$$

where $Woman_i$ is an indicator variable for female participants and the vector Z contains variables similar to X, except for sex. Thus, ψ_3 captures any differential effect by gender for women from the *Time Pressure* treatment (vis-á-vis men), $(\psi_3 + \psi_4)$ captures the analogous effect from the *Time Delay* treatment, and $(\psi_3 + \psi_5)$ captures the effect from the *Information* treatment.

[11] Since we aim to examine the effect of time in decision-making, we choose one of the time treatments as the base category.

[12] Just before the end of each experimental session, we asked participants about the likelihood that other male and female participants in the session had truthfully reported the group they were assigned to. This variable is intended to capture the extent to which participants' own choices are influenced by their beliefs about the choices of others. See Appendix B.5.

3.3 Data

The experimental sessions were conducted virtually at the Universidad del Pacífico (UP) Experimental Economics Laboratory, E^2LabUP, and the Pontifical Catholic University of Peru (PUCP)'s, LEEX, with 276 and 144 undergraduate students, respectively. A total of 35 sessions were conducted, each with 12 participants, resulting in a sample of 420 students. Since each participant made 6 rounds of decisions in the deception game, we collected 2,520 experimental observations.[13] The experiment was programmed using *oTree* (Chen et al., 2016). The decision to use two subject pools was made to test for differential effects by college. Being one university more business-oriented that the other, we conjectured that the average participant might make different choices.[14]

Table 2 presents the descriptive statistics by college (panels A and B) and for the overall sample (panel C), with the last column showing the p-value of the means test for any differences across colleges. Each session lasted an average of 36 minutes (ranging from 15 to 94 minutes), from start to finish. On average, the participants earned approximately PEN 13 in experimental winnings, including a PEN 5 show-up fee.

In terms of demographics, the typical participant is around 22 years old (with a similar age distribution across colleges), and 67% of participants are female, with a higher percentage of female participants in the UP sample, though this difference is not significant). Furthermore, participants generally pay an intermediate-level college tuition (3.6 on average on a 1-to-6 scale, with UP students being relatively more affluent), and they are enrolled in their fourth year at both universities. Regarding majors, nearly half of the UP participants major in Economics, compared to 31% of PUCP participants (and this difference is statistically significant). Together with Business Administration, Economics students make up 67% of the sample (48% in the PUCP sample and 78% in the UP sample).

An important point is that most of the UP students had participated in previous experiments, whereas only 25% of PUCP students had such experience, with the difference being statistically significant. In terms of pairings during the experiments, 51.4% of PUCP students and 58.7% of UP students were paired with someone of the same gender. This difference is not significant.

The next section of this table reports statistics for variables captured by Parts II to IV of the sessions (none of the differences across colleges is statistically significant). First,

[13] Initially, the sample size was similar by college, for a total of 324 subjects. However, after finding treatment effects in one subsample (PUCP) but not in the other sample (UP), we decided to increase the sample for the UP.

[14] It would be interesting to develop a conceptual framework that yields different outcomes based on key variables that could guide the empirical analysis. This extension goes beyond the scope of this paper.

Table 2 – Descriptive Statistics

	A. PUCP Sample				B. UP Sample				Mean
	Min	Mean	Max	S.D.	Min	Mean	Max	S.D.	Test[e]
Age (years)	18	21.93	30	2.370	18	22.11	39	3.556	0.588
Tuition scale[a]	1	3.021	6	1.426	1	3.982***	6	1.505	0.000
Semester in college	1	7.639	13	2.820	1	7.362	13	2.870	0.346
Participated in previous experiments	0	0.250	1	0.435	0	0.772***	1	0.420	0.000
Woman	0	0.632	1	0.484	0	0.707	1	0.456	0.120
Paired person has the same gender	0	0.514	1	0.502	0	0.587	1	0.485	0.153
Experimental winnings (PEN)	9.32	12.58	15.44	1.829	9.09	12.74	15.54	1.779	0.415
Time in experiment (min)	14.50	38.03	93.6	12.35	14.70	35.41**	70.43	10.05	0.020
Major in Economics	0	0.312	1	0.465	0	0.496***	1	0.501	0.000
Rule following score	0	53.63	100	38.93	0	50.25	100	37.25	0.385
Risk aversion (σ)[b]	0.050	0.479	1.300	0.311	0.050	0.476	1.400	0.319	0.929
Loss aversion (λ)[b]	0.090	3.588	9.730	2.732	0.090	3.225	9.670	2.569	0.179
Envy (α)[c]	-0.69	-0.215	0.581	0.214	-0.65	-0.206	0.460	0.187	0.678
Guilt (β)[c]	-0.63	0.072	0.650	0.217	-0.47	0.055	0.647	0.181	0.385
Belief about others' honesty- Male[d]	0	46.03	100	29.83	0	46.12	100	30.59	0.978
Belief about others' honesty- Female[d]	0	54.18	100	30.73	0	55.08	100	30.78	0.775
	C. All Sample								
Age (years)	18	22.05	39	3.197					
Tuition scale[a]	1	3.652	6	1.546					
Semester in college	1	7.457	13	2.853					
Participated in previous experiments	0	0.593	1	0.492					
Woman	0	0.681	1	0.467					
Paired person has the same gender	0	0.562	1	0.497					
Experimental winnings (PEN)	9.09	12.68	15.54	1.796					
Time in experiment (min)	14.50	36.31	93.60	10.95					
Major in Economics	0	0.433	1	0.496					
Rule following score	0	51.41	100	37.82					
Risk aversion (σ)[b]	0.050	0.477	1.400	0.315					
Loss aversion (λ)[b]	0.090	3.350	9.730	2.629					
Envy (α)[c]	-0.69	-0.209	0.581	0.196					
Guilt (β)[c]	-0.63	0.060	0.650	0.194					
Belief about others' honesty- Male[d]	0	46.09	100	30.30					
Belief about others' honesty- Female[d]	0	54.77	100	30.73					

Notes: [a] A scale of 1 denotes the highest tuition, while a scale of 6 denotes the lowest. [b] Risk and loss aversion parameters come from the Tanaka et al., 2010's task. [c] Envy and guilt parameters come from the Diaz et al. (2021)'s task. [d] The questions ask for the belief that a male (female) participant lied in the same session of the experiment. [e] Mean test for the equality of coefficients across colleges (p-value of a two-sided test): * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

regarding rule-following, on average, participants tend to follow rules slightly more than not (51.4% of balls were placed in the blue bucket), with statistically similar proportions in both colleges. Second, for the risk and loss aversion parameters, participants in both samples show similar moderate levels of risk aversion (σ = 0.47) and loss aversion (λ = 3.2 to 3.6). Third, for the guilt and envy parameters, across both samples, participants are generally unwilling to sacrifice their own payment to reduce advantageous inequity ($\beta = 0.06 < 1$), and satisfaction increases as participants move away from equality in the case of envy ($\alpha = -0.21 < 0$), but not in the case of guilt ($\beta = 0.06 > 0$).

The last set of correlates includes beliefs about whether other male and female participants in the same session of the experiment truthfully revealed the groups they were assigned to. These questions were asked after participants made their decisions in Part I. As shown at the bottom of the table, our participants believe that women will report truthfully more often than men will do (55% versus 46%) (the respective means tests have p-values < 0.0006). In either case, a non-negligible share of participants believe that other subjects, both male and female, lied during the experiment (and such beliefs are similar across colleges).

