Leadership and Social Expectations*

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Abstract

We provide experimental evidence that individuals lead by example to encourage pro-social actions to meet social expectations. Giving extra in order to encourage others to give may be due to altruism, reputational considerations or to do what individuals think is expected of them. However, the third motivation has received little attention and often is a confound of the other motivations. Our experiment is anonymous, so we abstract from reputational considerations. We develop theory to show that teasing apart altruism and social expectations requires measuring beliefs and beliefs over beliefs of what subjects do. Our results find little evidence for altruistic leadership, while social expectations play a significant role.

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1 Introduction

When and why do individuals lead by example with pro-social actions? When renowned mathematician Paul Erdös heard of a promising mathematician who could not afford to go to Harvard, he contributed his own money to allow him to enter. When the man offered to pay Erdös back years later, Erdös insisted that he instead contribute to another budding mathematician in the same situation. 'Pay it forward day' is an international movement which promotes acts of kindness and asking beneficiaries to respond with an act of kindness to others. Surely, there are several motivations for pro-social leading. Individuals may lead by example to spur reciprocity, out of reputational concerns, out of altruism, or because she has private information about the benefits of the pro-social action. In this paper, we develop theory and provide experimental evidence to show that pro-social leading is motivated by social expectations, or the motivation to act according to what individuals believe others expect.

There is accumulating evidence that individuals engage in pro-social actions due to reluctance, interpreted as acting out of social expectations instead of how they would prefer to act in the absence of social pressure (Dana et al., 2006, 2007; DellaVigna et al., 2012, but see Grossman, 2010). However, when individuals lead by example, they seem to be going beyond what is expected of them. Can they also be leading reluctantly? We provide evidence that individuals lead by example due to social expectations, and they therefore do so reluctantly.

Past work has claimed altruism (Romano, 2001, Vesterlund, 1998, Andreoni, 2005, Varian, 1994) or reputational concerns drove part of the decision to lead. An individual motivated by altruism leads in order to increase the amount of pro-social behavior (Romano and Yildirim, 2001; Vesterlund, 1998; Andreoni, 2006; Varian, 1994). An individual motivated by reputational concerns leads in order to improve others' perceptions of himself (Glazer and Konrad, 1996; Duffy and Muñoz-García, 2015). However, both of these motivations are typically confounded with social expectations, which have not received much attention. These confounds are important. Suppose we're interested in starting a cycle of grassroots cooper-

ation, such as improving the 'Pay it forward day' campaign. The optimal policy depends on whether individuals are mainly motivated by altruism, reputation or social expectations. If the motivation is altruism, we should identify the most altruistic people and facilitate their capacity to contribute by providing information and access to worthwhile causes. If individuals are motivated by reputational concerns, we should increase the visibility and identifiability of a pro-social decision. If it is about social expectations, we should increase perceived social expectations to lead. Further, increasing reputational motivations and social expectations may not always be feasible. If what is socially expected is that an individual act pro-socially without seeking reputational benefits, then increasing notoriety will decrease the impact of social expectations concerns. Leading is an example where this tension may arise.

A 'starting' subject is told that she would make three divisions of ten dollars, only one of which would be implemented. She splits ten dollars between herself and a charity in the first two decisions. An 'ending' subject also makes a decision to divide ten dollars with the same charity. In both decisions, the ending subject will observe what the starting subject did. To avoid reputational concerns, the ending subject never learns anything about the starting subject other than her contribution. The only difference between the starting subject's first and second decision is the timing of when the ending subject sees what the starting subject does: either before or after making his own decision. Therefore, in both cases the ending subject is able to judge the starting subject's choice. However, only in one case can the starting subject influence the ending subject's decision. We'll call the situation where the starting subject can influence the ending subject the 'leadable' decision, and the other situation is the 'non-leadable' decision. The difference of what the starting subject contributes in leadable versus the non-leadable decision will be our measure of leadership.

At this stage, the starting subject has one more decision of how to divide ten dollars. This third decision will be to either repeat the leadable decision that the ending subject will again see before making a decision, or to repeat the non-leadable decision that the ending

subject will again see after making a decision. By offering the starting subject the choice to 'clone' the leadable or the non-leadable decision, we can get a measure of which of the two decisions she was happier with.

If a starting subject who gives more in the leadable decision clones the leadable decision, this suggests that leading made her better off. If she clones the non-leadable decision, it suggests that she would have preferred to avoid the leadable decision that made her feel compelled to lead. This gives us a first crude measure of reluctant leadership. In fact, we find that 20% of subjects lead, and almost all who do clone the non-leadable decision.

Although a reasonable start, our definition of reluctant leadership can be easily criticized. Although we have evidence that individuals contribute more to a charity or public good the more others give (Cialdini and Trost, 1998; Frey and Meier, 2004; Martin and Randal, 2008; Alpizar et al., 2008; Croson and Shang, 2008; Shang and Croson, 2009; Kessler, 2013; Allcott, 2011), individuals may have heterogeneous beliefs over the impact of their contribution on others. A starting subject who believes that the ending subject gives more in the non-leadable decision is arguably behaving altruistically in cloning the non-leadable decision. In fact, several complications arise when thinking about what the starting subject believes the ending subject will do. To proceed systematically, in Section 2 we model the starting subject's decision and derive necessary conditions to conclude that leadership was reluctant. We develop two set of conditions: the first based on the starting subject's beliefs about what the ending subject will do, and the second based on the starting subject's social expectations – her beliefs about what others think she will do. We will argue that the second set of conditions can lead to sharper conclusions. As we describe in more detail when we describe the experimental design in Section 3, we recorded both of these types of beliefs. In Section 4, we show that we find evidence in support of reluctant leadership in all of our tests.

