Interpersonal Comparisons and Risk Attitudes in the Field

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March 26, 2018

Abstract

We study the impact of interpersonal comparisons on risk attitudes in a field experiment. In our experiment, each decision maker (DM) is randomly paired with someone else in her neighborhood and makes a series of decisions that allow us to measure her risk attitudes under one of three conditions: In treatment 1, the DM's payoff is above the neighbor's payoff with certainty. In treatment 3, the DM's payoff is below the neighbor's payoff with certainty. In treatment 2, DM's payment is either above or below depending on her choices and the realized outcomes of the lotteries involved. The neighbor's payment is fixed within each treatment. We find that risk taking attitudes are affected by interpersonal comparisons. We argue these findings are consistent with simple extensions of the expected utility model to incorporate inequity aversion. In particular, we argue that DMs' reluctance to be in a disadvantageous position with respect to her neighbor induces her to exhibit higher risk aversion.

Keywords: Risk attitudes, other-Regarding preferences, social preferences, fairness

JEL Classification: D63, D81, D91.

Acknowledgements: We thank Oscar Rodriguez and Diego Tocre for outstanding research assistance.

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1 Introduction

The implicit assumption behind nearly all models of risk attitudes is that others' outcomes have no impact on the decision maker's risk taking behavior. Conversely, most models of social preferences (e.g. fairness and altruism) are formulated in risk-free environments. The study of how social preferences and risk attitudes interact has received substantial attention only in recent years (see Appendix A for a literature review). Our paper contributes to this new body of research.

We report on a field experiment designed to test whether others' outcomes affect own risk attitudes. In our experiment, each decision maker (henceforth, *DM*) is randomly and anonymously paired with someone else in their neighborhood and makes a series of decisions that reveal her own-risk attitudes in one of three conditions. In all treatments, the neighbor's payment (y) is fixed and the DM's payment (X) is uncertain. Treatment 1 has a low value for y such that the DM's payment is above the neighbor's with certainty. Treatment 3 has a high value for y such that the DM's payment is below the neighbor's with certainty. And treatment 2 assigns a medium value for y such that the DM's payment is either above or below depending on her choices and the realized outcomes of the lotteries involved. Coefficients of relative aversion were measured using a slightly modified version of Holt and Laury (2002) multiple price lists (MPL), where the only difference with respect to a standard MPL was precisely that the DMs in our experiment were informed about their neighbor's fixed payoff y. Subjects were randomly assigned to one of the treatments electronically right before DMs started the decision tasks. To our knowledge, ours is the first field evidence on the impact of interpersonal comparisons on risk attitudes.

We find risk taking behavior differs across treatment groups, suggesting risk taking behavior does change with interpersonal comparisons. Subjects in treatment 1 (y_{low}) display higher risk taking than those in treatment 2 (y_{med}). These differences are consistent with the predictions of simple expected-utility extensions of the models of inequality aversion. In particular, we conjecture that DMs' reluctance to be in a large disadvantageous position with respect to their neighbor induces them to exhibit higher risk aversion in treatment 2 relative to treatment 1.

The rest of the paper is organized as follows. Section 2 describes the experimental design. Section 3 presents our results. Section 4 provides a brief discussion. The (web) Appendix contains a review of the related literature, theoretical predictions and more detailed procedures and results.

2 Experiment

We use a modified MPL (Holt and Laury, 2002) to elicit risk preferences that are (potentially) altered by interpersonal comparisons. Our MPL consists of ten binary decisions between a safer lottery and a riskier lottery. In the first decision, the probability associated to receiving the high payoff of either lottery is 10%. In subsequent decisions, this probability increases by 10% until the higher payoff in either lottery is certain, in the last decision. All ten decisions are described in Table 1.

The difference between our MPL and the standard one is that the DM learns she has been randomly and anonymously paired with a person living in her neighborhood, who will receive a fixed payoff y if the DM is paid.

