Social Innovation and Teamwork Within Organizations: Lab-in-the-Field Evidence on Recognition and Cooperation

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Abstract

This economic lab in the field experiment tests the effects of recognition on voluntary contributions to a public good at the onset of a behavioral intervention. Using a within-subjects design to look at the behavioral differences between no recognition, group and private recognition, three hundred employees of a large Colombian corporation participated in an online public goods game before the intervention. After the intervention, a new selected sample was part of the same design. Recognition has a sizable effect on contributions. The intervention improves the response to private recognition but, strikingly, it has a distributional effect on the cooperative response to the group recognition.

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1 Introduction

This study is the first economic experiment to study social innovation and cooperation within an organization. Prior evidence has shown the role of experiments as tools for measuring social preferences in business management. However, they have not been used as an instrument for impact evaluation of behavioral interventions despite their potential implications for the design of efficient and effective incentives to promote cooperation (WDR, 2015).

Social recognition is abundant and efficient (Akerlof, 1982; Frey, 2005). What others think, expect, and do influence our own preferences and decisions (WDR, 2015). Recognition creates a competitive environment, and provides contractually unenforceable material and non-material benefits even if there is no impact on employee's income or future career opportunities (Auriol & Renault, 2008; Besley & Ghatak, 2008; Dur, 2009; Ellingsen & Johannesson, 2007; Frey, 2007; Frey et al., 2009; Moldovanu et al., 2007).

Because it constitutes an incentive, it has major implications for optimal reward policies (Bradler et al., 2016; Kosfeld & Neckermann, 2011; Markham et al., 2002). However, there is no consensus on the effects of recognition on performance or prosocial behavior (Ariely et al., 2009; Ashraf, Bandiera, & Jack, 2014; Ashraf, Bandiera, & Lee, 2014; Charness et al., 2011; Markham et al., 2002). This is due in part to the difficulty of disentangling pure symbolic rewards from current and future material benefits, which is the aim of this paper. We investigate whether symbolic awards improve teamwork in the workplace, when status and social recognition alone are ruled out.

This study designs and implements an impact evaluation of a social innovation intervention on cooperation within an organization in Colombia. An on-line public goods game with two treatments (private and group recognition) before and after the intervention captures the impact of the intervention on the cooperative response to teamwork under recognition compared to no recognition. The measurement outcomes are unconditional and conditional cooperation and first order beliefs about other's behavior in the team. The social innovation intervention comprised a set of actions implemented between September 2016 and January 2017 to target the following: i) alignment of expectations, ii) leadership and iii) equality.

Economic experiments are a methodology that does not measure economic benefits, but gives prominence to non-economic motivations using a decision-driven economic incentive in a controlled environment. In addition, an economic experiment is a useful tool for measuring and evaluating impact since it captures individual and group preferences before and after the intervention [1].

The public goods experiment reflects the social dilemma, namely that the incentive to be opportunistic is greater than the incentive to contribute. Each experimental session included

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[1]Economic experiments are not hypothetical like qualitative tools such as surveys or focus group. They lead to monetary profits, which depend on the decisions of each participant (and of the other participants). This type of experiment provides the appropriate incentive to the participant so they deliberately make the decision that best suits them, thus reducing the social desirability bias.

three stages: in the first stage, every participant decided how much to contribute to the project; in the second stage, if a participant contributed the maximum amount possible, she received a private message acknowledging the contribution; and in the third stage, if a participant contributed the maximum amount possible, everyone in the team received a group message acknowledging that at least one person in the team contributed the highest amount. At each stage, we ask participants their beliefs about what others will do.

Using a quasi-experimental approach we examine the effect of the intervention on the cooperative response to recognition. The intervention improved the positive response to private recognition on cooperation and changed the distribution of cooperative responses to group recognition. (In process, we introduce a structural estimation of the effects of the intervention on cooperation). The intervention had no effect on empirical expectations.

The paper is organized as follows. Section 2 offers a brief description of the intervention. Section 3 presents the economic game and explains the treatments. Section 4 introduces the experimental procedures, and characterizes the data before and after the intervention. Section 5 quantifies the relation between the cooperation and recognition. Section 6 examines the impact of the intervention on the cooperative response to recognition. The last section concludes.

2   A social innovation intervention

Corpovisionarios is a Colombian think-tank in social innovation and cultural change. They were contacted in 2016 by a private organization whose executive board is concerned with motivating cooperation among its employees. Before the intervention, *Corpovisionarios* used a survey to concur that teamwork was weak, suggesting that the issue was linked to lack of proper recognition among employees. They designed an intervention (i.e. a set of creative, non-monetary, communicative and pedagogical tools to change employees' mindsets).

The main goal of the intervention was to motivate teamwork using three creative tools. First, aligning expectations (Figure 2), that is resetting normative and empirical expectations. Second, using art and communication to establish a first team of leaders called *first cooperators* who will communicate a new signal (Figure 3) that represented approval when an employee had a good performance and will teach others how to use a touchstone (Figure 4). A stone where any anonymous message related to any acknowledge or recognition could be introduced (Figure 5 and 6). Finally, the third tool, called the *Pentagon* (Figure 7) intended to increase awareness of the importance of teamwork and commitment to improve current levels of cooperation and recognition within the organization.

3   Experimental design in the lab

Teamwork can give rise to social dilemmas in the context of production (Holmstrom, 1982; Itoh, 1991). The economic experiments offer to study the validity of behavioral economic models when people face social dilemmas, coordination dilemmas and collective action problems. In addition, they provide detailed and verifiable information on people's decisions: they are rigorous and offer quantitative measures of qualitative information.

Experiments carried out in the field with a specific community, in this case, the employees of this particular organization, allow to explore the implications and opportunities that emerge from the characteristics typical of the economic, social and political process of the entity (Harrison & List, 2004).[2]. [3].

Economic experiments are lenses that allow us to observe the importance of social norms and prosocial preferences in the behavior of people who interacts daily within a specific community. Our experiment was presented to the participant as an activity, where you can earn money according to decisions taken in such activity. We use a public goods game, which represents a social dilemma between the profits of individual work and the profits of teamwork while assuming the individual cost of doing so. The decisions of the participants reveal individual availability to cooperate when there's a single monetary incentive to do otherwise.

The game design is derived from literature on the "voluntary provision mechanism" or VCM very well documented by Ledyard (1995). The version proposed here is one of the most known and tested in laboratories and in the field (Marwell & Ames, 1981).

In this experiment we will simulate the dynamics of a working day, where employees participate in a group of people who represents a team. In this day, employees must choose how many hours of effort it takes to develop a task, which can be carried out individually or as a team. It is a social dilemma since the earnings are defined in such a way that the individual work generates an individual return per hour higher than the return of that hour if it is dedicated to teamwork. However, when all team members contribute to group work, the group's individual gains are higher. That is, the activity is designed in such a way that the return of working as a team when every team member is evolved is greater than if they did individually.

Each participant belongs to a randomly assigned group of $N = 4$ people. A participant has

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[2]In Harrison & List (2004)'s typology this is a field contextualized experiment, given the decisions characteristics, the institutional framework, and the available information on the part of the participants

[3]On the other hand, as the experiments reflect the teamwork social dilemma, we expect that after the experiment the participants continue to make similar decisions and social interactions continue to occur, with the difference that those participants have been exposed to a reflection on their behavior. Then, economic experiments are also considered tools for learning, in which the presentation and discussion of experimental results allow the target population to internalize the positive aspect of teamwork and build formal and informal cooperation agreements. This approach will be considered in the second stage of the project in 2018

4 tokens, which we will call her endowment and have to decide how many of those tokens she wants to contribute to a project, x_i and how many tokens she wants to keep for herself, $4 - x_i$ The winnings are compose of two parts: (1) For each token the participant keeps she earns \$4, and (2) for each token invested to the project by any member of the group, each member receives \$1.6. The project profits for each group member is calculated in the same way: each member of the group receives the same profit from the project. Therefore, the π gains of the participant i in a period are given by

$$\pi_i = \$4,000(4 - x_i) + \$1,600 \sum_{j=1}^{N=4} x_j, \tag{1}$$

where $x_i \in 0, 1, 2, 3, 4$ is the number of tokens that the participant i decides to contribute to the group account. This gives a MPCR of 0.4. Table 3 shows the possible earnings according to the individual contribution to the project and the number of tokens contributed to the project by the other three members in a group. Note that the game features a unique Pure Nash Equilibrium $x^{NE} = 0$ and a social optimum $x^{SO} = 4$.