Surprisingly, most of the experimental work in the literature that have studied altruistic leadership have failed to take the confounds of altruism and reputational considerations into account. Many of them study a public goods game where the individual gets material benefits

from what other players contribute (Meidinger and Villeval, 2002; Moxnes and Van der Heijden, 2003; Potters et al., 2005; Güth et al., 2007; Komai and Grossman, 2007; Levati et al., 2007; Levy et al., 2011; Gächter et al., 2012; Abe et al., 2010; Rivas and Sutter, 2009; Bracha et al., 2011; d'Adda, 2012; Arbak and Villeval, 2013). This setting is problematic since a first mover may be leading in order to increase his own benefit from the public good. Nevertheless, some authors use the results of this experiment to infer altruistic leadership motivations (e.g. Arbak and Villeval, 2013). Other experimental studies make the identity of the subject public or partially public (e.g. Jack and Recalde, 2013). An example where the identity is partially identifiable is d'Adda (2012), who divides groups in villages in Colombia into subgroups of six to eight based on publicly recognizable status tiers. Second movers see first movers' contributions as well as the status tier the leader was in. Concern for reputation (perhaps at the status tier level) confounds altruistic motivations.

Karlan and McConnell (2014) is closest to ours, so it is worth pointing out the differences a bit more carefully. In their design, they give individuals three sets of five dollars. With the first set they give privately. With the second they give publicly, since the experimenters write the names of all participants on a board with their corresponding amount. There are two conditions, in the first their contribution is announced before the third decision, and in the second their contribution is announced after. These conditions are closest to our leadable and non-leadable situations. Of note, they do not find a significant difference between contributions in these two scenarios. There are three main differences between their design and ours. The first is that the three decisions are made with different sets of 5 dollars. That means that each decision the subjects are making are on different margins, which makes it difficult to make any utility comparisons. We avoid this by using the strategy method with individuals' three choices. The second is that social image motivations are present and salient. The social image motivation may be what's most important or salient in both conditions, which may explain why they act similarly. The third difference is that everyone's contribution is made public. This creates a strong free rider problem: the impact any first

mover's contribution may have on second movers is dampened by the information of what others give. A different complication that arises is that individuals' relative contribution becomes a relevant consideration, which is present in both their decisions where subjects give publicly. The anonymity in our design and the first mover's lack of information regarding what others gave avoids these issues.

Past theoretical work on leadership as defined here has mostly focused on the leader's private information on the productivity of the public good (Hermalin, 1998; Andreoni, 2006; Komai and Grossman, 2007; Abe et al., 2014), while some recent work has explained an initial contribution as facilitating coordination in a global game (Hatsumi, 2013). There are a few behavioral explanations, such as players disliking effort differentials (Huck and Rey-Biel, 2006), being impure altruists (Romano and Yildirim, 2001), or have a preference for fairness (Duffy and Muñoz-García, 2015; Abe et al., 2014). This paper explores the theoretical and empirical role social expectations have in a theory of leadership.

2 Theory

Two subjects $i \in \{1, 2\}$ split their endowment of a dollar between themselves and a charity, with $d_i \in [0, 1]$ going to the charity. Call the starting subject $i = 1$ and the ending subject $i = 2$. The starting subject's decision is made in one of two situations, a 'leadable' situation ($l = 1$) and a 'non-leadable' situation ($l = 0$). In both situations, the ending subject observes the starting subject's choice d_1. The only difference is that in the leadable situation the ending subject observers d_1 before making a decision. We then write the ender's contribution $d_2(d_1, l)$ as a function of the starter's contribution and the situation.[1] The ending subject's contribution does not depend on d_1 if $l = 0$, or $\partial d_2(d_1, 0)/\partial d_1 = 0$. We refer to the derivative

[1]Notice we are assuming that d_2 is a deterministic function of d_1. This is a simplifying assumption, since incorporating uncertainty over the ender's contribution adds uncertainty while distracting from the main argument.

of the ending subject's contribution in the leadable situation given the starting subject's contribution, or $\partial d_2(d_1, 1)/\partial d_1$, as the ending subject's response.

The starting subject has a utility function which increases in how much she keeps of the endowment, $1 - d_1$, and a function of how much is given to the charity, $g = d_1 + \gamma d_2$. The parameter $\gamma \geq 0$ allows us to capture whether the starting subject cares about the ending subject's contribution to the charity. We can then write a function $u(1 - d_1, g)$, increasing in both arguments, which captures the starter's utility from her decision. If $\gamma > 0$, we say the first mover is an 'altruistic leader' who cares about how her contribution impacts the ending subject's contribution.[2] In an anonymized setting, we can abstract from reputational considerations.[3] We may be tempted to conclude then that observing the difference in the starting subject's contribution in the leadable and non-leadable situation ($d^*(1) - d^*(0)$, where $d^*(l)$ is the starting subject's optimal donation given the situation) provides a measure of altruistic leadership. However, estimating γ is not possible without estimating the ending subject's response $\partial d_2(d_1, 1)/\partial d_1$.