We also aimed to compare statistics between groups assigned to the different treatments. As shown in Table A1, the degree of lying is the highest in time pressure and the lowest in information treatment, although only comparing the two extreme cases yields a statistically significant difference.[15] Moreover, none of the individual characteristics (gender, age, semester in college, tuition scale[16]) show significant differences by treatment. As we will demonstrate in Section 4, this correlational analysis does not necessarily align with the results from the regression analysis, particularly in terms of treatment effects by gender. Regarding the correlates of lying we examine (rule following, envy, guilt, risk aversion, loss aversion, beliefs about other participants' honesty), the table shows that none of them showed significant differences between pairs of treatments. In particular, in the case of beliefs, prior beliefs (those coming from time treatments) about the others' honesty look smaller than posterior beliefs (those coming from information treatment), although the differences are not statistically significant.

4 Estimation Results

We report the results of the estimation of equation (1), which examines the effect of the *Time Delay* treatment and the *Information* treatment (with *Time Pressure* as the base treatment) on the behavior of the participants (whether they lie or not) for the entire sample in Table 3. As shown in column 1, only the coefficient for the *Time Delay* is significantly different from zero. This effect remains significant when we add individual characteristics (column 2), inequity aversion, risk aversion, loss aversion, and our rule-following indicator (column 3), but it slightly decreases when we include participants' beliefs about the behavior of other participants (male and female) (column 4). In column 5, we further add college tuition (as a proxy for students' socioeconomic status), and in column 6, we include fixed effects for the sessions.

[15]One way to rationalize the lower extent of lying in the information treatment is that participants expected more lying in others than they actually saw. This may also explain why their posterior beliefs about the lies of others are smaller.

[16]We do not report results for tuition and semester, but no significant difference in main estimates was found across treatments.

Table 3 – Treatment Effects: Lying

	(1)	(2)	(3)	(4)	(5)	(6)
Time Delay Treatment[a]	-0.033***	-0.032***	-0.021**	-0.018*	-0.019**	-0.019*
	(0.011)	(0.011)	(0.009)	(0.010)	(0.010)	(0.010)
Information Treatment[a]	-0.055	-0.054	-0.056	-0.036	-0.039	-0.036
	(0.080)	(0.080)	(0.082)	(0.085)	(0.084)	(0.085)
Woman		-0.017	-0.001	0.003	0.006	-0.007
		(0.019)	(0.020)	(0.019)	(0.020)	(0.019)
Age (years)		-0.006**	-0.005*	-0.004	-0.005*	-0.002
		(0.003)	(0.003)	(0.002)	(0.003)	(0.004)
Student from UP		-0.000	-0.007	-0.004	0.013	0.195***
		(0.008)	(0.010)	(0.010)	(0.008)	(0.051)
Paired person has the same gender		-0.030	-0.031	-0.018	-0.016	-0.004
		(0.021)	(0.022)	(0.017)	(0.017)	(0.019)
Rule following score[b]			-0.003***	-0.002***	-0.002***	-0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Inequity aversion: Envy (α)[c]			-0.035	-0.030	-0.031	-0.051**
			(0.025)	(0.025)	(0.025)	(0.024)
Inequity aversion: Guilt (β)[c]			0.124***	0.086***	0.085***	0.068**
			(0.031)	(0.030)	(0.030)	(0.032)
Risk aversion (σ)[d]			-0.089***	-0.069***	-0.069***	-0.084***
			(0.016)	(0.016)	(0.016)	(0.015)
Loss aversion (λ)[d]			0.008***	0.010***	0.010***	0.009***
			(0.003)	(0.003)	(0.003)	(0.003)
Belief about others' honesty- Male[e]				-0.003***	-0.002***	-0.002***
				(0.000)	(0.000)	(0.000)
Belief about others' honesty- Female[e]				-0.002***	-0.002***	-0.002***
				(0.000)	(0.000)	(0.000)
Constant	0.568***	0.739***	0.827***	0.962***	1.033***	0.895***
	(0.087)	(0.066)	(0.069)	(0.061)	(0.074)	(0.110)
Socieconomic Status[f]	No	No	No	No	Yes	Yes
Session Fixed Effects	No	No	No	No	No	Yes
R^2 (Overall)	0.002	0.004	0.054	0.100	0.102	0.142
Observations	2520	2520	2502	2502	2502	2502

Notes: [a] The omitted treatment is *Time Pressure*. [b] Number of balls placed in the blue bucket. [c] *Envy* and *Guilt* parameters come from estimations explained in footnotes 8 and 9. [d] These parameters are calculated from choices in a series of binary lottery choices, as in Tanaka et al. (2010). See Appendix B.4. [e] These variables capture the beliefs about the likelihood that a male/female participant in the session will truthfully report the group they were assigned to. See Appendix B.5. [f] We included the college tuition. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Although we focus our discussion on the specification in column 6 (since it includes all of our variables of interest along with several sensible controls), we note that the significance of most variables remain unaltered across specifications. We will refer to the other specifications as needed. Focusing on column 6, we find that the likelihood of choosing to lie is influenced by the stringency of the time constraint, but not by the provision of information about peers' behavior. In other words, subjects are more likely to be honest when they have more time (which contrasts with some previous studies, such as Capraro et al. (2019)). As we shall discuss later, this relatively small average negative effect is driven by counteracting effects by college.

Next, we examine the correlates of lying, beginning with the propensity to follow rules. It is reasonable to expect a negative correlation between rule-following (RF) and honesty, assuming that the Kimbrough and Vostroknutov (2018)'s instrument captures some form of social norm (previous studies find that RF is negatively correlated with lying in a roll-die task: Gross and De Dreu (2021). This appears to be the case in our sample, as shown in columns 3 to 6, where the magnitude and significance of the coefficient remain largely unchanged.

Regarding the relationship between inequity aversion and honesty, recall that subjects are unwilling to discard their own payment to reduce advantageous inequality (the guilt parameter is positive), while they tend to feel more satisfied when there is more disadvantageous inequality (the envy parameter is negative). Therefore, it is not surprising to find that participants who are less willing to redistribute money to create a more equal distribution are also more likely to lie.

Moreover, since the decisions in the deception game were made repeatedly, it is plausible that risk aversion plays a role[17]. Furthermore, loss aversion could be correlated with lying, as people may be willing to lie to avoid a low payoff (as suggested by Garbarino et al. (2019)). We find that both risk and loss aversion are correlated with lying: while more risk-averse subjects lie less, more loss-averse participants lie more, with the effect of risk aversion being stronger. It would be interesting to explore to what extent risk and loss aversion may influence decisions related to academic honesty, a topic we leave for future research.

We further examine whether an individual's behavior is correlated with their beliefs about other participants' behavior. If there is a positive correlation with lying, this could reinforce undesirable behavior within a group. Conversely, if participants disapprove of lying, they may behave differently. In our sample, we observe that a stronger belief in the honest behavior of others, whether male or female, is associated with a smaller propensity to lie. This suggests the absence of self-justifying behavior. However, while the coefficient estimates are statistically significant, their magnitude is very small, comparable to that of rule-following.

[17]Time preferences, which are omitted from this analysis, may also play a role.