The design implemented is a *within-subjects* design in the lab, in which the same subjects participate in different treatments. The advantages of using this design are given in terms of statistical power and reduction in the variance of the error associated with individual differences that affect the dependent variable. The conditions are always exactly equivalent with respect to the variables that differ at the individual level since the participants are the same in the different conditions or treatments. The disadvantage of this design lies in the "drag" effect in which participation in one treatment may affect behavior under other conditions. This effect may occur in terms of practice and fatigue. To solve the first, we ensure that the participants understand clearly the game instructions before they start and for the second one, since there are only three rounds or stages, the possibility that the participant gets tired is very low. On the other hand, participants did not know that after a control stage there would be two recognition stages.

The activity is divided into three stages or days of work.

Day 1: Control On this day, each participant decides whether to keep his tokens or contribute them to the project. The four participants in the group decide simultaneously.

Day 2. Non-monetary private recognition. Same instructions as on day 1. However, if the participant contributes 4 tokens to the group project, she will receive a private non-monetary recognition:
Thanks to you the total project contribution increased in four tokens. This means each group member (including you) increased its earnings by 4 tokens ×\$1.6 = \$6.4!
In addition, if we add the total earnings of each group member, they increased by 4 people ×\$6.4 = \$25.6!
On the other hand, if the participant contributes 0,1, 2 or 3 tokens, she will not receive any message.

Day 3. Non-monetary group recognition. Same instructions as on day 1. However, if at least one participant in the group contributes four units to the group project, all members of the group will receive a note that at least one of the members contributed four tokens to the project:

One of the group members contributed her 4 tokens to the project!

Thanks to her, the total contribution to the project increased by four tokens. That means each of the group members (including you) increased her earnings by 4 tokens ×$1.6 = $6.4!

In addition, if we add the total earnings of each group member, they increased by 4 people ×$6,4 = $25.6!

None of the other members of the group will know the identity of the contributor.

On the other hand, if the participant and everyone else in the group contributes 0, 1, 2 or 3 tokens, none of the participants will receive the note.

An on line platform was used in order to minimize the influence that external variables may have on participant's individual decision. Controlling the environment in which decisions are made is paramount to ensure the reliability of results and to facilitate comparison and duplicability. A participant could access an on-line experimental session and go on line at any time from her office computer.

Each experimental session consisted of a participant who was part of a 4-member group in the activity. Before they began, each participant should have had answered correctly a set of control questions to ensure she understood the instructions. Table 4 summarizes the methodology of the economic experiment.

To minimize the experiments costs, not all decisions will be paid, but one at random. Each participant faces three different scenarios in which he has to make decisions and is informed that only one will be put into practice, without telling him which one. At the end, one of the three days (control, private recognition or group recognition) is selected for payment. Likewise, one in four participants are randomly selected to receive payment for their earnings. For these participants one of the three days will be chosen at random and he will receive profits for that particular day. Earnings were given up to two weeks after the decisions were made. Except for the headquarters (Bogotá), payments were made as a deposit or delivery.

A session was designed in such a way that on average one participant would receive thirteen thousand pesos ($13.0) or 1 minimum wage for two hours (see Table A.0 in the appendix). In the baseline, one participant earned on average $23.5 (a minimum of $11.0 and a maximum of $35.0). In the ex post stage, a participant earned on average $26.0 (a minimum of $13.0 and a maximum of $39.0)[4].

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[4]We used the on-line platform Survey Monkey Inc (https://www.surveymonkey.com/) and guaranteed anonymity of the decisions. Each participant knew the results of her decisions. The identity of the participant is never disclosed to avoid any negative behavior within the organization. Nobody in the entity knew her decisions, nor knew if she participated in the experiment. Only the coordinator of the project had access to the data (see the detailed instructions in the appendix).

4   Experimental design in the field

Every employee from six chosen cities was exposed to the social intervention at the same time. Therefore, there is no control group. On the contrary, in the economic experiment each participant faces three stages: one control stage and two recognition stages. This study compiles both experimental and social decisions before and after the intervention in order to evaluate the impact on participant's response before and after the recognition.

The application of economic experiments in two phases, the baseline and the ex post phase, provides an *between-subjects* experimental design with the potential to impact the behavior of organization employees and eventually it could be used as a pedagogical and participatory tool facilitating conflict resolution, construction of agreements and promotion of organizational change.

Participants were selected randomly and received an identification number to each of them. Those invited to participate on line were selected from the employee population universe (provided by Human Resources). Since the experiment aims to mirror reality, the effects and consequences will keep on affecting the participants even when the thirty-minute experimental session is over. In other words, aspects such as learning and knowledge of individual and aggregated results, will affect the participants individual decisions in and out of the session. Given this methodological constraint and to avoid learning bias, the people who participated in the baseline phase was not able to participate in the follow-up phase.

For the baseline sample, 538 employees were randomly selected from a universe of 2150 employees. For the follow-up sample, 366 employees were randomly selected from a universe of 1157 employees who did not receive an invitation to participate in the baseline phase. Potential participants had to be employed at the time of the intervention. At baseline, 298 employees participated and for follow-up, 299 employees (See Table 5).

Lastly, participants answered a survey on basic socioeconomic and work related characteristics (sex, age, number of siblings, if the participant is the head of the household and number of dependents). Human Resources provided information on participant's gender, age, position, dependency and city, among others.

Table 1 shows participants' characteristics in both phases before and after intervention, baseline and follow-up. We observed in some characteristics small significant differences between participants at each phase. The proportion of participants who are head of household is 33 p.p higher in the baseline ($p.value < 0.01$). In addition, the proportion of participants who are supervisors is 50 p.p higher in the baseline ($p.value < 0.01$), compared to a difference of 1.7 p.p, $p.value < 0.1$ for the percentage of supervisors according to Human Resources (12%).

On average, the participants are 40 years old, have 3 siblings and 46.1% of the participants are women. In addition, participants are on average 14.6 years old and have two reports. On the other hand, 89.8% work in the headquarters in Bogotá. On the other hand, there

is no difference between the participants with respect to the position they occupy with the exception of the managers who participated more in the baseline (1.7 p.p, $p.value < 0.01$)[5].