When $\gamma > 0$, $d_1^*(1) - d_1^*(0)$ may be positive, negative or zero depending on whether the second mover's response $\partial d_2(d_1, 1)/\partial d_1$ is positive, negative or zero. This cannot be determined objectively, it depends on the subjective beliefs of the first mover. One way to proceed is to elicit the first mover's beliefs over how the second mover will react to d_1 in $l = 1$, and over the second mover's contribution in $l = 0$. Suppose we observe that the ending subject's contribution responds positively to the starting subject's contribution ($\partial d_2(d_1, 1)/\partial d_1 > 0$), and that the starting subject gives more in the leadable situation

[2]The literature makes a distinction between an 'impure altruist' ($\gamma = 0$), who only cares about her own contribution to the public good, and a 'pure altruist', who cares about the total contribution.(Andreoni, 1990) It would be more in line with the literature to define a pure altruist as having ($\gamma = 1$). For purposes of this article, this distinction is not important.

[3]In fact, the experimental protocol is careful to make decisions not only anonymous to the ending subject, but also to the experimenter.

$(d_1^*(1) - d_1^*(0) > 0)$. If the starting subject's motivation was completely captured by the utility function u, this is indeed would be consistent with $\gamma > 0$. However, once we introduce social expectations this is no longer necessarily the case. The pattern of contribution can also be explained by a social expectation to give more when in a leadable situation.

In addition to the material utility, assume individuals are concerned about meeting social expectations. Social expectations are the behavior that is expected of an individual in a given situation, given by $\mathbb{E}_s(d_1|l)$. More precisely, they are an individuals' average beliefs over others' beliefs of d_1 in situation l. Individuals are assumed to care about acting according to social expectations.[4] To capture this, let $v(\mathbb{E}_s(d_1|l) - d_1) \leq 0$ be a function which is increasing for any negative argument and zero otherwise. That is, they lose utility if their donations fall short of social expectations. Total utility is given by the sum of the material utility u and the social expectation utility v:

$$U(d_1, l) = u(1 - d_1, g) + \alpha v(\mathbb{E}_s(d_1|l) - d_1)$$

where $\alpha \geq 0$ is the weight put on following social expectations. Suppose that the social expectation to donate as a first mover is higher when the decision can affect the second mover's decision: $\mathbb{E}_s(d_1|1) - \mathbb{E}_s(d_1|0) > 0$. Intuitively, this could be because individuals are supposed to act more pro-socially when in a position to influence others. Then if α is large enough, $d_1^*(1) - d_1^*(0) > 0$ independently of the ending subect's response (again, $\partial d_2/\partial d_1$). We call this a 'reluctant leader'. We therefore would no longer be able to to distinguish between an altruistic leader ($\gamma > 0$) and a reluctant leader who is not an altruistic leader ($\gamma \leq 0$ and $\alpha > 0$).

To distinguish between these two cases, consider the following procedure. First movers make a decision in the leadable and non-leadable situations ($d_1^*(1)$ and $d_1^*(0)$) knowing either will be implemented with a mutually exclusive 1/3 probability. After they make these decisions, they are asked to make a final choice which will be implemented with 1/3 prob-

[4]There is a large literature on this (references). This is a way of capturing norms.

ability. Their third choice is between $d_1^*(1)$ in the leadable (denoted $x = 2/3$) situation or $d_1^*(0)$ in the non-leadable situation (denoted $x = 1/3$). That is, they must choose between a 'clone' of their first choice and a 'clone' of their second choice. The third choice will be implemented with a 1/3 probability mutually exclusive from the first two decisions. Notice that by making the probability of implementation of the decisions mutually exclusive, we are keeping the margins over which the three decision are made the same. The third decision is equivalent to having them choose which of their decisions and corresponding situations should be implemented with 1/3 probability, and which with 2/3 probability:

$$\max_{x \in \{1/3, 2/3\}} xU(d_1^*(1), 1) + (1 - x)U(d_1^*(0), 0)$$

With this decision, the first mover is revealing his preference for the choice-situation pair. A starting subject who gave more in the leadable situation ($l = 1$) because the social expectation to do so was higher ($\mathbb{E}_s(d_1|1) > \mathbb{E}_s(d_1|0)$) will not clone that decision ($x^* = 1/3$). Indeed, she does better when the social expectation is lower, which allows him to allocate more of the endowment to herself. Now suppose an altruistic leader expects the ending subject to react positively to her contribution ($\partial d_2(d_1, 1)/\partial d_1 > 0$), and that in fact she contributed more in the leadable situation ($d_1^*(1) > d_1^*(0)$). Will she clone the decision in the leadable situation? Not necessarily. Despite a positive reaction, it may be the case that the first mover thinks the second mover gives less in the leadable situation: $d_2(d_1^*(1), 1) < d_2(\cdot, 0)$. If this level drop is large enough, an altruistic leader would do better off by cloning the same situation as the one cloned by the individual concerned only with social expectations. Unfortunately, even this more elaborate test is not sufficient to distinguish between altruistic leadership and leadership due to social expectations.