We next examine potential heterogeneous treatment effects by gender by estimating equation (2). As previously mentioned, the coefficient ψ_3 measures the differential effect of the *Time Pressure* treatment by gender, while $(\psi_3 + \psi_4)$ and $(\psi_3 + \psi_5)$ capture the corresponding treatment effects of the *Time Delay* and *Information* treatments, respectively. The results, presented in Table 4, display only the relevant coefficients for brevity (using the same specifications as in Table 3). As shown in the table, there is a differential effect by gender for the *Time Pressure* Treatment, with women being more likely to lie than men (ψ_3 is significantly different from zero in all but the last specification). In contrast, women are significantly less likely to lie than men in the *Time Delay* treatment ($\psi_3 + \psi_4 < 0$), although this effect loses statistical significance in the second column. Additionally, women are as likely to lie as men in the *Information* treatment ($\psi_3 + \psi_4 = 0$). In summary, we generally do not observe significant differential effects by gender across treatments, with a few notable exceptions.

Before moving on to the next section, there are two issues regarding the time and information treatments we would like to address. First, one could argue that because the information treatment provided information about the choices made by others in previous rounds, while the other (time) treatments did not provide such information. Thus, we could only use the time treatments in our estimations (as in Capraro et al. (2019)). The results, available upon request from the authors, indicate that subjects lie less (more) in the time delay (pressure) treatment. The coefficient estimates are similar to the ones reported in Table 3, except that the point estimates are larger and statistically different from zero at 5% starting in column 3. Second, we could use only the first row in the *Information* treatment, as well as all rounds in the *Time Delay* and *Time Pressure* treatments. The qualitative results, presented in Appendix Table A2, are similar to those reported in Table 3, except that the coefficient on the *Information* treatment is statistically significant at 1%. That is, both the *Time Delay* and the i*Information* treatments involve less lying than the *Time Pressure* treatment.

Table 4 – Heterogeneous Treatment Effects by Gender: Lying

	(1)	(2)	(3)	(4)	(5)	(6)
(ψ_1) Time Delay Treatment[a]	0.042**	0.034	0.035*	0.026	0.025	-0.004
	(0.020)	(0.021)	(0.019)	(0.019)	(0.019)	(0.022)
(ψ_2) Information Treatment[a]	-0.026	-0.026	-0.033	-0.007	-0.009	-0.031
	(0.076)	(0.076)	(0.080)	(0.084)	(0.083)	(0.083)
(ψ_3) Woman	0.024*	0.026*	0.035**	0.038**	0.041**	0.003
	(0.013)	(0.014)	(0.015)	(0.015)	(0.016)	(0.013)
(ψ_4) Time Delay × Woman	-0.107***	-0.096***	-0.082**	-0.065**	-0.066**	-0.022
	(0.035)	(0.036)	(0.033)	(0.033)	(0.033)	(0.037)
(ψ_5) Information × Woman	-0.044*	-0.044*	-0.036	-0.045*	-0.046*	-0.008
	(0.026)	(0.027)	(0.025)	(0.025)	(0.025)	(0.022)
(ψ_0) Constant	0.552***	0.702***	0.796***	0.935***	1.007***	0.883***
	(0.090)	(0.070)	(0.073)	(0.065)	(0.078)	(0.121)
Hypothesis testing:						
$\psi_3 + \psi_4 = 0$	-0.082**	-0.070	-0.046	-0.028	-0.025	-0.019
[p-value]	[0.034]	[0.102]	[0.267]	[0.506]	[0.559]	[0.639]
$\psi_3 + \psi_5 = 0$	-0.020	-0.018	-0.001	-0.007	-0.005	-0.005
[p-value]	[0.343]	[0.482]	[0.974]	[0.744]	[0.823]	[0.826]
Individual controls[b]	No	Yes	Yes	Yes	Yes	Yes
Inequity indicators, risk, rule following[c]	No	No	Yes	Yes	Yes	Yes
Belief about others' honesty[d]	No	No	No	Yes	Yes	Yes
Socioeconomic Status[e]	No	No	No	No	Yes	Yes
Session Fixed Effects	No	No	No	No	No	Yes
R^2 (Overall)	0.004	0.006	0.055	0.100	0.103	0.142
Observations	2520	2520	2502	2502	2502	2502

Notes: [a] The omitted treatment is *Time Pressure*. [b] Include age, an indicator for UP students, and another for being paired with person of same sex. [c] It includes *Envy* and *Guilt* parameters, risk and loss aversion, and number of balls placed in blue bucket. [d] Beliefs about the likelihood that a male/female participant in the session will truthfully report the group they were assigned to, explained in Appendix B.5. [e] We included the college tuition. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

4.1 Heterogeneity Analysis

One of our goals in using two samples from private colleges in Lima, was to examine potential differential effects by college.[18] As shown in column 6 of Table 3, the indicator

[18]In terms of the individual observable characteristics that are different between colleges, we have: tuition, share of students enrolled in Economics and Business Administration (which is related to a wider diversity of the students pool at PUCP), and experience

variable for students from Universidad del Pacífico (*UP*) is statistically significant. This result supports our estimation of equation 1, broken down by college, whith the results reported in Table 5 (for the PUCP sample) and Table 6 (UP sample). Again, we mainly focus on the specification in column 6. As indicated in these tables, while students from PUCP are more likely to lie when given more time to make their decisions (in the *Time Delay Treatment* vis-á-vis the *Time Pressure Treatment*), UP students are less likely to lie when they have more time.

From a broader perspective, this heterogeneity in treatment effects by college suggests that different dynamics within each university may be driving divergent behaviors. We initially thought this could be due to UP students having significantly more experience participating in experiments than PUCP students (see Table 3). This experience might have led them to behave more as payoff-maximizing subjects. However, including an indicator for prior participation in experiments does not change the observed treatment effects (results available upon request). Further splitting the sample (for example, by tuition: high and low) will result in relatively small number of observations. This additional analysis could be part of future research.

Regarding the correlates of lying, we find similarities and differences between colleges. On the one hand, rule-following (rule followers are less likely to lie) and beliefs about other participants' behavior in the deception game (if a participant strongly believes that others told the truth, she is is less likely to lie) are significant in both samples. However, risk aversion (risk-averse individuals lie less) and loss aversion (loss-averse individuals lie more) are only significant in the UP sample. The analysis of the reasons behind these differential effects goes beyond the scope of this paper but would certainly be an important area for future research.

participating in experiments. In all cases, the p-value for the null hypothesis of no difference between colleges is 0.000.