Table 1: Participants' characteristics

Variable	Total	Follow-up	Baseline	Difference
Average age	40.2	40.2	40.3	-0.1
	(0.5)	(0.6)	(0.5)	(0.4)
Female percentage	46.1	45.5	46.6	-1.2
	(2.8)	(3.4)	(2.2)	(1.5)
Average number of siblings	2.8	2.9	2.8	0.1
	(0.1)	(0.2)	(0.0)	(0.1)
Duration of employment (years)	14.6	14.4	14.7	-0.2
	(0.7)	(0.7)	(0.7)	(0.3)
Percentage of Supervisors	12.9	12.0	13.8	-1.7*
	(2.7)	(2.9)	(2.6)	(0.9)
Head of household percentage	49.7	33.1	66.4	-33.3***
	(0.4)	(1.3)	(1.2)	(2.3)
Percentage of Supervisors	37.2	12.0	62.4	-50.4***
(self reported)	(2.5)	(2.9)	(2.8)	(1.2)
Average number of reports	1.9	2.2	1.7	0.5**
(self reported)	(0.1)	(0)	(0.2)	(0.2)
Position. Assistant	10.4	11.4	9.4	2.0
	(1.5)	(2.3)	(0.8)	(1.7)
Position. Professional	74.2	73.6	74.8	-1.3
	(4.1)	(5.4)	(2.9)	(2.6)
Position. Assistant manager	4.5	5.0	4.0	1.0
	(0.7)	(1)	(0.5)	(0.7)
Position. Manager	10.9	10.0	11.7	-1.7***
	(2.1)	(2.3)	(2)	(0.6)
Job with night shifts	7.7	7.4	8.1	-0.7***
	(1)	(1)	(1)	(0.2)
With PC access	92.6	92.6	92.6	0.0
	(0.7)	(0.6)	(0.9)	(0.4)
Location: Headquarter	86.8	85.3	88.3	-3.0
	(10.9)	(11.6)	(10.5)	(2.1)
Observations	597	299	298	

Robust cluster-level standard errors. Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

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[5]We classify participants into 4 categories: charge type 1, with a 10.4% participation, corresponds to positions as warehouseman, assistant, driver, messenger and caretaker. The type 2 position corresponds to lawyer, system administrator, analyst, archaeologist, architect, assistant, auditor, librarian, cashier, conservator, consultant, coordinator, delegate, draftsman, economist, engineer, inspector, dentist, officer, operator, payer, machinist, professional, promoter, rector, restorer, secretary, technician, and utility. The type 3 position are positions as advisor, deputy director, deputy manager, deputy chief, supervisor, and deputy manager. The type 4 position corresponds to positions as director, manager and section chief.

We also examined the differences between participants who had computer access in their workplace and those who had no diurnal shifts. Although during the follow-up phase an extra effort was made so those who did not have access to a computer could participate, the baseline has more participants who have different shifts (7 p.p., $p-value < 0.01$).

Although the initial sample or expected sample ensured that the sample of participants was representative at the city level, the effective sample sizes in the two phases do not allow representativity. Therefore, the effective sample is representative only for Bogotá in the baseline with an error of 5% and in the follow-up phase with error of 4.2% [6].

5 Results

For each day, the following pieces on individual behavior are collected:

Unconditional decision for contribution The participant chooses how many tokens he will invest on the project and how many tokens keeps for himself.

Expectations or descriptive norm The participants guess how much does the other group member will invest on the group's account. This value is obtained through an incentive. Unlike a hypothetical question, the participant makes a prediction of the expected value on the groups account; if his assumption is true he wins $5,000 pesos.

Conditional decision for contribution The participant chooses how many tokens to invest on the project and how many token he wants to keep for each level of cooperation of the other members of the group.

The purpose of a baseline and ex post intervention is to study: i) the effect of a non-monetary incentive such as cooperation recognition, and ii) the effect of the intervention on the incentives response. The gathered information allows measuring the individual preferences towards cooperation before the intervention and four month later.

The baseline and ex post basic experimental results are consistent with survey assessment before the intervention. Table 6 shows the average percentage of individual unconditional contribution. The total average of the sample and the difference between the standard errors of both the baseline and ex post groups is really robust at the city level clusters. Of the 4 possible contribution units, if the participant contributed four, three, two, one or cero units it represents 100%, 75%, 50%, 25% or 0% of cooperation level respectively. The main results are as follows:

Result 1: Both the baseline and the ex post groups shows a positive cooperation level The average levels for unconditional cooperation on day 1 (control) were 43.2% and 45% for

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[6]The sample of participants presents the same statistically significant biases (1%) in both stages (baseline and follow-up).

baseline and ex post respectively. The difference between this two is statistically significant (1.8 p.p., $p-value < 0.1$). The economic prediction states that individuals are only interested in their individual earnings and therefore will have a cooperation level of 0%. Figure 1 showcase the histograms of contribution decisions for control, private recognition and group recognition. In total only 14.8% contributed 0 units on day 1, of control, indicating that 84% of the participants presented a cooperative or teamwork attitude.

Result 2: Private and group recognition improve cooperation Table 6 indicates that levels of unconditional cooperation on day 2 (private survey) were 54.8% and 60.1% for the baseline and ex post respectively and their difference is statistically significant (5.3 p.p, *p.value* < 0.01). The economic prediction that participants are interested only in their individual gains is not met since only 13% of the participants chose not to contribute anything (see Figure 1) under private recognition. On the other hand, levels of unconditional cooperation under day 3 (group recognition) were 73.2% and 67.1% for the pre and post phases respectively and their difference was statistically significant (6.1 p.p, *p.value* < 0.01). Economic prediction is also not met under group recognition since only 11.28% of the participants contributed zero units.

Figure 2 presents graphically the data in Table 6, the percentage of cooperation and the expected percentage (expectation) of cooperation of the others in the group. Again, the results are consistent with evidence from other studies where individuals contribute more than pure self-interest (Rabin 1993,Andreoni 1995). There is an average level of cooperation of 44.1% for the control group. Second, we note that expectations about what others will do are consistent with cooperative decisions, indicating that the community within the organization knows each other or shares a descriptive standard of cooperation.

Result 3. Group and private recognition not only affects the unconditional decision to cooperate but also the expectation of cooperation within the group Third, public recognition treatment showed the highest cooperation levels, 70.2%, and the positive difference from private recognition is statistically significant (57.5%). The expectation about the level of cooperation in the group (descriptive norm) also changed with recognition. Figure 2 shows the significant change (*p.value* < 0.01) in the decision (Panel A) and expectations (Panel B) between control and private recognition (43.4% vs. 58.4%) and control and group recognition (43.4% vs. 70.9%).

Result 4. Group and private recognition meant greater cooperation levels than if it were non-in conditional cooperators Conditional cooperation is the decision to cooperate conditioned to the decisions of the others in the group. Figure 3 shows the percentage of individual cooperation as a function of the cooperation of others in the group. We call pure conditional cooperators those individuals who contribute exactly the number of tokens contributed by the others (red line, with a 45° angle). Figure 3 compares the pure conditional cooperation with the cooperation of the participants in the treatment. Table 7 indicates the percentage of cooperation for each of the possible levels of cooperation of the others. Both private and group individual recognition increased conditional cooperation levels. This result is

consistent with cooperation literature.

Recognition works both as an individual non-monetary incentive and as a signal that gives the participant the information regarding the desired behavior. Public recognition had a high and positive effect on private recognition at all cooperation levels. Supporting the existing evidence on conditional cooperation, there's a positive slope between participants and conditional cooperation: the greater the contribution of others, the greater the individual contribution (**?**). However, the slope is not greater than or equal to, but very low. On average, participants cooperate more than conditional co-workers at low levels of cooperation. This means that individuals have an altruistic preference to contribute even though others in the group contributed little. When levels of cooperation are high, participants cooperate less than perfect conditional cooperators, acting opportunistically and maximizing their individual gain.

For example, in the control group (or contribution in the absence of recognition) the average cooperation when others 0% members of the group cooperate is 26.8%. A perfect conditional cooperator contributes 0 if others contribute 0. When others contribute 100%, a perfect conditional cooperator would contribute 100%. On average, participants cooperated 44.2%, 66% less than a pure conditional co-worker. This means that, in the absence of any incentive, the participants cooperate more when no one else will cooperate and cooperate less when they know that there is cooperation.

Result 5. The intervention effect on cooperation levels of the no-cooperators was positive under private recognition and negative under group recognition At control stage, participants with high levels of cooperation when others do the same are less ex post (42.1%) than in the baseline (46.4%), (difference of 4.3 p.p., *p.value* < 0.1). If the participants perceived the intervention as a sign that the others would cooperate more, the participants' response was to cooperate less. On the other hand, the intervention affects the response to private and public recognition by non-cooperators when they believe that no one else will cooperate. This result may indicate that the intervention also signaled the importance of leadership in the need to "cooperate when no one else does."