Without imposing further assumptions on the functional forms of u or v, we can follow two approaches to to get traction on distinguishing between altruistic leaderstship ($\gamma > 0$) and reluctant leadership ($\alpha > 0$). First, we can use d_2 to derive sufficient conditions to determine whether the starting subject is an altruist:

Result 1. *Suppose the following three conditions hold:*

1. *The starting subject gives more in the leadable situation ($d_1^*(1) > d^*(0)$).*

2. *The ending subject reacts weakly positively in the leadable situation: $\partial d_2(d_1, 1)/\partial d_1 \geq 0$*

3. *The second mover's contribution in the leadable situation given what the first mover gave in the non-leadable situation is greater or equal to the second mover's contribution in the non-leadable situation: $d_2(d_1^*(0), 1) \geq d_2(\cdot, 0)$*

Then the starting subject is an altruistic leader if she clones the leadable situation ($x^* = 2/3$), and is a reluctant leaer if she clones the non-leadable situation ($x^* = 1/3$).

Proof. Suppose the starting subject took the amount she optimally gives in the non-leadable situation ($d^*(0)$) and gave it in the leadable situation. By the third condition of Result 1, the starting subject believes the ending subject would respond by giving at least the same amount in the leadable situation as in the non-leadable situation. But then if she believes the ending subject responds positively to her contribution, as in the second condition of Result 1, then she believes that by giving more she increases the amount the ending subject contributes to the charity. But then if she gives more in the leadable situation and clones the leadable situation, as in the first condition of Result 1, she is revealing a preference for increasing the amount the ending subject gives to charity. That is, she reveals a preference for altruistic leadership, or $\gamma > 0$. □

The problem with this approach is that it leaves some unresolved cases. For example, it may be the case that an individual is an altruistic leader even if only the first two conditions of Result 1 hold. Further, because determining whether an individual is an altruistic leader requires knowing their specific beliefs over what the second mover will do in different situations, I cannot look at whether $\gamma > 0$ on average.

The second approach is to estimate social expectations, which provides a way of asking whether there is reluctant leadership ($\alpha > 0$) on average. We can compare whether a

relatively higher social expectation in the leadable situation, or $\mathbb{E}_s(d_1|1) - \mathbb{E}_s(d_1|0)$, leads to a relatively higher contribution in the leadable situation, or $d^*(1) - d^*(0)$. A positive correlation could be explained by $\alpha > 0$, or by $\gamma > 0$ if the difference in social expectations is positively correlated with the ending subject's response $\partial d_2(d_1, 1)/\partial d_1 \geq 0$. To distinguish between these possibilities I can further ask whether those who gave more in the leadable scenario were more likely to clone the non-leadable scenario if they had a higher social expectation to lead. This would only be the case if the motivation to follow social expectations ($\alpha > 0$) was stronger than a motivation to lead altruistically ($\gamma > 0$) on average for those who gave more in the leadable situation.

3 Experimental Design

Participants were recruited through the Harvard Decision Science Lab subject pool. They were paid a $5 show up fee. A session is composed of two sign up times, twenty minutes apart. The first group is composed of starting subjects, the second of ending subjects. Note that random assignment between these groups was not necessary, since the comparison will be within subjects and between leaders. Subjects are received in a lobby, where they are asked to sign a consent form with the experimenter's contact information as well as that of the Committee on the Use of Human Subjects in Research at Harvard University. Once all subjects finish filling out the consent forms, they draw a piece of paper and a key. The paper assigns them to their cubicles, while it is explained to them that the key opens a personal locker in a private room where they pick up the payment at the end of the session.

Starting subjects and ending subjects are in separate rooms. Each room has twelve cubicles, and 15 slots were offered per room during recruitment to account for attrition. Once seated, the introductory instructions are read out loud. Special attention was paid to make sure the instructions were clear, and several pilots were conducted to test for this. The introductory instructions explain that they will make three divisions of one set of ten

dollars between themselves and a charity, and one division will be selected at random to be implemented. In order to facilitate comprehension, the instructions specified that they will divide their ten dollars in three situations described in different boxes, and that at the end one of the boxes would be selected by the lottery. It was explained to them that whichever box the lottery chose to implement, the other two boxes became irrelevant for how their ten dollars were to be divided. They were therefore encouraged to make each decision as if it were the only one they were making with those ten dollars. The introductory instructions also made clear that their decisions were anonymous, and they were not asked for their name at any point on the computer prompts. The charity they divide the money with is the East Africa Food Crisis Relief Fund of Save the Children, which addressed a drought in East Africa. The remoteness and temporality of the charity was chosen in order to make it hard to argue that the benefits of the charity impacted the recipients in any direct way. The instructions also stated that Save the Children would not know where the donation that was raised through the experiment came from, in order to avoid social expectations considerations towards the charity.