Table 5 – Treatment Effects: Lying - PUCP Sample

	(1)	(2)	(3)	(4)	(5)	(6)
Time Delay Treatment[a]	0.000	-0.007	0.012*	0.030***	0.026***	0.023**
	(0.012)	(0.008)	(0.007)	(0.007)	(0.008)	(0.009)
Information Treatment[a]	-0.031	-0.039	-0.072	-0.042	-0.051	-0.052
	(0.094)	(0.094)	(0.089)	(0.091)	(0.088)	(0.088)
Woman		-0.029	-0.038	-0.042	-0.037	-0.065**
		(0.032)	(0.033)	(0.032)	(0.033)	(0.032)
Age (years)		-0.011**	-0.007	-0.005	-0.007	-0.012*
		(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
Paired person has the same gender		-0.070*	-0.068*	-0.025	-0.023	0.003
		(0.041)	(0.040)	(0.035)	(0.036)	(0.040)
Rule following score[b]			-0.002***	-0.002***	-0.002***	-0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Inequity aversion: Envy (α)[c]			-0.162***	-0.175***	-0.165***	-0.093
			(0.061)	(0.059)	(0.061)	(0.063)
Inequity aversion: Guilt (β)[c]			0.209***	0.033	0.049	0.085
			(0.070)	(0.068)	(0.076)	(0.086)
Risk aversion (σ)[d]			-0.097***	-0.020	-0.025	-0.013
			(0.023)	(0.027)	(0.028)	(0.029)
Loss aversion (λ)[d]			-0.004	0.002	0.003	0.000
			(0.005)	(0.006)	(0.006)	(0.005)
Beliefs about others' honesty - Male[e]				-0.002***	-0.002***	-0.002***
				(0.001)	(0.001)	(0.001)
Beliefs about others' honesty - Female[e]				-0.003***	-0.003***	-0.002***
				(0.000)	(0.000)	(0.000)
Constant	0.552***	0.849***	0.913***	1.012***	1.105***	1.143***
	(0.090)	(0.086)	(0.087)	(0.077)	(0.102)	(0.106)
Socioeconomic Status[f]	No	No	No	No	Yes	Yes
Session Fixed Effects	No	No	No	No	No	Yes
R^2 (Overall)	0.000	0.009	0.062	0.115	0.118	0.130
Observations	864	864	864	864	864	864

Notes: [a] The omitted treatment is *Time Pressure*. [b] Number of balls placed in the blue bucket. [c] *Envy* and *Guilt* parameters come from estimations explained in footnotes 8 and 9. [d] These parameters are calculated from choices in a series of binary lottery choices, as in Tanaka et al. (2010). See Appendix B.4. [e] These variables capture the beliefs about the likelihood that a male/female participant in the session will truthfully report the group they were assigned to. See Appendix B.5. [f] It uses college tuition. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6 – Treatment Effects: Lying - UP Sample

	(1)	(2)	(3)	(4)	(5)	(6)
Time Delay Treatment[a]	-0.051***	-0.050***	-0.047***	-0.041***	-0.042***	-0.044***
	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)	(0.014)
Information Treatment[a]	-0.067	-0.066	-0.045	-0.030	-0.031	-0.030
	(0.074)	(0.074)	(0.079)	(0.082)	(0.082)	(0.082)
Woman		-0.009	0.017	0.028	0.030	0.035
		(0.021)	(0.019)	(0.019)	(0.020)	(0.022)
Age (years)		-0.005**	-0.004*	-0.003	-0.003	0.002
		(0.002)	(0.002)	(0.002)	(0.003)	(0.004)
Paired person has the same gender		-0.008	-0.010	-0.009	-0.007	-0.004
		(0.010)	(0.013)	(0.013)	(0.013)	(0.017)
Rule following score[b]			-0.003***	-0.003***	-0.002***	-0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Inequity aversion: Envy (α)[c]			0.030	0.053	0.048	-0.027
			(0.041)	(0.042)	(0.041)	(0.039)
Inequity aversion: Guilt (β)[c]			0.042	0.062	0.054	0.012
			(0.061)	(0.062)	(0.062)	(0.074)
Risk aversion (σ)[d]			-0.079**	-0.080**	-0.079**	-0.108***
			(0.032)	(0.033)	(0.033)	(0.030)
Loss aversion (λ)[d]			0.016***	0.015***	0.014***	0.015***
			(0.003)	(0.002)	(0.002)	(0.003)
Beliefs about others' honesty - Male[e]				-0.003***	-0.003***	-0.002***
				(0.000)	(0.000)	(0.000)
Beliefs about others' honesty - Female[e]				-0.001**	-0.001**	-0.001***
				(0.000)	(0.000)	(0.000)
Constant	0.576***	0.701***	0.787***	0.914***	0.984***	0.965***
	(0.086)	(0.071)	(0.073)	(0.070)	(0.100)	(0.122)
Socioeconomic Status[f]	No	No	No	No	Yes	Yes
Session Fixed Effects	No	No	No	No	No	Yes
R^2 (Overall)	0.003	0.004	0.061	0.101	0.103	0.152
Observations	1656	1656	1638	1638	1638	1638

Notes: [a] The omitted treatment is *Time Pressure*. [b] Number of balls placed in the blue bucket. [c] *Envy* and *Guilt* parameters come from estimations explained in footnotes 8 and 9. [d] These parameters are calculated from choices in a series of binary lottery choices, as in Tanaka et al. (2010). See Appendix B.4. [e] These variables capture the beliefs about the likelihood that a male/female participant in the session will truthfully report the group they were assigned to. See Appendix B.5. [f] We used college tuition. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In the final part of our empirical analysis, we examine the heterogeneous treatment effects by gender between colleges. As shown in Appendix Table A3, in addition to the differential effect by gender from the *Time Pressure* treatment (α_3 being different from zero, indicates that female participants lie more than males in that treatment), we observe stronger effects, but in the opposite direction, from the *Time Delay* treatment ($(\alpha_3 + \alpha_4)$ is significantly negative) for the PUCP sample (see Panel A).

Surprisingly, the null effect we observed from the *Information* treatment ($(\psi_3 + \psi_5)$ is not significantly different from zero) for the entire sample (in Table 4) is actually composed of a negative effect for the PUCP sample (Panel A: Women are less likely to lie than men in the *Information* treatment) and a positive effect for the UP sample (Panel B: Women are more likely to lie in the *Information* treatment). These effects cancel each other out. Had we not examined the results across universities, we would not have uncovered this finding.

5 Concluding Remarks

We study honesty using a deception game and examine the effect of three treatments: time pressure, time delay, and information about the decisions of other participants in the session. Using a sample of students from two private colleges in Peru, we find that when people make decisions that could yield a monetary reward, they lie less when they have more time (and lie more under time pressure). However, this result is not uniform between colleges, suggesting that different dynamics are at play within each college. This variation is not due to differences in the extent of participation in lab experiments between samples. Understanding the underlying mechanisms behind these differentiated results is beyond the scope of this paper, but it would certainly be worth pursuing in future research.

Moreover, the fact that the information treatment does not have a different effect from that of the time pressure treatment (or the time delay treatment) suggests that providing information about the choices made by other participants in the same treatment and previous rounds was not more salient than the time treatments received by other participants. This does not imply that such information is irrelevant to the decision to lie (or not), as we find that beliefs about another participant's honesty are always negatively correlated with one's own decision to lie. Thus, we observe peer effects in honesty, but they do not lead to differential treatment effects.

Furthermore, while it is insightful to find that several individual characteristics are correlated with honesty (e.g., the propensity to follow rules, risk aversion, loss aversion, inequity aversion, and beliefs about others' honesty), the challenge lies in incorporating these findings-particularly those that are robust across different games and contexts-into a conceptual framework that can guide interventions to reduce dishonesty. This is also related to our finding that only the time pressure treatment has a differential effect by gender (although we observe heterogeneity across colleges).

Several other issues could be explored further. First, the role of higher stakes: it remains to be seen how much higher stakes can influence the results. Second, and closely related to the previous point, one could examine the extent to which experimental results translate into real-life behavior. While this is much harder to do, it is an aspiration worth pursuing, especially for those aiming to reduce dishonesty in practical contexts.