Result 6. The intervention didn't affect the descriptive norm or empirical expectation of neither the control group nor private recognition group. The expectation of cooperation of the group recognition cluster was higher in the baseline Table 6 indicates that the intervention has no effect (i.e. actions) on the expectations of what the majority in the group does in control and in private recognition. This is because the purpose of the actions was to modify the normative expectation, what the group should do, while the experiment measures the empirical expectation. The descriptive or empirical norm is modified when the available information on the levels of cooperation of the employees of the organization allows each individual to update its norm to the present value. The empirical expectation of cooperation in the group recognition cluster was higher at the baseline than in the ex post stage (1.5 p.p., $p - value < 0.05$).

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Determinants on the decision to cooperate

We use an ordinal choice model to test the hypothesis that recognition and expectation are relevant to the availability to cooperate. Our empirical specification has as its unit of observation individual i at time t of head office k. We estimated a logistics regression model ordered with 5 categories of the ordinal dependent variable, X_{itk}, the observed value of the unobserved individual decision regarding cooperation, continuous latent variable X_{itk}^*. This variable is a parametric function X_{itk}^*, which depends on what the individual thinks the majority of the group would do x_{itk}^e at time t of head office k. The invariable individual characteristics in the 3 stages or periods, P_i, the fixed effect of the participants headquarter, θ_k, if there private or group recognition at time t and a error term, ϵ_{itk}.

$$X_{itk}^* = \alpha + \gamma x_{itk}^e + \beta P_i + \delta_p R_{pt} + \delta_g R_{gt} + \theta_k + \epsilon_{itk} \tag{2}$$

The probability that the number of unit to contribute, x_{itk}, takes a particular value is given by

$$P(X_i > j) = \frac{\exp(\alpha_j + \gamma x_{itk}^e + \beta P_i + \delta_p R_{pt} + \delta_g R_{gt} + \theta_k + \epsilon_{itk})}{1 + \exp(\alpha_j + \gamma x_{itk}^e + \beta P_i + \delta_p R_{pt} + \delta_g R_{gt} + \theta_k + \epsilon_{itk})}, j \in 0, 1, 2, 3, 4 \tag{3}$$

Table 8 and Table 9 we present the relationship between the individual decision to cooperate and the different treatments: private public recognition for the baseline and ex post, respectively. Each specification includes additional features that may explain individual behavior towards contribution. The first specification (I) includes only experimental variables such as expectations and recognition treatments. In both stages expectations about what others will do, will explain positively and significantly the individual contribution, confirming the literature results (**?**).

On the other hand, recognition helps to explain cooperation. At the baseline, public recognition has a greater effect than private recognition on contribution levels. The second specification (II) includes socio-economic characteristics of participants such as age, sex, number of siblings and whether the participant is head of household. In the baseline age and being head of the household positively affect the cooperation; while in the ex post stage, the number of siblings affects negatively the cooperation.

The third specification (III and IV) includes the participants' job characteristics, such as the number of years they work in..., if the participant is a boss, if they have a night shift, if they have computer access at work and if the have and assistant, professional, deputy manager or manager. We also included a variable that indicates whether you had at least one inconsistency in online activity decisions, as an indicator that you fully understood the activity. In both stages, those who have night shifts and have work computers showed higher cooperation rates; while seniority decreased cooperation likelihood. In the baseline,

the decision to cooperate was negatively affected if the participant didn't understand the activity. Also, the higher the rank the higher the probability of cooperation, and vice versa. At the ex post stage, those who did not fully understand the activity cooperated more. The latter result may indicate the presence of a clue on how to behave when instructions are not understood. Before the intervention, the expected default behavior was not to contribute but after the intervention this behavior became cooperative.

IV specification, allows seeing if there's a difference between the cooperation levels at the main headquarter located in Bogota and the other cities. For each stage, the fixed effects vary. In table A.3 of the appendix we show the ordinal logistics regression analysis only for Bogota's headquarters. The treatment positive effects on treatments, expectations and age in cooperation are maintained, while the effects of type of charge, if understood the activated, day shift and computer access at work (specifications III and IV) disappeared.

Result 7. Expectations, group and private recognition determine how many units contribute to the group project

Figure 4 shows the marginal effect of expectations, private and group recognition for each possible number of units to contribute, both baseline and ex post. In both stages recognition has a negative effect on the probability of contributing at low levels, and positive effect on the probability of contributing in high levels. In the baseline, group recognition has a marginal effect greater than private recognition. In addition, expectation effect works similarly with group recognition. By contrast, in the ex post stage, the marginal effects of private and group recognition are indistinguishable and different from expectation to contribution.

6   Impact on the cooperative response to recognition

In order to measure the effect on the individual cooperation response towards private or group recognition after the intervention, we will use the quasi-experimental technique of differences in differences (DID). Unlike an estimate effect of the intervention within the subject, through measuring the difference in cooperation levels before and after the intervention or an estimate measure between a control group and an intervention group; the DID model estimates the difference between time, pre and post intervention within the individual and the difference before and after private recognition (or group recognition).

The differences in differences methodology use these two variations. To calculate the intervention effect, first we must find the change in time of both the recognition group and the non-recognition group, and then we subtract these two results showcased in table 6, table 9 and figure 5. Figure 5 shows the percentage of cooperation before and after the intervention for the control and recognition groups. To obtain the impact of the interventions response, we compare the average recognition level of the baseline and ex post participant.

Result 8. The interventions impact on cooperative response was positive under private recognition and negative under group recognition

Table 9 shows that the intervention had on participants response a positive but no significant effect when faced to private recognition, and negative and significant effect when faced to group recognition. This result indicates that the intervention saturated the willingness of the participants to cooperate with group recognition.

To compare its necessary these simple estimators that takes into account the possible factors that affect the decision to cooperate. We estimate the following logistic regression model:

$$X_{it} = \alpha + \gamma x_{it}^e + \delta_1 R_i + \delta_2 R_i * \text{Intervention}_t + \delta_1 \text{Intervention}_t + \beta P_i + \theta_k + \epsilon_{itk} \qquad (4)$$

Where R_i is a binary variable that indicates whether the participant received recognition (private or group), Intervention$_t$ is a binary variable that indicates the pre or post intervention period and δ_2 is the DID estimator of the interaction between being recognized and the ex post intervention stage. The reference period is when the participant has no recognition (Control). We assume that there are no unobservable variables that don't vary over time and that may affect the contribution nor have experienced the possibility of recognition. In equation (4), the coefficient of the treatment variable, δ_1, is the average of the estimated difference in contribution between the control stage and the pre-intervention recognition stage and represents the baseline differences that existed between Control and recognition before the intervention was implemented. The coefficient δ_3 is the expected change average in cooperation from before to after the intervention and reflects the pure effect of time passage in absence of the intervention. The coefficient δ_2, is the differences in differences estimator and indicates if the expected average change in cooperation before-after the intervention was different with or without recognition. In other words, δ_2 measures the impact of the intervention on the decision to cooperate expected average between control and recognition. On the other hand, $\delta_2 + \delta_1$ shows the estimated average difference in the cooperation between control and recognition after the intervention. In both private and group recognition, we found that the difference was positive and greater in group recognition (15.1 p.p, $p - value < 0.01$ vs. 22.2 p.p, $p - value < 0.01$).

Table 10 presents the results of the estimation equation (4) using a logistic regression model ordered to estimate the effect of the intervention on the cooperative response under private or group recognition. First, the empirical expectation of employee cooperation level is positively related to the individual cooperative decision. Second, the intervention positively affected the cooperative response to private recognition and negatively the response to group recognition.