The DM chooses between a "safer" lottery A, $p(55, y) \oplus (1 - p)(115, y)$, and a "riskier" lottery B, $p(22, y) \oplus (1 - p)(190, y)$, where outcome (x, y) represents DM's and their neighbor's payoffs, respectively, and probability p varies across binary decisions, $p \in \{0.1, 0.2, ..., 1.0\}$.

Table 1: Decision Tasks Summary

Decision	Lottery A (Safer)		Lottery B (Riskier)		Exp. Val	CRRA
	Prob[x=55]	Prob[x=115]	Prob[x=22]	Prob[x=190]	Diff. ($)	
1	0.9	0.1	0.9	0.1	22.2	-0.99
2	0.8	0.2	0.8	0.2	11.4	-0.41
3	0.7	0.3	0.7	0.3	0.6	-0.02
4	0.6	0.4	0.6	0.4	-10.2	0.3
5	0.5	0.5	0.5	0.5	-21	0.58
6	0.4	0.6	0.4	0.6	-31.8	0.86
7	0.3	0.7	0.3	0.7	-42.6	1.17
8	0.2	0.8	0.2	0.8	-53.4	1.54
9	0.1	0.9	0.1	0.9	-64.2	2.08
10	0	1	0	1	-75	∞

The neighbor's payoffs, y, were exogenously varied to take a low, medium or high value (treatments 1, 2 and 3, respectively) relative to the DM's probable stakes. Specifically, in treatment 1, $y = 22$, in treatment 2, $y = 120$ and in treatment 3, $y = 190$. That is, the high and low values of the neighbor's payoffs, 22 PEN and 190 PEN, (treatments 1 and 3, respectively) correspond to the DM's high and low payoffs in the riskier lottery, respectively. The medium y payoff (120 PEN, treatment 2) is slightly higher than the DM's payoff in the safer lottery, but does not dominate the riskier lottery.[1] Treatments were implemented in a between-subject fashion.

The randomly selected neighbor is a person who passes the same filter as the interviewee and that lives three blocks west from the DM's house. The neighbor receives the amount y if her corresponding DM and the modified MPL task are randomly selected for payment. If chosen, the neighbor was visited and paid immediately after the DM was interviewed.

Theory Predictions

The underlying prediction behind the standard model is that risk attitudes and other regarding preferences are separable — i.e., they can be modeled as unrelated. The implied hypothesis of the standard model for our experiment would then be that the degree of risk attitude in treatments 1 through 3 should be the same. Contrastingly, a simple extension of the most prevalent inequality aversion model (Fehr and Schmidt, 1999) predicts higher risk aversion in treatment 2 compared to treatments 1 and 3.

To derive precise predictions, we extend the Fehr-Schmidt (FS) model to accommodate risky alternatives by simply assuming the independence axiom–i.e., by applying the expected utility (EU) theory to the FS utility.[2] Furthermore, we used a generalization of the FS utility previously used in Gaudeul (2013) and Lopez-Vargas (2015). We use:

$$U(L) = \mathbb{E}_L \left[v(x) - \alpha \cdot \min\{0, v(y) - v(x)\} - \beta \cdot \min\{0, v(x) - v(y)\} \right] \tag{1}$$

where $\alpha > \beta$ and $\beta < 1$, L denotes an arbitrary lottery over the (x, y) outcomes, and $v(.)$ is an strictly

[1] The average monthly wage for formal workers in Peru (the universe from which we drew our subjects), is around 1,500 PEN, making the high prizes used in this experiment nontrivial with respect to subject's monthly income.

[2] Equivalently, we can say we extend the EU framework by replacing a single-outcome Bernoulli function by a modified FS utility.

increasing function. This model yields two predictions with respect to our experiment:

1. The DM is equally risk averse in treatments 1 and 3.
2. The DM is more risk averse in the treatment 2 than in the other two.