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A Tables

Table A1 – Difference in Means by Treatment

Variable	Means by Treatment			Difference in Means[a]			
	T. Pressure (T1)	T. Delay (T2)	Information (T3)		T1-T2	T1-T3	T2-T3
Behavior (Lying)	0.568	0.535	0.513	Difference	0.033	0.055**	0.021
				P-value	0.170	0.024	0.380
Age (years)	22.121	21.993	22.029	Difference	0.129	0.093	-0.036
				P-value	0.732	0.811	0.926
Women	0.636	0.721	0.686	Difference	-0.086	-0.050	0.036
				P-value	0.126	0.379	0.515
Paired with person of same sex	0.529	0.543	0.614	Difference	-0.014	-0.086	-0.071
				P-value	0.811	0.148	0.228
Rule following score[b]	49.457	55.007	49.771	Difference	-5.550	-0.314	5.236
				P-value	0.220	0.944	0.257
Inequity aversion: Envy (α)[c]	-0.189	-0.213	-0.225	Difference	0.024	0.036	0.012
				P-value	0.288	0.119	0.630
Inequity aversion: Guilt (β)[c]	0.049	0.071	0.061	Difference	-0.021	-0.012	0.009
				P-value	0.366	0.604	0.692
Risk Aversion (σ)[d]	0.448	0.491	0.493	Difference	-0.043	-0.044	-0.001
				P-value	0.268	0.243	0.969
Loss Aversion (λ)[d]	3.224	3.573	3.251	Difference	-0.349	-0.027	0.321
				P-value	0.269	0.931	0.311
Belief about others' honesty -Male[e]	44.343	45.757	48.171	Diference	-1.414	-3.829	-2.414
				P-value	0.708	0.284	0.495
Belief about others' honesty -Female[e]	53.157	52.643	58.521	Difference	0.514	-5.364	-5.879
				P-value	0.892	0.140	0.103

Note: [a] P-values for two-tail tests are reported.[b] Number of balls placed in the blue bucket. [c] *Envy* and *Guilt* parameters come from estimations explained in footnotes 8 and 9. [d] The risk and loss aversion parameters are calculated from choices in a series of binary lottery choices, as in Tanaka et al. (2010). See Appendix B.4 [e] These variables capture the beliefs about the likelihood that a male/female participant in the session will report truthfully the group they were assigned to. See Appendix B.5. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A2 – Treatment Effects: Lying (time treatments and 1st round of information treatment)

	(1)	(2)	(3)	(4)	(5)	(6)
Time Delay Treatment[a]	-0.033***	-0.033***	-0.023**	-0.020**	-0.022**	-0.024**
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)
Information Treatment[a]	-0.036***	-0.040***	-0.046***	-0.023***	-0.027***	-0.022***
	(0.005)	(0.005)	(0.004)	(0.007)	(0.006)	(0.006)
Woman		-0.018	0.000	0.010	0.014	0.018
		(0.021)	(0.021)	(0.022)	(0.023)	(0.025)
Age (years)		-0.011***	-0.008***	-0.006**	-0.006**	-0.003
		(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Student from UP		0.006	-0.017**	-0.011	0.006	0.192***
		(0.009)	(0.008)	(0.008)	(0.008)	(0.064)
Paired person has the same gender		-0.028	-0.027	-0.014	-0.010	-0.007
		(0.023)	(0.020)	(0.018)	(0.018)	(0.019)
Rule following score[b]			-0.002***	-0.002***	-0.002***	-0.002***
			(0.000)	(0.000)	(0.000)	(0.000)
Inequity aversion: Envy (α)[c]			-0.013	-0.005	-0.005	0.007
			(0.032)	(0.034)	(0.034)	(0.040)
Inequity aversion: Guilt (σ)[c]			0.072*	0.039	0.039	0.019
			(0.038)	(0.037)	(0.037)	(0.036)
Risk aversion (σ)[d]			-0.065***	-0.044***	-0.046***	-0.065***
			(0.018)	(0.017)	(0.018)	(0.019)
Loss aversion (λ)[d]			0.011***	0.012***	0.013***	0.016***
			(0.004)	(0.004)	(0.004)	(0.005)
Beliefs about others' honesty - Male [e]				-0.003***	-0.003***	-0.002***
				(0.001)	(0.001)	(0.001)
Beliefs about others' honesty - Female [e]				-0.002***	-0.002***	-0.002***
				(0.000)	(0.000)	(0.000)
Constant	0.568***	0.824***	0.886***	0.992***	1.056***	0.878***
	(0.087)	(0.069)	(0.071)	(0.066)	(0.081)	(0.116)
Socioeconomic Status [f]	No	No	No	No	Yes	Yes
Session Fixed Effects	No	No	No	No	No	Yes
$R^2(Overall))$	0.003	0.007	0.047	0.102	0.104	0.149
Observations	1820	1820	1817	1817	1817	1817

Notes: [a] The omitted treatment is *Time Pressure*. [b] Number of balls placed in the blue bucket. [c] *Envy* and *Guilt* parameters come from estimations explained in footnotes 8 and 9. [d] These parameters are calculated from choices in a series of binary lottery choices, as in Tanaka et al. (2010). See Appendix B.4. [e] These variables capture the beliefs about the likelihood that a male/female participant in the session will truthfully report the group they were assigned to. See Appendix B.5. [f] We used college tuition. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A3 – Heterogeneous Treatment Effects by Gender: Lying Across Colleges