The rest of the instructions were read on their computer, which ran the session using zTree (Fischbacher, 2007). The instructions avoided using words that would lead to desirability bias, such as 'leadership', 'followership' or 'influence', and associated words. For example, instead of 'leadable' and 'non-leadable' situations as we have referred to them so far, we called them 'Can consider' and 'Can't consider' scenarios. Not using these key words made it a challenge to explain to subjects in a way that was clear and concise what the difference was between the subtly different situations. We approached these difficulties in several ways. One general solution was to include a questionnaire screen after the screens with the most difficult or novel explanations. After subjects answered the questionnaire, a screen with the answers would appear, specifying which questions they answered correctly or incorrectly. From there, they would see the original instructions one last time before moving on. Below we present the screenshots of the first explanation, questionnaire and questionnaire answers

of the stage where we introduce the Can Consider and the Cannot Consider scenario.

[Figures 1, 2 and 3 about here]

Starting subjects were randomly assigned to one of two treatments. The only difference between the treatments were whether they made a decision in the Can Consider scenario or in the Can't Consider scenario first. Explaining the difference in situations in a neutral way was difficult. The challenge was that it becomes cognitively challenging to keep track of the difference between two sequences of subjects making a contribution decision in which the only difference is *when* one subject observes what the other did. In order to aid comprehension, we included visual timelines. When talking about a person in the role of a starting subject (ending subject), we referred to that person as 'Mr 1' ('Mr 2'). This label genders the players in order to make it easier to refer to them throughout the instructions. Favoring an explanation that kept gender neutral would make referring to Mr 1 and Mr 2 hard to keep track of.

The very first screen all starting subjects saw explained both scenarios and made it clear that they would make decisions in each scenario. The subjects next passed on to their first decision, and after they had made that the decision, their second decision was presented. A point was made to make everything that happened in the instructions of both scenarios identical except for the timing of the announcement of the leader's contribution. In particular, in both scenarios it was explained that 'Mr 2' (the ending subject) would make his own contribution. In the Can Consider scenario, the only information the second mover would have about what others gave was what the first mover gave. In the Cannot Consider scenario, the second mover would not have any information about what others gave before making his decision, and the second mover would know how much the leader gave afterwards. It was important that the starting subject knew that the ending subject would make a decision and his available information when doing so in order to be able to compare utilities as specified in the model. In Figure 4 we present the introductory screenshot of

the first decision in the treatment where the starting subject makes a decision in the Can Consider scenario first.

[Figure 4 about here]

Up to this point, even though subjects knew there would be a third decision, they were not aware of what their third decision was going to be. Once they made their second decision, they are offered to clone the decision made in the first or second situation. The instructions explained that whatever decision they clone will be implemented with twice the likelihood.

The layout and the design of the third question is set up to avoid a default option. The question asks the leader to select one of the two decisions to clone. The two situations are explained again, and the order in which they are explained is the same as the order in which they made their decisions. Therefore, this order this changes per treatment.

Our design allows us to avoid having subjects choose the exit option when it was offered to them because it being offered signalled it was desirable. The seminal paper by Dana et al. (2006), for example, offers individuals the option to 'exit' a dictator game after they chose how much to allocate to a second player. An example of a more neutral approach would have allowed subjects to decide whether they would be willing to exit for a dollar less or a dollar more – either across different subjects or randomizing which one was implemented.

After the starting subjects made their three decisions, but before they were informed which of the three lotteries was selected, they were asked to play two 'guessing games'. In the first guessing game, they had to guess how much people in different situations gave to Save the Children on average. The instructions indicated that the person with the closest guess won an extra five dollars. They were first asked to guess about Mr 2 in the Can and the Cannot Consider scenario. For the Can Consider scenario, they were asked to guess how much Mr 2 gave to Save the Children for each integer amount between 0 and 10 dollars that Mr 1 gave. For the Cannot Consider scenario, they were asked to guess how much Mr 2 contributed unconditionally. After they make this decision, they also guess what Mr 1 gave

in the Can and Cannot Consider scenarios. The second guessing game asked subjects to guess the average of what others guessed in the first guessing game in each of the questions. The person with the closest guesses would receive 5 additional dollars. Thus, this second guessing game provided a measure of social expectations, or second order beliefs about what people did.

After the guessing games, starting subjects are asked to answer a series of questions. These questions are of two types. The first type are sociodemographic questions (including age, gender, education). The second are personality questions. Some of these questions ask about past experiences of leadership positions, such as being the captain of a team, being the oldest brother or having children. Other questions were taken from the psychology literature on leadership. Questions fromt the Machiavellianism instrument (Christie and Geis, 1970), used in (Gunnthorsdottir et al., 2002), the modified Machiavellianism instrument (Dahling et al., 2009), the leader behavior description questionnaire (Stogdill and Coons, 1957) and the multifactor leadership questionnaire (Avolio and Bass, 1995) were used.

Finally, first movers filled out an exit survey that asked open questions about what was going through their minds when they were making the decisions and playing the guessing game.