These two predictions are formally stated and proved in proposition 1, shown in Appendix B. Put simply, these two propositions indicate inequality aversion exacerbates risk avoidance only for gambles where the high outcome is also socially advantageous and the low outcome is socially disadvantageous.

Sample and Procedures

With a team of eight surveyors, we interviewed 330 participants in the cities of Lima and Arequipa (Peru's largest metro areas) during September and October of 2017. Our sample was drawn from a sampling framework built specifically for this study. Participants were 20 to 50 years old, and were either employed or university students.

Instructions were given by the interviewers and on the screen. To maximize understanding of the rules of the game and to illustrate the incentive-compatibility of the payment procedure, subjects were given a set of practice decision tasks where they played with hypothetical money and candy. Surveyors were trained to answer questions following a well defined protocol. To avoid the feeling of being observed among decision makers, interviewers were instructed not to look at the interviewee choices after the trial rounds. As a participation fee, all participants were given a T-shirt, a soda and a pen.

We used iPad tablets to collect the data. The interface was developed for iOS, using the iOS SDK and distributed via TestFlight. The application included a survey to collect sociodemographic and job related information.

3 Results

We use the midpoint of the implied CRRA interval and the switching-point (the decision number where subjects chose the risky lottery for the first time) as measures of risk attitudes. We dropped from the analysis six (out of 330) subjects who exhibited multiple switching points (inconsistent behavior).

In table 2, we first show that DMs' characteristics were statistically equivalent across treatments.[3]

We then compare mean and median risk attitude to test treatment effects. The CRRA point estimates are 0.77, 1.17 and 1.03 for treatments 1, 2 and 3, respectively. Figure 3 shows the mean estimates of the implied CRRA midpoints per treatment.

We do not reject the null hypothesis that CRRAs are equal between treatments 1 and 3, given by prediction 1 (p-value, =0.311, two-sided Mann-Whitney test, N=206). We do reject the null that CRRAs are equal in treatments 1 and 2, in favor of $CRRA_2 > CRRA_1$, as stated in prediction 2 (p-value, =0.008, one-sided Mann-Whitney test, N=219). Finally, we reject the null that CRRAs are equal in treatments 2 and 3 against the alternative of $CRRA_2 > CRRA_3$, as given by prediction 2 only at a 10% level of significance (p-value, =0.094, one-sided Mann-Whitney test, N=223). Furthermore, this last result (T2 vs T3) is not robust to other statistical tests such as standard, two-sample t-test with different variances (see Appendix for detailed results). The other two results are robust to different testing methods.

[3]There is mild evidence of differences in age between treatment 1 and 2 that we address below.

Table 2: Treatment Balance in Sample

Characteristic	Treatments 1: $y = 22$	2: $y = 120$	3: $y = 190$	Two sided p-values (1 vs 2)	(1 vs 3)	(2 vs 3)
Male	0.41	0.42	0.52	0.854	0.12	0.153
Age	32.5	34.71	33.97	0.096	0.304	0.593
Higher education	0.77	0.78	0.72	0.8	0.38	0.242
Monthly wage	1180.68	1322.26	1461.06	0.416	0.245	0.51
Liquidity constraint	0.33	0.3	0.39	0.657	0.36	0.162
Optimism economic prosp.	0.89	0.86	0.82	0.538	0.18	0.436
Self-reported mixed race	0.55	0.56	0.63	0.879	0.266	0.317
Has private insurance	0.22	0.15	0.2	0.163	0.677	0.333