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. PUCP Sample					
(ψ_1) Time Delay Treatment[a]	0.197***	0.177***	0.214***	0.154***	0.142***	0.124***
	(0.049)	(0.047)	(0.046)	(0.041)	(0.040)	(0.042)
(ψ_2) Information Treatment[a]	0.060	0.056	0.038	0.048	0.036	0.031
	(0.096)	(0.096)	(0.092)	(0.095)	(0.092)	(0.095)
(ψ_3) Woman	0.096***	0.108***	0.113***	0.066**	0.064**	0.029
	(0.028)	(0.031)	(0.031)	(0.029)	(0.029)	(0.027)
(ψ_4) Time Delay × Woman	-0.299***	-0.278***	-0.305***	-0.191***	-0.178***	-0.154**
	(0.071)	(0.069)	(0.067)	(0.060)	(0.059)	(0.060)
(ψ_5) Information × Woman	-0.146***	-0.146***	-0.167***	-0.144***	-0.137***	-0.130***
	(0.027)	(0.027)	(0.028)	(0.027)	(0.030)	(0.036)
(ψ_0) Constant	0.490***	0.668***	0.725***	0.886***	0.974***	1.002***
	(0.104)	(0.107)	(0.109)	(0.088)	(0.112)	(0.128)
Hypothesis testing:						
$\psi_3 + \psi_4 = 0$	-0.203***	-0.170***	-0.193***	-0.125**	-0.114**	-0.125**
[p-value]	[0.000]	[0.002]	[0.000]	[0.011]	[0.023]	[0.015]
$\psi_3 + \psi_5 = 0$	-0.050	-0.038	-0.054	-0.078*	-0.073	-0.100**
[p-value]	[0.204]	[0.415]	[0.266]	[0.084]	[0.118]	[0.021]
R^2 (Overall)	0.017	0.020	0.076	0.121	0.123	0.146
Observations	864	864	864	864	864	864
	Panel B. UP Sample					
(ψ_1) Time Delay Treatment[a]	-0.054**	-0.056**	-0.075***	-0.060***	-0.057***	-0.101***
	(0.024)	(0.025)	(0.024)	(0.022)	(0.020)	(0.028)
(ψ_2) Information Treatment[a]	-0.076	-0.072	-0.048	-0.041	-0.039	-0.075
	(0.066)	(0.067)	(0.077)	(0.082)	(0.083)	(0.078)
(ψ_3) Woman	-0.011	-0.014	0.003	0.014	0.020	-0.010
	(0.023)	(0.022)	(0.022)	(0.022)	(0.024)	(0.020)
(ψ_4) Time Delay× Woman	0.007	0.009	0.038	0.028	0.022	0.084**
	(0.029)	(0.031)	(0.030)	(0.030)	(0.027)	(0.034)
(ψ_5) Information× Woman	0.014	0.009	0.007	0.018	0.012	0.068***
	(0.034)	(0.035)	(0.029)	(0.030)	(0.032)	(0.022)
(ψ_o) Constant	0.583***	0.705***	0.797***	0.922***	0.989***	0.988***
	(0.084)	(0.070)	(0.073)	(0.071)	(0.101)	(0.126)
Hypothesis testing:						
$\psi_3 + \psi_4 = 0$	-0.005	-0.005	0.041	0.042	0.042	0.073*
[p-value]	[0.907]	[0.902]	[0.331]	[0.326]	[0.326]	[0.095]
$\psi_3 + \psi_5 = 0$	0.003	-0.005	0.010	0.032**	0.031**	0.057***
[p-value]	[0.903]	[0.841]	[0.445]	[0.026]	[0.028]	[0.004]
R^2 (Overall)	0.003	0.004	0.062	0.102	0.103	0.153
Observations	1656	1656	1638	1638	1638	1638
Individual controls[b]	No	Yes	Yes	Yes	Yes	Yes
Inequity indicators, risk, rule following [c]	No	No	Yes	Yes	Yes	Yes
Belief about others' honesty[d]	No	No	No	Yes	Yes	Yes
Socioeconomic Status[e]	No	No	No	No	Yes	Yes
Session Fixed Effects	No	No	No	No	No	Yes

Notes: [a] The omitted treatment is *Time Pressure*. [b] It includes age and another for being paired with a person of the same gender.[c] Number of balls placed in the blue bucket. [d] It includes *envy* and *Guilt* parameters, risk and loss aversion, and beliefs about other participants' honesty, explained in Appendix B.5 (beliefs about the likelihood that a male/female participant in the session will truthfully report the group they were assigned to. [e] We use college tuition.
Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B Experimental Instructions (translated from Spanish)

For Parts I and II we asked multiple-choice questions to check if the participant understood all the instructions. To make sure that no participant started the games before knowing the instructions well, after three wrong attempts, the correct answer was shown. Part III involved a straightforward task, so no questions were asked, but some examples were provided. For the final part (Part IV) instead of questions, we also provided examples with a detailed explanation. For Parts I, II, and III, the exchange rate from points to Peruvian Soles (PEN) was 0.07 and for Part IV, the exchange rate from solex to PEN was 0.003. These figures were calibrated to pay an hourly rate of PEN 15-20, including the show-up fee.

B.1 Part I

In this part of the experiment, you will be assigned to one group, A or B. You will then be paired with a partner who belongs to the other group. For example, if you were assigned to group A, your partner will belong to group B; and vice versa. This person will be chosen at random and will be your partner for the 6 rounds of this part of the experiment. You will find out which group you were assigned to once you turn this page and the first round begins.

Later, you and your partner will be asked to indicate which group you were assigned to (A or B). The decisions both make will determine the payoff you will receive at the end of each round. Below is a matrix with the payoff you will receive, depending on the decisions you and your partner make.

		Partner	
		Chooses right group	Chooses contrary group
You	Chooses right group	(60 , 60)	(30 , 90)
	Chooses contrary group	(90 , 30)	(90 , 90)

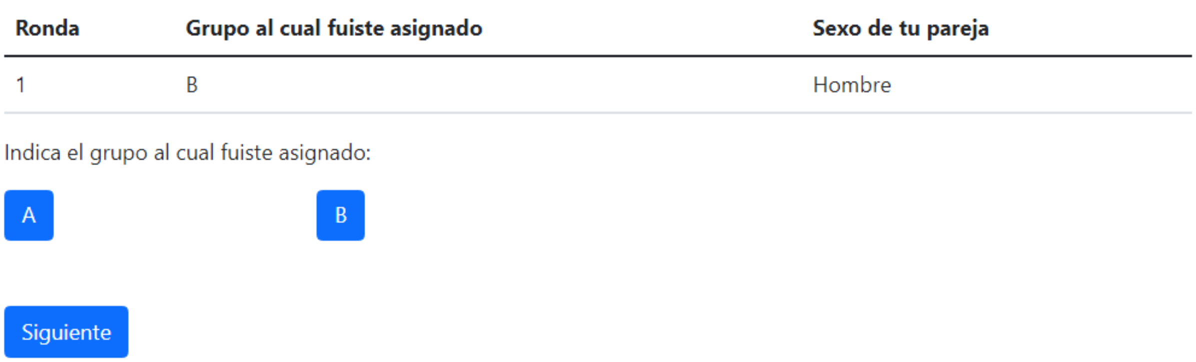
Thus, if you and your partner truthfully indicate the group you were assigned to, the payoff for both will be 60 points. On the other hand, if you indicate the opposite group and your partner does indicate which group she was assigned to, then you will receive a payment of 90 points while your partner will receive 30 points; and vice versa. Finally, if you and your partner indicate the wrong group to the one you were assigned to, each will receive 90 points.

Note: The final paragraph, shown below, from the instructions in this part changes, depending on the treatment assigned to each participant: *Information*, *Time Pressure* or *Time Delay*.

Information Treatment

In this case, you will have to indicate which group you were assigned to (A or B). This will be repeated for 6 rounds. Starting from the second round, before indicating your decision, you will be presented with a table with the decisions made by the participants in the previous round. For example, if you were in round 5, before making your decision, it will present you with a table with the decisions you and the other participants made in round 4.

The next screenshot displays what the participant sees at this point in the experiment. Notice that we also included information about the gender of the partner (this applies to all treatments).



After participants made their decisions, they were presented with a table with the decisions of all the participants in the same treatment. For example, in round 1, after the other participants have also made a decision, the FactBox showing all decisions would look like this:

Jugador	Grupo Asignado	Decisión
1	A	B
2	B	A
3	A	B
Usted	B	B

Siguiente

Time Pressure Treatment

In this case, you will have to indicate which group you were assigned to (A or B) within 30 seconds. The stopwatch will appear at the top of your screen. You may submit your decision before the time is up, if you wish. This will be repeated for 5 rounds.

Tiempo restante

24

Ronda	Grupo al cual fuiste asignado	Sexo de tu pareja
2	A	Mujer

Indica el grupo al cual fuiste asignado:

A B

Siguiente

Time Delay Treatment

In this case, you will have to indicate which group you were assigned to (A or B) within 10 seconds. The stopwatch will appear at the top of your screen. You will be able to submit your decision once 10 seconds have passed.