Table A.4 of the appendix shows the ordinal logistic regression analysis for the Bogotá headquarters only. First, the impact of the intervention on private recognition disappears. The positive effects in the cooperation of the change of control to recognition after the intervention, the expectation, the age and being sub-manager are the only ones that are maintained. Second, the impact of the intervention on group recognition remains negative. The positive effects on the cooperation of the change of control to recognition after the intervention, the expectation, the age and being sub-manager are maintained. Job antiquity is still negatively related to cooperation, while access to computers at work and night shift are positively related to cooperation.

Result 9. The intervention produced a cooperation crowding-out under private recognition and cooperation crowding-in under group recognition

Figure 6 shows the interventions marginal effect on the probability of contributing each possible unit for each recognition type. This is the marginal effect of the coefficient δ_2. It states the following prediction: whit recognition there's a lower probability of low cooperation levels, and higher probability of high cooperation levels. The impact of the intervention on the response to private recognition in each possible number of contributed units satisfies the prediction: the impact is $-3pp$ on the probability of contributing zero units and $3pp$ on the probability of contributing all possible units. On the contrary, the impact of the intervention on the response to group recognition in each possible number of units contributed does not satisfy the prediction: the impact is $4pp$ on the probability of contributing zero units and $-8pp$ on the probability of contributing all possible units.

$$X_{it} = \alpha + \gamma x_{it}^e + \delta_1 R_i + \delta_2 R_i * Intervention_t + \delta_3 Intervention_t + \beta P_t + \theta_k + \epsilon_{itk}$$

Result 4. Intervention Impact - Unconditional cooperation

Intervention improves positive response to private recognition while undermines response to group recognition

Table 2

Marginal effects on cooperation	Treatment	
	Private	Group
Time effect, I_t	0.11***	0.10**
	(0.03)	(0.04)
Intervention effect on cooperative response to recognition, $R_i * I_t$	**0.16*****	**-0.32*****
	(0.06)	**(0.07)**
Recognition effect (Baseline), R_i	0.15***	0.59***
	(0.04)	(0.03)
Observations	1788	1784

Robust cluster-level standard errors

Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Result 5. Recognition improves cooperation

Percent difference between conditional cooperation with recognition and control

Figure 1

Treatment

Private   Group
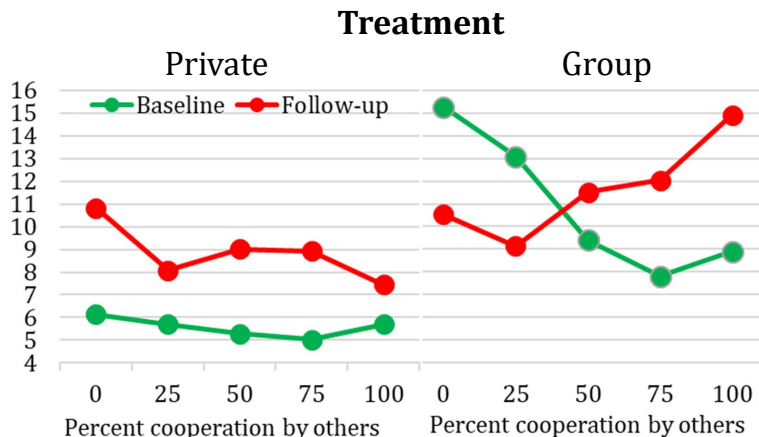
7 Concluding remarks

Our findings support the view that recognition, seen as a symbolic (social) award for cooperation in teams within organizations, can be effective even if it has no impact on the recipient's income or future career opportunities. Moreover, we provide evidence that social innovation interventions may affect crowd out the beneficial effect of recognition to cooperation.

The economic experiment presents results that give internal validity to the measurement exercise of cooperation. Private and group recognition positively affected the expectation of the contribution level of the group and the individual contribution decision. However, we observed an unexpected outcome of the intervention: it improved individual response by including private recognition to improve unconditional cooperation, but deteriorated individual response to group recognition.

Economic experiments in the field have certain costs and limited duplicability. For example, the inability to access participants with similar characteristics requires that we collect key information from participants who explain their decisions, such as age, sex and education level. Our results are robust to different explanatory variables, that is, they are maintained when possible factors are included that can explain the cooperative behavior as socio-economic characteristics and characteristics.

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A   Figures

Figure 2: Time zero

Figure 3: Recognition Gesture "Well done"

Figure 4: Touchstone: the game of recognition
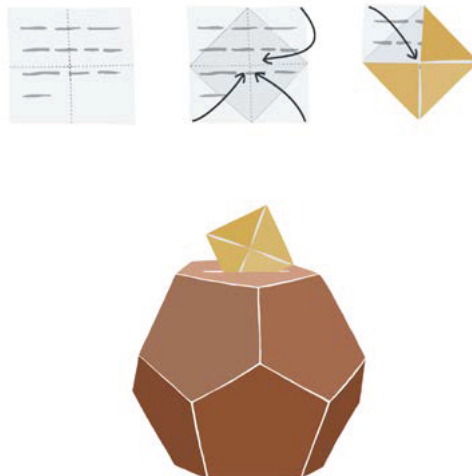

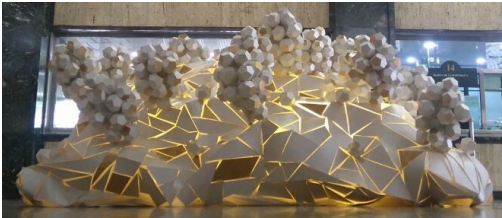Figure 5: Touchstone Mechanism

Figure 6: Sum of Touchstones

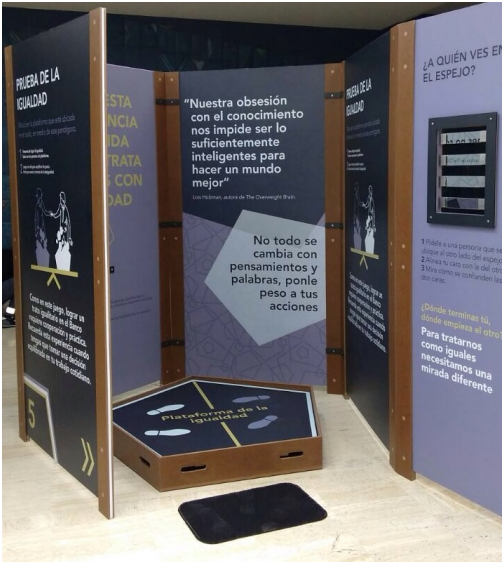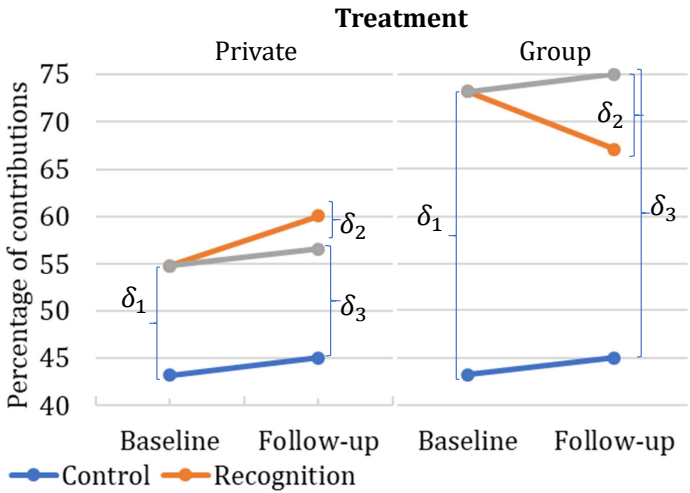Figure 7: The Pentagon: lets talk about equality

Figure 8

B   Tables

Table 3: Earnings table

		Tokens you contribute to the project				
		0	1	2	3	4
Average tokens others contribute to the project	0	16.0	13.6	11.2	8.8	6.4
	1	20.8	18.4	16.0	13.6	11.2
	2	25.6	23.2	20.8	18.4	16.0
	3	30.4	28.0	25.6	23.2	20.8
	4	35.2	32.8	30.4	28.0	25.6

Thousands of Colombian pesos. The columns are "Tokens that you contribute to the project". The rows are the "Average of tokens that the others contribute to the project", which can be of 0 tokens when none of the others members contributed, up to a maximum of 4 tokens, when the other three members contributed their 4 tokens. If a participant contributes 3 tokens and the average contribution of the other members of the group is 2 tokens, the participant will earn $18.4.