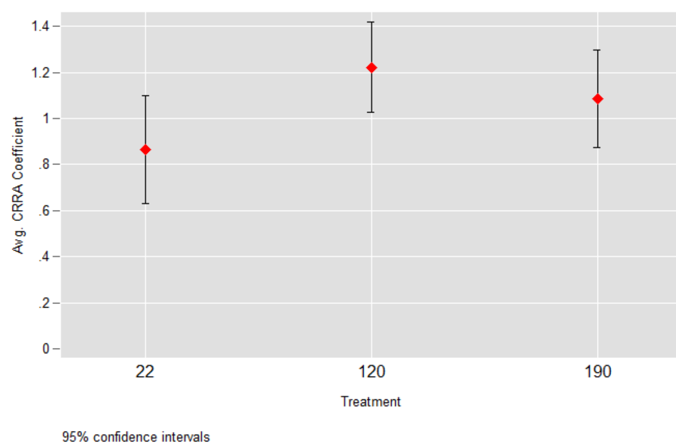

Figure 1: Estimated CRRA per treatment. Include 95% confidence intervals.

We also implement a regression analysis, partly to control for the fact that there is mild evidence of a difference in ages between treatments 1 and 2. We apply a random effects interval regression with the CRRA midpoint as the dependent variable. We include dummies for treatments 1 and 3 (i.e. we set treatment 2 as comparison group), and also gender and task order dummies, as well as age in years (see Appendix). Consistent with our Mann-Whitney tests, the dummy for treatment 1 remains statistically significant after controlling for age, gender and task order. However, in the regression results, treatments 2 and 3 are no longer statistically different at standard levels of significance (p=0.148).

Finally, it must be noted that our results are equivalent when similar analysis is applied to SPs, except that the regression analysis yields the difference between treatments 2 and 3 as significant, in favor of $CRRA_2 > CRRA_3$ (p-value=0.074).

4 Discussion

Our evidence suggests that risk attitudes are indeed affected by the variation in pairs' relative outcomes. This finding is consistent with the inequality aversion model: relative to treatment 1 ($y = 22$), in treatment 2 ($y = 120$) DMs avoided the risky lottery more often. That is, the same lottery in terms of own risks was less appealing when its probable outcomes lied both above and below their neighbor's (treatment 2) compared to when it was certainly above (treatment 1).

However, the evidence distinguishing risk attitudes between treatments 2 and 3 ($y = 120$ and $y = 190$, respectively) is not robust. We think this result is potentially driven by the fact that risk aversion in treatment 3 seems higher than in treatment 1. Indeed, there is mild evidence (point estimates and one-sided tests that are close to be significant) for this claim. Although this cannot be explained by our simple model, this pattern of risk attitudes could be explained by a models with different curvatures of $v(.)$ below and above the 45 degree line. In particular, a model where there is more curvature in the disadvantageous region than in the advantageous one. This is interesting because it seems to contradict the findings in the laboratory by (cite two). We leave this theoretical and empirical enterprise for future research.

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Appendices

A Related Literature

The interplay of choice under uncertainty and the regard for others has been an active research area in recent years. Before that, for the most part, risk attitudes were regarded as invariant or determined only by demographic characteristics (Dohmen et al. (2011), e.g.), and other-regarding preferences were mostly studied in risk-less environments (e.g. Camerer, 2003; Fehr and Schmidt, 2006; Meier, 2006).

In the last one or two decades, a number of studies have focused on how other-regarding behavior operates under uncertainty. Karni and Safra (2002) present a model of individual preferences over procedures that randomly allocate one indivisible item among N individuals. The decision maker in such a model has one fair self that cares about others getting chances to get the prize, and one egotistic self. The preferences in their model are capable of explaining ex ante fairness seeking behavior. Also on ex ante fairness, Borah (2013) presents a model with two components of utility: an individual's expected utility over social outcomes and an ex ante component that depends only on the risks faced by the other agent.

Most of the remaining theories of fairness or altruism in probabilistic environments assume people look at and compare expected outcomes. Bolton et al. (2005), for example, extend the ERC model (Bolton and Ockenfels, 2010) assuming, as in the original model, that people care about relative payoffs except these are replaced by relative expected values. Similarly, Trautmann (2009) extends Fehr and Schmidt (1999) to the uncertainty case by simply making the Fehr-Schmidt inequality discounts to depend on expected outcomes. Krawczyk and Le Lec (2010) propose a formulation that linearly combines an egoistic expected utility component and a fairness component that depends, in turn, on the (subjective) expected outcomes of the decider and the other agent.