Tiempo restante

0

Ronda	Grupo al cual fuiste asignado	Sexo de tu pareja
1	A	Mujer

Indica el grupo al cual fuiste asignado:

A B

Ya pasaron los 10 segundos, por favor tome una decisión y dele click a "Siguiente"

Siguiente

The winnings en PEN from this part were determined by the profile chosen by both players in the round randomly drawn for pay.

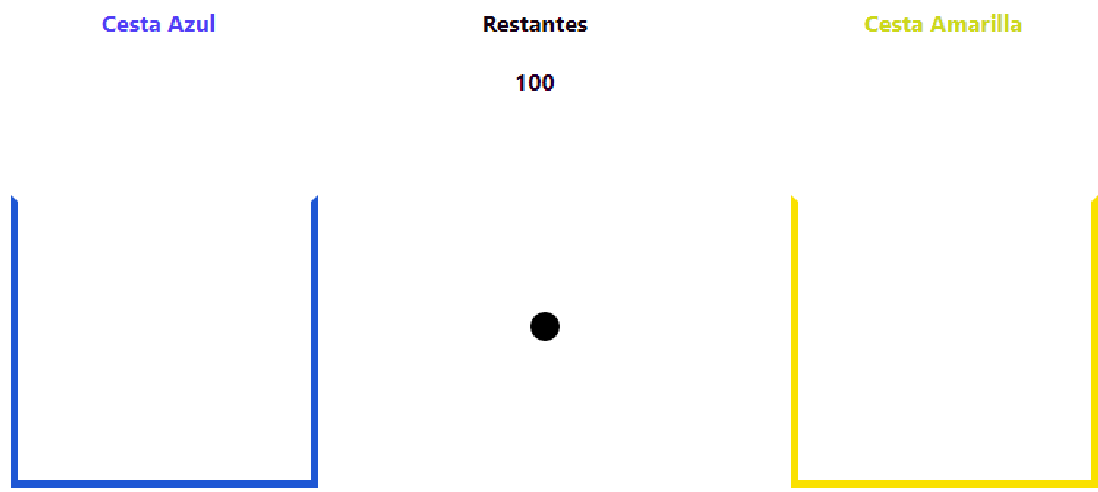
B.2 Part II

In this part, you will decide how to allocate 100 balls between two buckets. Your task is to place each of the balls, one by one, in one of the two buckets that appear on your screen. The ball will appear in the center of the screen and you will decide where to place it, by clicking and dragging it to the bucket of your choosing. For each ball you place in the blue bucket, you will receive 0.15 points, while for each ball you place in the yellow bucket, you will receive 0.30 points.

The rule is to put the balls in the blue bucket.

Your payoff for this part will be based solely on your decisions.

The picture below shows what the buckets and balls will look like. In the middle of the screen, there will appear a small ball; and once you place it into one of the buckets, another ball will appear in the middle, and so on, until you have placed the 100 balls.



B.3 Part III

This part of the experiment contains 21 rows with different ways splitting the money ("Points") between you and a partner, who will be chosen at random. Your task is to indicate your level of satisfaction with those different ways of distributing the money, on a seven-level Likert scale, where 1 represents "Extremely Dissatisfied" and 7 denotes "Extremely Satisfied".

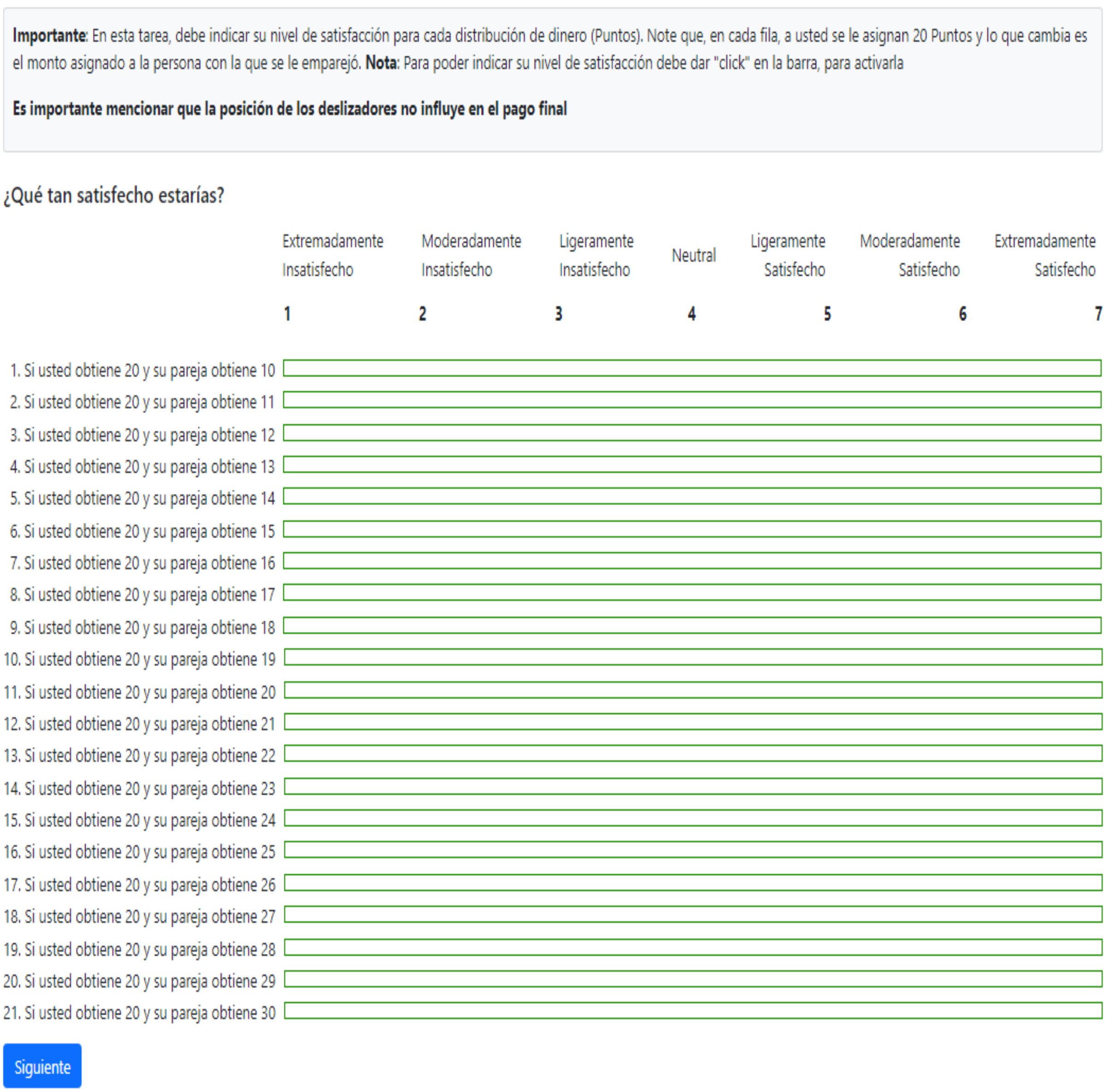
In each row, move the slider to the position that best represents your level of satisfaction with the corresponding distribution of points. There are no right or wrong answers. You can move the slider as many times as you like before pressing the "Submit" blue button.