Table 4: Methodology summary

Target population	Organization employees from the six main cities
Duration	30 minute on-line session that was accessible for 8 days
Decisions	Individual unconditional cooperation, empirical expectation and individual conditional cooperation
Incentive	Money. One round selected randomly to be paid. No show-up fee: during working hours. One of 4 participants is randomly chosen to receive earnings. If the participant guessed others' behavior, she received 3.00 more
Treatments	Control, non-monetary private recognition, non-monetary group recognition. Before and after the intervention.
Context	Neutral*

*The language, formats, procedures, etc. affect the subjects decisions. The experimental session does not have a specific vocabulary that provides the participant with a normative framework. No words related to cooperation, trust, community, equipment or related are used to not influence the behavior

Table 5: The field: Recruitment and sample

	Base line Sep-2016	**Follow-up** Feb-2017
Universe*	2,150	1,157
Sample size		
Expected	538	366
Effective	298	299
Response rate	55%	81%

*Participants from the headquarters of Bogotá, Bucaramanga, Cali, Ibagué, Barranquilla (only Follow-up), and Medellín. Sample design was stratified by city with 4% error per stratum and 95% confidence level.
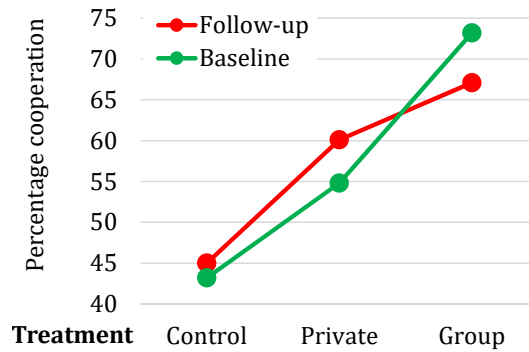
Result 1. Recognition improves unconditional cooperation

Table 6

	Panel	**Follow-up**	**Baseline**	**Difference**
Control	44.1	45.0	43.2	1.8*
	(0.7)	(1)	(0.7)	(1)
Private recognition	57.5	60.1	54.8	5.3***
	(0.2)	(0.4)	(0.8)	(1.1)
Group recognition	70.2	67.1	73.2	-6.1***
	(0.6)	(0.3)	(1.1)	(1)

Robust cluster-level standard errors. Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 9

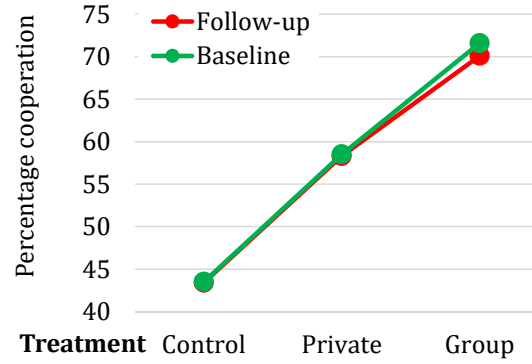Robust cluster-level standard errors. Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Result 2. Recognition adjusts expectations accordingly

Table 7

	Panel	**Follow-up**	**Baseline**	**Difference**
Control	43.4	43.4	43.5	-0.1
	(0.2)	(0.3)	(0.4)	(0.5)
Private recognition	58.4	58.3	58.5	-0.2
	(0.8)	(0.9)	(0.8)	(0.3)
Group recognition	70.9	70.1	71.6	-1.5**
	(1)	(1.1)	(1)	(0.8)

Robust cluster-level standard errors. Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 10

Robust cluster-level standard errors. Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Result 3. Empirical expectations determine cooperation

Table 8

Marginal effects	**Baseline**	**Follow-up**
Empirical Expectations	0.53***	0.59***
	(0.02)	(0.03)
Private Recognition	0.12***	0.26***
	(0.02)	(0.08)
Group Recognition	0.62***	0.30***
	(0.02)	(0.06)
Observations	**894**	**890**

Robust cluster-level standard errors

Significance level *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Controls:

Table 10: Intervention conditional decision to contribute in the baseline and ex post (percentage). If majority contributes X% I will contribute

		Control				With private recognition				With	
Valor	**Total**	**Post**	**Pre**	**Difference**	**Valor**	**Total**	**Post**	**Pre**	**Difference**	**Valor**	**Total**
0%	26.8	27.3	26.3	1.1	35.3	38.2	32.4	5.8	39.7	37.9	37.9
	(0.8)	(0.4)	(1.4)	(1.4)	(0.5)	(0.5)	(1.3)	(1.6)	(0.9)	(0.7)	(1.4)
25%	31.6	32.4	30.7	1.7	38.5	40.5	36.4	4.1	42.7	41.6	43.8
	(0.5)	(0.4)	(0.9)	(1.1)	(0.4)	(0.9)	(0.7)	(1.5)	(0.7)	(0.7)	(0.9)
50%	36.8	35.6	37.9	-2.3	43.9	44.6	43.2	1.4	47.2	47.1	47.3
	(0.5)	(0.4)	(1.2)	(1.5)	(0.3)	(0.9)	(1.1)	(1.8)	(0.8)	(0.5)	(1.3)
75%	40.6	38.5	42.7	-4.2	47.6	47.4	47.7	-0.3	50.5	50.5	50.5
	(0.4)	(1)	(1)	(1.8)	(0.3)	(0.8)	(0.9)	(1.6)	(0.6)	(0.5)	(1)
100%	44.2	42.1	46.4	-4.3	50.8	49.5	52.1	-2.6	56.1	57	55.3
	(0.7)	(1.3)	(1.5)	(2.4)	(0.5)	(1.4)	(0.9)	(2.1)	(0.6)	(0.4)	(1.1)

- **Socio-economic characteristics** Sex, age (+), no. siblings, head of household(+)

- **Job characteristics** Supervisor, Time employed (-), sub-manager (+), manager (+), professional, PC access (+), Night shift (+)

- **Session variables** Did not understood instructions completely (-/+)

C   Additional tables

Table 9: Definition of the payment to selected participants (in Colombian pesos)

Minimum wage Col 2016	$ 689,454
Minimum wage per hour	$ 64,309
Three minimum wages per hour	$ 12,927.26
One hour	$ 12,927
Rounded per person	$ 13,000

Table 11: Calculating differences in differences: interventions effect on the cooperative response in group and private recognition

		Control	Recognition	Difference	DID^a	DID^b
Private recognition	Baseline (Sept. 2016)	43.2 (0.7)	54.8 (0.02)	11.6 (0.9)	3.5	3.6 (2)
	Ex post (Jan. 2017)	45.0 (1)	60.1 (0.4)	15.1 (1.4)		
Group recognition	Baseline (Sept. 2016)	43.2 (0.4)	73.2 (1.1)	30.0 (0.5)	- 12.2	- 7.9 (1.2)
	Ex post (Jan. 2017)	45.0 (1)	67.1 (0.3)	22.2 (0.8)		

Variable		Total	Post	Pre	difference
Decision (Percentage)	Control	44.1 (0.7)	45.0 (1)	43.2 (0.7)	1.8 (1)
	Private Recognition	57.5 (0.2)	60.1 (0.4)	54.8 (0.8)	5.3 (1.1)
	Group Recognition	70.2 (0.6)	67.1 (0.3)	73.2 (1.1)	-6.1 (1)
Contribution expectations of majority in the group (Percentage)	Control	43.4 (0.2)	43.4 (0.3)	43.5 (0.4)	-0.1 (0.5)
	Private Recognition	58.4 (0.8)	58.3 (0.9)	58.5 (0.8)	-0.2 (0.3)
	Group Recognition	70.9 (1)	70.1 (1.1)	71.6 (1)	-1.5 (0.8)

D   Ethical aspects

This experimental design complies with the 1998 United Kingdom [7] Data Protection Act
Among others:

I Decisions and profits are anonymous. The identity of each participant is associated with a code. Participants are assigned in groups of four and do not know the identity or code of the other members of the group.