Fudenberg and Levine (2012) introduce the Expected Inequality Aversion (EIA) model and Saito (2013) axiomatize it. In this model, decision utility takes the form of a linear combination between the utility of expected outcomes $u(Ex, Ey)$ and the expected utility $E[u(x, y)]$, where u(x, y) is the standard Fehr and Schmidt (1999) utility. This model has been used to organize experimental data in Brock et al. (2013) and Gaudeul (2013). Gaudeul (2013) replaces each outcome in the FS utility by a power function of the corresponding outcome. In that sense, this author's model is the closest to ours (see Appendix B for the full description of our simple model).

There has been a good deal of experimental research on these topics in recent years as well. A branch of this literature focuses on ex ante fairness. Krawczyk and Le Lec (2010) and Brock et al. (2013) both document evidence from probabilistic Dictator-Game decisions where subjects decide the chances of two fixed, mutually exclusive and undominated outcomes. In both papers, authors find sharing in chances (exhibiting ex ante fairness) to be a common behavior–at least one third of subjects assigned positive probabilities to unfavorable outcomes. None of these papers discuss in depth the role of risk attitudes in these situations. Cappelen et al. (2013) ask what are people's typical fairness views regarding risk-taking behavior. Fairness views are cleverly associated with whether or not an external observer redistributes post-uncertainty payoffs in a society where subjects can choose different degrees of risk. They find great heterogeneity in people's fairness views.

Another branch of the experimental literature focuses on attitudes towards risks over social outcomes. In this literature, a central question is whether individuals avoid risks with negative correlation (between their outcomes and others') more than risks with positive correlation. Adam et al. (2014) find that subjects are more risk averse when they are paired in a negatively correlated lottery than when they are in a positively correlated one. Gaudeul (2015) and Lopez-Vargas (2015) show evidence that supports preference for positively correlated payoffs over uncorrelated, and these over negatively correlated ones. Schwerter (2015) keeps the other's payoff fixed and finds that individuals tolerate more risk when the other's outcome is larger. The author argues that peer's earnings are regarded as the social reference point. Similarly, Gamba et al. (2017) finds that when a subject's assigned wage is less than her peer's, she takes more risks. Trautmann and Vieider (2012) discuss how others payoffs can operate as reference points. Linde and Sonnemans (2012) conduct a lab study where subjects choose between two lotteries while the peer faces a fixed payoff. They find that subjects are more risk averse when they are in a loss position than when they are in a gain situation, while risk aversion in a perfectly correlated treatment was between the latter two. In a sequential-decision experiment, Fafchamps et al. (2015) placed subjects into groups such that lottery outcomes were observable as they were made. Subjects' risk taking increases after they observe others receiving high realized payoffs. Interestingly, slightly earlier literature claimed there was no empirical link between fairness concerns and risk taking (e.g. Brennan et al. (2008) and Bolton and Ockenfels (2010)), or that own-risk attitudes were only marginally affected by others' risks or that people prefer risks to be independent across individuals in society rather than correlated (Rohde and Rohde (2011)). See (Lopez-Vargas, 2015) for a more detailed critique to this earlier experimental studies.

Finally, Karni et al. (2008) study empirically the predictions of Karni and Safra (2002). Chakravarty et al. (2011) find that individuals making decisions for an anonymous stranger exhibit less aversion towards risks faced by the stranger than towards own risks. Van Koten et al. (2013) study risk attitudes restricted to uncertain pie-sizes in bargaining games. Harrison et al. (2012) study how risk attitudes towards social outcomes vary with information regarding risk preferences of the other agent, finding that learning others' risk preferences makes individuals more risk averse.