Your payoff for this part will be determined as follows: one of the rows will be randomly chosen. After that, one of the amounts in the selected row will be chosen at random to determine your payoff and that of the person with whom you were matched. For example, if the first row were chosen at random, indicating "You get 20 points and the other person gets 10 points", you will be able to get 20 points or 10 points, with probability 50%, as will your partner. Thus, if you get 20 points, your partner will get 10 points; and vice versa. The final payoff is obtained by randomly choosing a row, from which the player will have a 50-50 chance to earn one of the two available payoffs.

Additional examples:

If row 11, which reads "You get 20 points and the other person gets 20 points", is randomly chosen, then both you and the person you were matched with will get 20 points. On the other hand, if row 21 is chosen, which reads: "You get 20 points and the other person gets 30 points", you could receive 20 or 30 points, each with 50% probability. If one of you gets 20 Points, the other one gets 30 Points.

It is important to mention that the position of the sliders does not influence the final payoff. The screenshot below shows the content the participant saw at this point of the session.



Importante: En esta tarea, debe indicar su nivel de satisfacción para cada distribución de dinero (Puntos). Note que, en cada fila, a usted se le asignan 20 Puntos y lo que cambia es el monto asignado a la persona con la que se le emparejó. **Nota**: Para poder indicar su nivel de satisfacción debe dar "click" en la barra, para activarla

Es importante mencionar que la posición de los deslizadores no influye en el pago final

¿Qué tan satisfecho estarías?

	Extremadamente Insatisfecho	Moderadamente Insatisfecho	Ligeramente Insatisfecho	Neutral	Ligeramente Satisfecho	Moderadamente Satisfecho	Extremadamente Satisfecho
	1	2	3	4	5	6	7
1. Si usted obtiene 20 y su pareja obtiene 10							
2. Si usted obtiene 20 y su pareja obtiene 11							
3. Si usted obtiene 20 y su pareja obtiene 12							
4. Si usted obtiene 20 y su pareja obtiene 13							
5. Si usted obtiene 20 y su pareja obtiene 14							
6. Si usted obtiene 20 y su pareja obtiene 15							
7. Si usted obtiene 20 y su pareja obtiene 16							
8. Si usted obtiene 20 y su pareja obtiene 17							
9. Si usted obtiene 20 y su pareja obtiene 18							
10. Si usted obtiene 20 y su pareja obtiene 19							
11. Si usted obtiene 20 y su pareja obtiene 20							
12. Si usted obtiene 20 y su pareja obtiene 21							
13. Si usted obtiene 20 y su pareja obtiene 22							
14. Si usted obtiene 20 y su pareja obtiene 23							
15. Si usted obtiene 20 y su pareja obtiene 24							
16. Si usted obtiene 20 y su pareja obtiene 25							
17. Si usted obtiene 20 y su pareja obtiene 26							
18. Si usted obtiene 20 y su pareja obtiene 27							
19. Si usted obtiene 20 y su pareja obtiene 28							
20. Si usted obtiene 20 y su pareja obtiene 29							
21. Si usted obtiene 20 y su pareja obtiene 30							

Siguiente

B.4 Part IV

In this part of the experiment, your winnings will depend on your decisions and chance. There are 3 sets of questions. The first and second have 14 questions each, and the third one has 7. This gives a total of 35 questions. In each question, you will choose between two plans, plan A and plan B.

In each series, you can choose plan A for any number of questions and plan B for the rest, you can choose plan A for all questions, or you can choose plan B for all questions. You will use a slider to make your choices easier.

Once you choose your preferred plan in all the questions, one of those questions (from 1 to 35) will be chosen at random and the plan you chose in that question will be implemented for your payment in PEN. If, for example, the number selected at random is 21, the plan you chose in question 21 will be implemented. Once we determine the question for which you will be paid, a number between 1 and 10 will be drawn, which will determine the payment for the plan chosen in the selected question.

The example shown below concerns Series 1, which has 14 questions. There are two plans, A and B, for each question. There are 10 balls numbered 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, which determine the payoffs for each plan. You must choose plan A or plan B for each question. Suppose that you choose plan A from question 1 to question 9, and plan B from question 10 to question 14. Then your answers will look as follows (notice the highlighted questions for plans A–questions 1 to 9 and B–questions 10 to 14):

Alternativa	Plan A		Plan B	
1	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	68 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
2	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	75 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
3	40 Solex | ①②③	10 solex | ④⑤⑥⑦⑧⑨⑩	83 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
4	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	93 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
5	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	106.5 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
6	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	125 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
7	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	150 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
8	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	185 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
9	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	220 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
10	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	300 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
11	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	400 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
12	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	600 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
13	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	1000 Solex ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩
14	40 Solex | ①②③	10 Solex | ④⑤⑥⑦⑧⑨⑩	1700 Solex | ①	5 Solex | ②③④⑤⑥⑦⑧⑨⑩

Importante: para poder mover el deslizador haga click sobre él

Mueva el deslizador para escoger el número de alternativas para el plan A y para el plan B

Escojo el plan A desde la alternativa 1 hasta la alternativa: **9** y Escojo el plan B desde la alternativa: **10**

Siguiente

The plans: Plan A and Plan B for Series 2 are similar to those for Series 1 and the task is the same.

Now, let us look at Series 3. In this series, you may lose money. Next screenshot shows the choices available in this task.

Pregunta	Plan A		Plan B	
29	25 Solex | ①②③④⑤	-4 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-21 solex | ⑥⑦⑧⑨⑩
30	4 Solex | ①②③④⑤	-4 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-21 Solex | ⑥⑦⑧⑨⑩
31	1 Solex | ①②③④⑤	-4 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-21 Solex | ⑥⑦⑧⑨⑩
32	1 Solex | ①②③④⑤	-4 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-16 Solex | ⑥⑦⑧⑨⑩
33	1 Solex | ①②③④⑤	-8 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-16 Solex | ⑥⑦⑧⑨⑩
34	1 Solex | ①②③④⑤	-8 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-14 Solex | ⑥⑦⑧⑨⑩
35	1 Solex | ①②③④⑤	-8 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-11 Solex | ⑥⑦⑧⑨⑩

The next example shows the case of question 29. There are two plans, plan A and plan B, for each question. There are 10 balls numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 that determine the payouts for each plan. You must choose plan A or plan B for each question.

Pregunta	Plan A		Plan B	
29	25 Solex | ①②③④⑤	-4 Solex | ⑥⑦⑧⑨⑩	30 Solex | ①②③④⑤	-21 Solex | ⑥⑦⑧⑨⑩

The computer will randomly select a value from 10 possible options: 1, 2, 3, ..., 9, 10.

Thus, if the number 1, 2, 3, 4 or 5 is randomly selected by the computer, those who chose plan A will receive 25 Solex, while those who chose plan B will receive 30 Solex.

On the other hand, if the number 6, 7, 8, 9 or 10 is randomly selected by the computer, those who chose plan A will lose 4 Solex and those who chose plan B will lose 21 Solex.

Losses will be subtracted from an initial endowment of 30 Solex (applicable only if you have losses).

B.5 Questions on Beliefs about other participants' honesty

After the experiment, participants were asked to answer questions about the probability that other participants reported their group truthfully:

- 1. How likely do you think is that a male participant in this session chose to truthfully report the group to which he was assigned?

- 2. How likely do you think is that a female participant in this session chose to truthfully report the group to which she was assigned?

For both questions indicate from 0 (extremely unlikely) to 100 (extremely likely) how likely you think the outcome is.