II The identity of the participants will not be disclosed to anyone under any circumstances. Only the coordinator of the experiment will have access to the identity of the participants

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[7]http://www.legislation.gov.uk/ukpga/1998/29/contents

who will be paid, for reasons of justification of expenses, and the information is deleted once all the participants have received their payments.

III Guests accept to participate in the exercise on a voluntary basis.

IV The results will be analyzed and presented aggregately.

V Participants attend the experimental sessions during working hours, the cost of the time they will incur on when participating is covered by

E   Instructions

P1:Baseline activity invitation. Welcome!
*As you accessed this session through a link, we need to verify that you are an organization employee.
Your email_____
*Identification number for the activity (it is in the invitation, there are four digits) _____
This number ensures the anonymity of your personal data and decisions.

P2: Thank you for being part of this session
This session is for private use only.
Before we begin, please turn off your cellphone and make sure no one will interrupt or see your computer screen for the next 30 minutes, ensuring no one will interrupt your session.
*Can we begin? ___Yes ___No

P3: Introduction
Some of the people taking part in the study will receive an amount of money according to the decisions they make during the session. We use money because we want, as in everyday life, that your decisions have consequences on your pocket. In any case the money is not expected to be a payment for participating in the study, nor is it the only reason to participate.

The activity is divided into **three different periods**. Each period includes a decision. In each period, participants are divided into **groups of four**. Therefore, you will be in a group with 3 other participants. The composition of the groups will be different for all three periods. We have designed the exercise so that only you know your decisions.

At the end of the session, you will know if you were chosen to receive earnings. One of four participants will be randomly selected and will receive the cash from one of their decisions, randomly selected. Your total profits will be the rounded in thousands of pesos. This means that if you win $ 15,400 we will give you $ 15,000. If you win $16,600, we will give you $ 17,000. If you win $ 14,500 we will give you $ 15,000. Do you want to participate? ___Yes ___No

P4: Instructions
At the beginning of each period, each participant receives 4 tokens. We call this your endowment. Your task is to decide how to use your endowment. You have to decide how many tokens you want

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to contribute to a project and how many tokens you want to keep for yourself. Your winnings are made up of two parts:

1. **Earnings for kept tokens** For each token you save you earn $ 4,000.

2. **Project earnings = $1,600 * Total tokens contributed to the project** The project earnings for each group member are calculated in the same way: each member of the group receives the same project earnings

Therefore, your earnings for a period are: $4,000*(4-\text{your contribution to the project})+\$1,600*(\text{Total contributions to the project})$

The following table lists possible payments according to your contribution to the project and the number of tokens contributed to the project by the other three members in your group. In the columns you have "Tokens you contribute to the project" that can be 0 to 4. In the rows has "Average of tokens that the others contribute to the project", which can be 0 tokens when none of the others contributed, up to a maximum of 4 tokens, when the other three contributed their 4 tokens.

		Tokens you contribute to the project				
		0	1	2	3	4
	0	16,000	13,600	11,200	8,800	6,400
Average tokens	1	20,800	18,400	16,000	13,600	11,200
others contribute	2	25,600	23,200	20,800	18,400	16,000
to the project	3	30,400	28,000	25,600	23,200	20,800
	4	35,200	32,800	30,400	28,000	25,600

Example Remember: You are in a four-group member and each one has a 4 tokens endowment.

1. For example, if you contribute 3 tokens in the project, then 1 token is saved for you. Depending on what the others in the group contribute, you can earn **$ 8,800, $ 13,600, $ 18,400, $ 23,200, or $ 28,000** If the average contributions of the other members of the group in 2 tokens, according to the table you win **$ 18,400** If the average contribution of the other members of the group is 1 token, according to the table you win **$ 13,600**

2. For example, if you contribute 2 tokens to the project, then, 2 tokens are saved for you. Depending on what the others in the group contribute, you can earn **$ 11,200, $ 16,000, $ 20,800, $ 18,400, or $ 30,400** If the average contribution of the other members of the group is 1 token, according to the table you win **$ 16,000** If the average contributions of the other members of the group are 3 tokens, according to the table you win **$ 25,600**

Now, answer all the control questions.

They work as a test that helps you understand how to calculate you winnings. When all the answers are correct, we will know that you understood the activity and proceed with the decisions.

The answers are in pesos. Do not put \$, or period (.), Or comma (,) Remember: You are in a group of **4 people** and each one has a **4 tokens** endowment.

*Suppose no one (including you) contributes to the project.

- What are your earnings? ___

- What are the earnings of each of the other members of the group? ___

- Assume that you contribute 4 tokens to the project. Each of the other members in the group contribute 4 tokens to the project.

- What are your earnings? ___

- What are the earnings of each of the other members of the group? ___

- Suppose the other three members of the group contributed on average 2 tokens to the project.

    - What are your earnings if you contribute 0 tokens to the project? ___
    - What are your earnings if you contribute 2 tokens to the project? ___

- Suppose you contribute 2 tokens to the project.

    - What are your earnings if the other three members of the group contribute an average of 1 token to the project? ___
    - What are your earnings if the other three members of the group contribute an average of 3 tokens for the project? ___

P5: First period: decision You will decide if you keep your tokens or contribute them to the project. Select how many tokens you will contribute to the project and how many tokens you want to save. The tokens that I contribute to the project are ...
___0 and I'll stay with 4 tokens.
___1 and I'll stay with 3 tokens.
___2 and I'll stay with 2 tokens.
___3 and I'll stay with 1 tokens.
___4 and I'll stay with 0 tokens.

P6: First Period:How many tokens you think most will contribute to the Project?

First period: How many tokens you think most will contribute to the project? If you guess **\$5.000** are added to your total earnings. Your answer will not affect the outcome or the decisions of others. I think most of the groups members will contribute to the project ...
___0 tokens and stay with 4 tokens. .
___1 tokens and stay with 3 tokens.
___2 tokens and stay with 2 tokens.
___3 tokens and stay with 1 tokens.
___4 tokens and stay with 0 tokens.

P7: First period: decision for each situation

First period: decision for each situation
As you don't know what others are going to do, on this page, you should write how many tokens you would contribute to the project and how many tokens would be saved for each of the possible contribution levels of the rest of the group.

How do you calculate your winnings in this period if it is selected? First the coordinator sums up the contribution of others in the project (individual response) and then looks at what you responded on this page, for that number of tokens contributed by the others in the group. For example, if the average token contributed by the others is 2, your winnings are calculated by the response you gave on this page, for the situation where the average token contributed by the other token was 2.

- How many tokens does the project contribute to for each of the possible amounts? Enter a number from 0 to 4.