B Predictions of the Fehr-Schmidt Model under Expected Utility

In this appendix, we detail the theoretical predictions for our experimental setup of the expected-utility extension of the Fehr-Schmidt model (Fehr and Schmidt, 1999), hereafter referred to as the FS model. Since the original FS model is piece-wise linear and implies non neutral risk attitudes only in regard of lotteries that involve both disadvantageous and advantageous outcomes, we actually derive predictions over a slightly more general version of the Fehr-Schmidt utility. Our more general FS utility, shown in equation 2, allows for curvature in both x and y dimensions and therefore accounts for non neutral risk attitudes. We assume the

$$u(x, y) = v(x) - \alpha \max\{0, v(y) - v(x)\} - \beta \max\{0, v(x) - v(y)\}, \tag{2}$$

where $v(.)$ is an increasing and concave function, and as in Fehr and Schmidt (1999) it is assumed that $0 \leq \beta \leq 1$ and $\beta \leq \alpha$. Extending FS utility with the EU theory means that the DM assesses any lottery L by the expectation of equation 2 given the lottery:

$$U(L) = \mathbb{E}_L[u(X, Y)] \tag{3}$$

Consider this lottery where the payoff of the other is fixed ($Y = y$), and only DM's payoff (X) is uncertain:

$$L(y) = p(\underline{x}, y) \oplus (1-p)(\bar{x}, y) \tag{4}$$

where outcome $(\underline{x}, y)$ occurs with probability p and outcome $(\bar{x}, y)$ occurs with probability $1-p$, $\bar{x} > \underline{x}$. We can define the *certainty equivalent* (a standard behavioral measure of risk attitudes) in a way that is indexed by the fixed other's payoff y too:

$$c(y) = \{c : u(c, y) = \mathbb{E}_{L(y)}[u(X, y)]\} \tag{5}$$

From this definition we can state the main prediction of this framework for our experimental setting. Namely, that inequality aversion implies that there is more risk aversion in treatment 2 relative to treatment 1 and 3.

Proposition 1. *If $y_{low} \leq \underline{x} < y_{med} < \bar{x} \leq y_{high}$, then, $c(y_{med}) < c(y_{low})$ and $c(y_{med}) < c(y_{high})$.*

Proof. First we prove that $c(y_{low}) = c(y_{high})$. To see this, notice $c(y_{high})$ satisfies this expression:

$$u(c(y_{high}), y_{high}) = \mathbb{E}u(X, y_{high}) \tag{6}$$

Replacing each side of this equation by their definitions, and using the fact that $y_{high} \leq \underline{x}$, we get:

$$(1+\alpha)v(c(y_{high})) - \alpha v(y_{high}) = \mathbb{E}[(1+\alpha)v(X) - \alpha v(y_{high})] \tag{7}$$

$$= (1+\alpha)\mathbb{E}v(X) - \alpha v(y_{high}) \tag{8}$$

Which simplifies to:

$$c(y_{high}) = v^{-1}\left(\mathbb{E}v(X)\right) \tag{9}$$

That is, $c(y_{high})$ does not depend on y_{high}.

Similarly, for $c(y_{low})$:

$$u(c(y_{low}), y_{low}) = \mathbb{E}u(X, y_{low}) \tag{10}$$

$$(1-\beta)v(c(y_{low})) + \beta v(y_{low}) = \mathbb{E}[(1-\beta)v(X) + \beta v(y_{low})] \tag{11}$$

$$= (1-\beta)\mathbb{E}v(X) + \beta v(y_{low}) \tag{12}$$

Implying:

$$c(y_{low}) = v^{-1}\left(\mathbb{E}v(X)\right) \tag{13}$$

Therefore, $c(y_{high}) = c(y_{low})$, as desired.