4 Results

We begin with the summary statistics from our starting subjects in Table 1. All standard errors in our results are clustered at the session level. The average age is well above college graduation, at 30.6. This is confirmed by 74% of our sample having completed college, 21% still in college and 5% only having completed high school. This is encouraging, as a common concern in lab experiments is that it draws too heavily from college students. About half of the sample is female. None of these characteristics are significantly different from each other when compared across treatments, which suggests the randomization was done properly. In

the appendix, we show that the treatment was balanced across a range of variables.

[Table 1 about here]

Figure 5 summarizes our main behavioral results. 24% of subjects gave more in the leadabe situation, 71% gave the same amount, and 5% gave more in the non-leadable situation. On average, subjects gave 55 cents more in the leadable situation, contributing 3.35 in the leadable situation and 2.8 in the non-leadable situation. Subjects cloned the non-leadable situation significantly more when they gave more. When they gave the same in either situation, cloning decisions were random. When they gave more in the non-leadable situation, all subjects cloned the leadable situation. This is prima facie evidence that leadership is reluctant, but as we argued in Section 2, in order to distinguish between altruistic and reluctant leadership we need to take into account beliefs about what people do on average in each situation, or beliefs about what others believe people do on average.

[Figure 5 about here]

Result 1 provides a criterion for identifying whether subjects are altruistic or reluctant leaders. We find that only 2% of subjects are altruistic leaders according to the criterion, while 8% of subjects are reluctant leaders. Only reluctant leaders are significantly different from zero (p-value below 5%). This further bolsters the claim that leadership is driven by reluctance. As we discussed in Section 2, the problem with the criterion form Result 1 is that there are some cases where subjects are either altruistic or reluctant, but we cannot identify which motivation is driving behavior without stronger assumptions on functional forms. Instead, we proceed by a second method described in section 2, which is first to test whether individuals give more if they think social expectations to lead are higher, and second if those who give more in the leadable situation are relatively more likely to clone the non-leadable situation if they believe social expectations to lead are higher. This tests for whether our subjects are reluctant leaders on average.

Table 2 provides evidence that individuals give more if they think social expectations to lead are higher. Recall that social expectations to lead are measured as the difference between how much a starting subject thinks others think starting subjects gave on average in the leadable situation minus the non-leadable situation. The first column shows that subjects gave 50 cents more in the leadable situation on average. The second column shows that those with higher social expectations to lead gave more in the leadable situation. This establishes the basic observation that higher social expectations to lead increase the difference in contribution in the leadable versus non-leadable situation. The third and fourth columns consider whether the order in which starting subject faced the situations affected behavior. Column 3 shows that those whose first decision is the leadable situation give more than those whose first decision is the non-leadable situation. Column 4 provides some evidence that social expectations impact behavior more strongly among those whose first decision is the leadable situation. These results are not predicted by our framework, although they also do not contradict it.

[Table 2 about here]

Table 3 provides evidence that those who give more in the leadable situation are more likely to clone the non-leadable situation if they have higher social expectations to lead. The first column shows that those who gave more in the leadable situation are more likely to clone the non-leadable situation. The second column shows that those who give more in the leadable situation are relatively more likely to clone the non-leadable situation when social expectations to lead are higher. The third and fourth columns test whether the order in which subjects face the situations has an impact on the results. The third column shows that those who face the leadable situation first are not more likely to clone either situation. The fourth column shows that they are not more sensitive to social expectations to lead.

[Table 3 about here]

A natural concern is whether those who gave more in the leadable situation are different from those who gave more in the non-leadable situation in a way that drives behavior. Indeed, we did not randomly assign some subjects to give more in the leadable situation, so we must worry about selection bias. In addition to controlling for demographic and attitudinal variables in all our regressions, in the appendix we show a balance table comparing those who gave more in the leadable situation to the rest. We find a surprising amount of balance among our variables.

A second concern is that the impact of beliefs about what others do and beliefs about beliefs about what others do may be confounded. Indeed, what individuals believe is the difference between what starting subjects give in the leadable versus non-leadable situation is closely related to what they believe others believe. It may also be the case that what is driving behavior is not beliefs (or beliefs about beliefs) about leading, but beliefs about how the ending subject will react, or beliefs about beliefs about how the ending subject will react. In the appendix, we control for these different beliefs in both our question about whether social expectations impact whether individuals give more in the leadable situation, and whether those who give more are more sensitive to beliefs in their cloning decisions. Although significance is lost in some specifications due to multicollinearity, we find the strongest evidence in favor of the impact of social expectations.

5 Conclusion

We have provided evidence that acting to increase others' pro-sociality can itself be driven by social expectations. This is surprising, as the type of influence we're considering seems to work by acting in a way that is more pro-social than others would expect in order to influence their views of what is expected of them. It is worth noting that the circumstances under which social expectations drive this sort of leadership are most likely circumscribed. Subjects in a lab are typically more attuned to acting in a way that is expected of them.

Future work must study the impact of social expectations in more natural settings. As we argued in the introduction, understanding when social expectations are driving leadership behavior can help us design policies to increase contribution to public goods such as charities that increase others' welfare. Increasing pro-social leadership not only increases how much the influencer gives (among those who expect their contribution to have a positive impact on others, who were 66% in our sample), it also increases how much those who observe the influencer gives. This may create a positive cycle that sustains a higher overall contribution to public goods.