Remember that Saved Tokens + Contributed Tokens = 4
If the **average of tokens contributed by others** to the project is **0** tokens, the tokens **I** contribute to the project are ...＿＿
If the **average of tokens contributed by others** to the project is **1** tokens, the tokens **I** contribute to the project are ...＿＿
If the **average of tokens contributed by others** to the project is **2** tokens, the tokens **I** contribute to the project are ...＿＿
If the **average of tokens contributed by others** to the project is **3** tokens, the tokens **I** contribute to the project are ...＿＿
If the **average of tokens contributed by others** to the project is **4** tokens, the tokens **I** contribute to the project are ...＿＿

P8: Second period

Second period
The earnings of this period are completely independent of the previous one. The instructions and the earning table are the same.
However, in this period, if you contribute **4 tokens** to the project, you will receive the following thank-you message for your contribution to the project:
Thank you very much for your contribution to the project!
Thanks to you, the total contribution to the project increased by four tokens. That means each member of the group (including you) increased their earnings by 4 tokens x $ 1,600 = $ 6,400!
In addition, if we add the earnings of each member in the group, they increased by 4 people x $ 6,400 = $ 25,600!
You are the only one that can read this message. None of the other members of the group will know what your decision was or know that you received the message. On the other hand, if you contribute **0, 1, 2 or 3 tokens**, you will receive no messages

P9: Second period: How many tokens you think most will contribute to the Project?

Second period: How many tokens you think most will contribute to the project? If you guess **$5.000** are added to your total earnings. Your answer will not affect the outcome or the decisions of others. I think most of the groups members will contribute to the project ...

___0 tokens and stay with 4 tokens. .
___1 tokens and stay with 3 tokens.
___2 tokens and stay with 2 tokens.
___3 tokens and stay with 1 tokens.
___4 tokens and stay with 0 tokens.

P10: Second period: decision

You will decide if you keep your tokens or contribute them to the project. Select how many tokens you will contribute to the project and how many tokens you want to save. The tokens that I contribute to the project are ...

___0 and I'll stay with 4 tokens.
___1 and I'll stay with 3 tokens.
___2 and I'll stay with 2 tokens.
___3 and I'll stay with 1 tokens.
___4 and I'll stay with 0 tokens.

P11: Thank you very much for your contribution to the project! Thanks to you, the total contribution to the project increased by four tokens. That means each member of the group (including you) increased their earnings by 4 tokens x $ 1,600 = $ 6,400!

In addition, if we add the earnings of each member in the group, they increased by 4 people x $ 6,400 = $ 25,600!

P12: Second period: decision for each situation As you don't know what others are going to do, on this page, you should write how many tokens you would contribute to the project and how many tokens would be saved for each of the possible contribution levels of the rest of the group.

How do you calculate your winnings in this period if it is selected? First the coordinator sums up the contribution of others in the project (individual response) and then looks at what you responded on this page, for that number of tokens contributed by the others in the group. For example, if the average token contributed by the others is 2, your winnings are calculated by the response you gave on this page, for the situation where the average token contributed by the other token was 2.

- How many tokens does the project contribute to for each of the possible amounts? Enter a number from 0 to 4.

Remember that Saved Tokens + Contributed Tokens = 4
If the **average of tokens contributed by others** to the project is **0** tokens, the tokens **I** contribute to the project are ...___

If the **average of tokens contributed by others** to the project is **1** tokens, the tokens **I** contribute to the project are ...___

If the **average of tokens contributed by others** to the project is **2** tokens, the tokens **I** contribute to the project are ...___

If the **average of tokens contributed by others** to the project is **3** tokens, the tokens **I** contribute to the project are ...___

If the **average of tokens contributed by others** to the project is **4** tokens, the tokens **I** contribute to the project are ...___

P13: Third period

The earnings of this period are totally independent of the previous one.

The instructions and the profits table are the same.

However, in this period, if you or one of the group members contributes 4 tokens to the project, all members of the group will receive the following message:

One of the group members contributed their 4 tokens to the project!
Thanks to him, the total contribution to the project increased by four tokens. That means each of the group members (including you) increased their winnings by 4 tokens x $ 1,600 = $ 6,400!
In addition, if we add the earnings of each group member, it increased by 4 people x $ 6,400 = $ 25,600!

None of the other members of the group will know who it was.

On the other hand, if you and everyone else in the group contribute **0, 1, 2 or 3 tokens**, nobody will receives any messages.

P14: Third period: decision You will decide if you keep your tokens or contribute them to the project. Select how many tokens you will contribute to the project and how many tokens you want to save. The tokens that I contribute to the project are ...

___0 and I'll stay with 4 tokens.

___1 and I'll stay with 3 tokens.

___2 and I'll stay with 2 tokens.

___3 and I'll stay with 1 tokens.

___4 and I'll stay with 0 tokens.

P15: Third Period:How many tokens you think most will contribute to the Project?
Third period: How many tokens you think most will contribute to the project? If you guess **$5.000** are added to your total earnings. Your answer will not affect the outcome or the decisions of others. I think most of the groups members will contribute to the project ...

___0 tokens and stay with 4 tokens. .

___1 tokens and stay with 3 tokens.

___2 tokens and stay with 2 tokens.

___3 tokens and stay with 1 tokens.
___4 tokens and stay with 0 tokens.

P16: Third period: decision for each situation As you don't know what others are going to do, on this page, you should write how many tokens you would contribute to the project and how many tokens would be saved for each of the possible contribution levels of the rest of the group.

How do you calculate your winnings in this period if it is selected? First the coordinator sums up the contribution of others in the project (individual response) and then looks at what you responded on this page, for that number of tokens contributed by the others in the group. For example, if the average token contributed by the others is 2, your winnings are calculated by the response you gave on this page, for the situation where the average token contributed by the other token was 2.

- How many tokens does the project contribute to for each of the possible amounts? Enter a number from 0 to 4.

Remember that Saved Tokens + Contributed Tokens = 4
If the **average of tokens contributed by others** to the project is **0** tokens, the tokens **I** contribute to the project are ...___
If the **average of tokens contributed by others** to the project is **1** tokens, the tokens **I** contribute to the project are ...___
If the **average of tokens contributed by others** to the project is **2** tokens, the tokens **I** contribute to the project are ...___
If the **average of tokens contributed by others** to the project is **3** tokens, the tokens **I** contribute to the project are ...___
If the **average of tokens contributed by others** to the project is **4** tokens, the tokens **I** contribute to the project are ...___

P17: Thank you so much for your participation

We appreciate the following information:

- How many siblings do you have?___

- Are you the head of your household?___Yes___If not

- How long have you been working, in total, for ? ___In years fulfilled.

- How many people are in charge of? ___

P18: Your payment If the last two digits of your ID are between **51 and 75**, one of your three decisions will be selected for payment.
Answer if this is the case. To claim payment for your winnings you must present your ID.

- The last two digits of your ID number end between 51 and 75?___Yes___If not

P19: You're winner! I.D number_____

P20: Period to be paid

If the day you were born is:	You will be paid period:
between 1 and 10	1
between 11 and 20	2
between 21 and 31	3

- Please write your birthday, to determine the period to be paid___

- How do you want to receive your earnings? The following are different ways to receive your earnings, please choose the one that suits you best:

  - ___My office is not in Bogotá. I will receive my profits through Efecty
  - ___as a deposit in my savings account (we need the account number and the) - is only possible for Bogota accounts
  - ___On Tuesday, March 7, 2017, from 12 a.m. to 2 p.m., I will go to an office in Bogotá where a person will give me the winnings in person. We will contact you to confirm the place.

- If you do not work in Bogotá, we will deliver your earnings to you through Efecty, which you will pick up within 5 days after our confirmation. We assume the cost of the transfer.

P21:Remember this information is confidential Savings account number:_____

P22: Again, thank you very much for your participation in this study Any comments or suggestion please write to decisiones.economicas@.org

P23: As you're not ready, please close this window You can participate before **Thursday 2 March 2017**

P24: Thanks for your response *We'd like to know why you're not going to participate.___