We now want to prove $c(y_{med}) < c(y_{high}) = c(y_{low})$. First, notice that by definition $c(y_{med})$

satisfies:

$$u(c(y_{med}), y) = U(L(y_{med})) \tag{14}$$
$$= p[(1+\alpha)v(\underline{x}) - \alpha v(y_{med})] + (1-p)[(1-\beta)v(\bar{x}) + \beta v(y_{med})] \tag{15}$$
$$= p(1+\alpha)v(\underline{x}) + (1-p)(1-\beta)v(\bar{x}) + [(1-p)\beta - p\alpha]v(y_{med}) \tag{16}$$

There are two cases (i) $c(y_{med}) < y_{med}$, and (ii) $c(y_{med}) \geq y_{med}$:

Case (i): In this case, equation 16 can be written as:

$$(1+\alpha)v(c(y_{med})) - \alpha v(y_{med}) = p(1+\alpha)v(\underline{x}) + (1-p)(1-\beta)v(\bar{x}) + [(1-p)\beta - p\alpha]v(y_{med}) \tag{17}$$
$$(1+\alpha)v(c(y_{med})) = p(1+\alpha)v(\underline{x}) + (1-p)(1-\beta)v(\bar{x}) + (1-p)(\alpha+\beta)v(y_{med}) \tag{18}$$
$$v(c(y_{med})) = pv(\underline{x}) + (1-p)\left[\frac{1-\beta}{1+\alpha}v(\bar{x}) + \frac{\alpha+\beta}{1+\alpha}v(y_{med})\right] \tag{19}$$

Since $v(.)$ is strictly increasing, we have that $v(y_{med}) < v(\bar{x})$, and, from this, it follows that:

$$\left[\frac{1-\beta}{1+\alpha}v(\bar{x}) + \frac{\alpha+\beta}{1+\alpha}v(y_{med})\right] < v(\bar{x}) \tag{20}$$

Therefore:

$$c(y_{med}) < c(y_{high}) \tag{21}$$

Case (ii): In this case, equation 16 can be written as:

$$(1-\beta)v(c(y_{med})) + \beta v(y_{med}) = p(1+\alpha)v(\underline{x}) + (1-p)(1-\beta)v(\bar{x}) + [(1-p)\beta - p\alpha]v(y_{med}) \tag{22}$$
$$(1-\beta)v(c(y_{med})) = p(1+\alpha)v(\underline{x}) + (1-p)(1-\beta)v(\bar{x}) - p(\alpha+\beta)v(y_{med}) \tag{23}$$
$$v(c(y_{med})) = p\left[\frac{1+\alpha}{1-\beta}v(\underline{x}) - \frac{\alpha+\beta}{1-\beta}v(y_{med})\right] + (1-p)v(\bar{x}) \tag{24}$$

Since $v(.)$ is strictly increasing, we have $v(\underline{x}) < v(y_{med})$. From this, it follows that:

$$\left[\frac{1+\alpha}{1-\beta}v(\underline{x}) - \frac{\alpha+\beta}{1-\beta}v(y_{med})\right] < v(\underline{x}) \tag{25}$$

Therefore:

$$c(y_{med}) < c(y_{high}) \tag{26}$$

□

C Detailed Sample and Procedures

Sample

Subjects were drawn from the subsample of formal workers and higher education students living in urban areas in Lima and Arequipa. Subjects from the Lima region were dispersed throughout 30 districts while those from Arequipa hailed from only 3 districts.

Interviewers

Our team consisted of eight interviewers with prior experience in field surveys and experiments. The training process focused on adhesion to a standardized protocol and practical knowledge for implementing the instrument minimizing potential biases. All interviewers used mobile devices (tablets) which where handed to subjects for the experimental decision-making. Intervention from interviewers was only allowed during the practice decision rounds (involving candy or hypothetical money). Interviewers were instructed not to interact with subjects during the MPLs that could be selected for monetary payment.