References

Abe, K., H. Kobayashi, and H. Suehiro (2010). Experiments on the emergence of leadership in teams. Technical report, Kansai University, Working Paper Series F-49.

Abe, K., H. Kobayashi, and H. Suehiro (2014). Leadership in the prisoner's dilemma with inequity-averse preferences. Technical report, Kobe University, Graduate School of Business Administration.

Allcott, H. (2011). Social norms and energy conservation. *Journal of public Economics 95*(9), 1082–1095.

Alpizar, F., F. Carlsson, and O. Johansson-Stenman (2008). Anonymity, reciprocity, and conformity: Evidence from voluntary contributions to a national park in costa rica. *Journal of Public Economics 92*(5), 1047–1060.

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The economic journal 100*(401), 464–477.

Andreoni, J. (2006). Leadership giving in charitable fund-raising. *Journal of Public Economic Theory 8*(1), 1–22.

Arbak, E. and M.-C. Villeval (2013). Voluntary leadership: motivation and influence. *Social Choice and Welfare*, 1–28.

Avolio, B. J. and B. M. Bass (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. *The leadership quarterly 6*(2), 199–218.

Bracha, A., M. Menietti, and L. Vesterlund (2011). Seeds to succeed?: Sequential giving to public projects. *Journal of Public Economics 95*(5), 416–427.

Christie, R. and F. L. Geis (1970). *Machiavellianism*. Academic Press, Incorporated.

Cialdini, R. B. and M. R. Trost (1998). Social influence: Social norms, conformity and compliance.

Croson, R. and J. Y. Shang (2008). The impact of downward social information on contribution decisions. *Experimental Economics 11*(3), 221–233.

d'Adda, G. (2012). Leadership and influence: Evidence from an artefactual field experiment on local public good provision.

Dahling, J. J., B. G. Whitaker, and P. E. Levy (2009). The development and validation of a new machiavellianism scale. *Journal of management 35*(2), 219–257.

Dana, J., D. M. Cain, and R. M. Dawes (2006). What you dont know wont hurt me: Costly (but quiet) exit in dictator games. *Organizational Behavior and human decision Processes 100*(2), 193–201.

Dana, J., R. A. Weber, and J. X. Kuang (2007). Exploiting moral wiggle room: experiments demonstrating an illusory preference for fairness. *Economic Theory 33*(1), 67–80.

DellaVigna, S., J. A. List, and U. Malmendier (2012). Testing for altruism and social pressure in charitable giving. *The quarterly journal of economics 127*(1), 1–56.

Duffy, J. and F. Muñoz-García (2015). Cooperation and signaling with uncertain social preferences. *Theory and Decision 78*(1), 45–75.

Fischbacher, U. (2007). z-tree: Zurich toolbox for ready-made economic experiments. *Experimental economics 10*(2), 171–178.

Frey, B. S. and S. Meier (2004). Social comparisons and pro-social behavior: Testing" conditional cooperation" in a field experiment. *The American Economic Review 94*(5), 1717–1722.

Gächter, S., D. Nosenzo, E. Renner, and M. Sefton (2012). Who makes a good leader? cooperativeness, optimism, and leading-by-example. *Economic Inquiry 50*(4), 953–967.

Glazer, A. and K. A. Konrad (1996). A signaling explanation for charity. *The American Economic Review 86*(4), 1019–1028.

Grossman, Z. (2010). Self-signaling versus social-signaling in giving. *Department of Economics, UCSB*.

Gunnthorsdottir, A., K. McCabe, and V. Smith (2002). Using the machiavellianism instrument to predict trustworthiness in a bargaining game. *Journal of Economic Psychology 23*(1), 49–66.

Güth, W., M. V. Levati, M. Sutter, and E. Van Der Heijden (2007). Leading by example with and without exclusion power in voluntary contribution experiments. *Journal of Public Economics 91*(5), 1023–1042.

Hatsumi, K. (2013). A coordination game model of charitable giving and seed money effect. *Journal of Public Economic Theory 15*(3), 411–432.

Hermalin, B. E. (1998). Toward an economic theory of leadership: Leading by example. *American Economic Review*, 1188–1206.

Huck, S. and P. Rey-Biel (2006). Endogenous leadership in teams. *Journal of Institutional and Theoretical Economics JITE 162*(2), 253–261.

Jack, B. K. and M. P. Recalde (2013). Leadership and the voluntary provision of public goods: Field evidence from bolivia.

Karlan, D. and M. A. McConnell (2014). Hey look at me: The effect of giving circles on giving. *Journal of Economic Behavior & Organization 106*, 402–412.

Kessler, J. B. (2013). Announcements of support and public good provision. *American Economic Review*.

Komai, M. and P. J. Grossman (2007). Leadership, information transmission and group size.

Levati, M. V., M. Sutter, and E. Van der Heijden (2007). Leading by example in a public goods experiment with heterogeneity and incomplete information. *Journal of Conflict Resolution 51*(5), 793–818.

Levy, D. M., K. Padgitt, S. J. Peart, D. Houser, and E. Xiao (2011). Leadership, cheap talk and really cheap talk. *Journal of Economic Behavior & Organization 77*(1), 40–52.