Interviews and Instructions

After selecting the subject, interviewers explained the tasks and handed out participation gifts (one pen, one note pad, a t-shirt, and a small soda). Interviewers proceeded to show subjects an institutional letter from GRADE guaranteeing due payments and a copy of a check used to make payments.

At the beginning of the interpersonal comparison task (this paper), the following instructions appeared on the mobile devices' display for subjects:

"You have been randomly paired with a neighbor from your same neighborhood for the following 10 decisions. This is a real person living at a home 3 blocks from your's (see map). This neighbor will also have the opportunity to receive a payment. Your payment will depend on your own decisions while your neighbor's will be fixed and displayed on each decision screen. If after you have made your 10 choices one of them is selected for payment, the neighbor you have been paired with will receive the corresponding amount. To make this payment, we will look for the randomly matched household and a neighbor that is home immediately after your interview is over. Neither your identity nor your neighbor's will be revealed. If you are chosen for payment and this task is selected, the virtual dice will choose one of these 10 decisions and you will be payed according to your choice. The payment corresponding to you and your neighbor will be made immediately, in cash, and in PEN."

The next text was read out loud while displaying the example task screen below in figure C.

"This is an example screen for the next 10 decisions. As you may appreciate, this screen is very similar to the ones you have seen in the practice decisions, but there is a difference. For these decisions, there will always be a payment for you and a payment for your neighbor (interviewer: signal payment text for interviewee and neighbor). For example, if you chose Jar A and a blue ball came out, you would receive 55 and your neighbor would receive (mention amount on screen). The payoffs for your neighbor are always the same. That is, the payment for your neighbor will not be affected by your choices nor randomness. How will your neighbor be chosen for pairing? First, her home was selected at random from a predetermined block three blocks from your home. Second, the person will be chosen in the same fashion you were chosen. That is, we will choose the person with the most recent birthday among those who are between 20 and 50 years old."

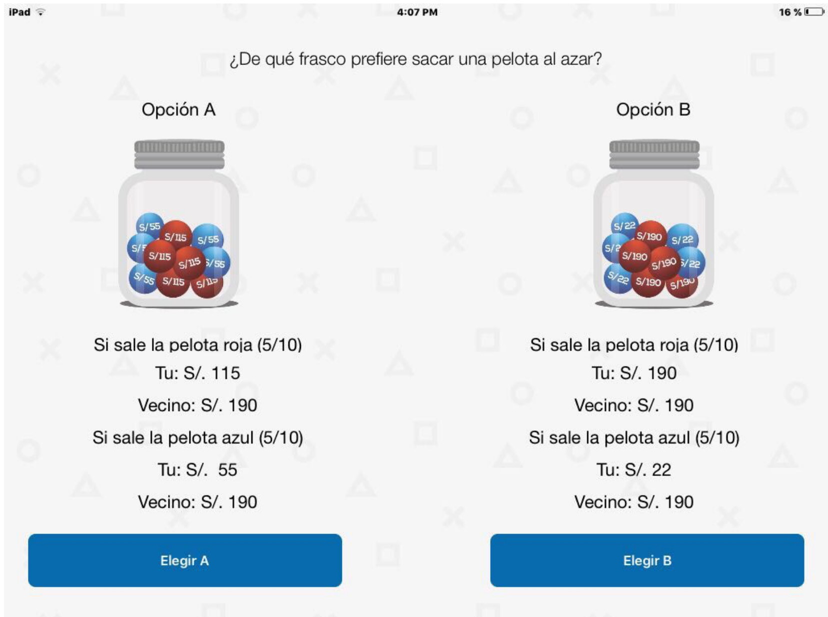

Figure 2: Sample Screen

Other parts of the interview and payment

All subjects had to complete seven tasks: three intertemporal choices and three risk MPLs, and one paired-MPLs (this paper). The time tasks always went first and the paired-MPL was randomly placed before or after the risk tasks to control for order effects.. Payments were assigned through a random lottery mechanism where each subject had a 10% chance of being paid for one choice in any MPL.