Martin, R. and J. Randal (2008). How is donation behaviour affected by the donations of others? *Journal of Economic Behavior & Organization 67*(1), 228–238.

Meidinger, C. and M. C. Villeval (2002). Leadership in teams: Signaling or reciprocating?

Moxnes, E. and E. Van der Heijden (2003). The effect of leadership in a public bad experiment. *Journal of Conflict Resolution 47*(6), 773–795.

Potters, J., M. Sefton, and L. Vesterlund (2005). After youendogenous sequencing in voluntary contribution games. *Journal of public Economics 89*(8), 1399–1419.

Rivas, M. F. and M. Sutter (2009). Leadership in public goods experiments-on the role of reward, punishment and endogenous leadership. *Unpublished manuscript, available at http://homepage. uibk. ac. at/˜ c40421/pdfs/Leadership_November_09_RAP_v2. pdf*.

Romano, R. and H. Yildirim (2001). Why charities announce donations: a positive perspective. *Journal of Public Economics 81*(3), 423–447.

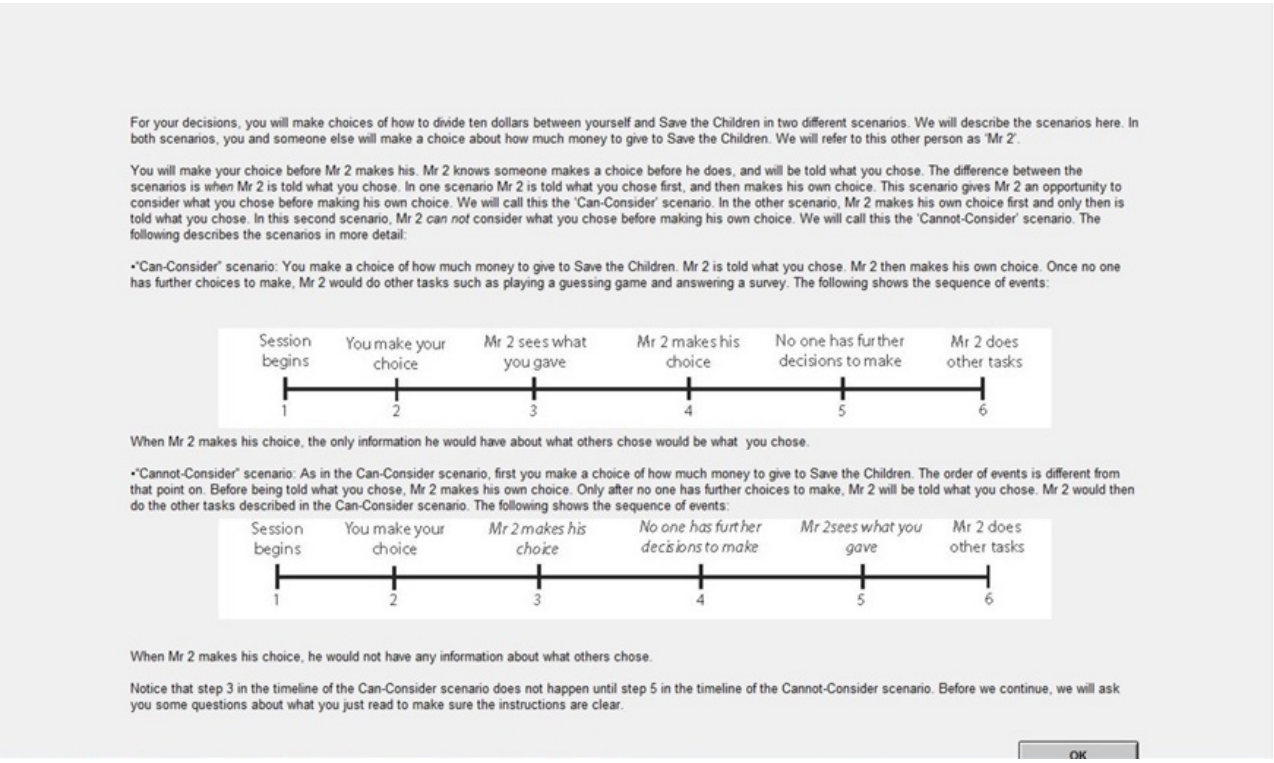
Shang, J. and R. Croson (2009). A field experiment in charitable contribution: The impact of social information on the voluntary provision of public goods. *The Economic Journal 119*(540), 1422–1439.

Stogdill, R. M. and A. E. Coons (1957). Leader behavior: Its description and measurement.

Varian, H. R. (1994). Sequential contributions to public goods. *Journal of Public Economics 53*(2), 165–186.

Vesterlund, L. (1998). The informational value of sequential fundraising. department of economics, iowa state university. Technical report, Working paper.

A Figures and Tables



For your decisions, you will make choices of how to divide ten dollars between yourself and Save the Children in two different scenarios. We will describe the scenarios here. In both scenarios, you and someone else will make a choice about how much money to give to Save the Children. We will refer to this other person as 'Mr 2'.

You will make your choice before Mr 2 makes his. Mr 2 knows someone makes a choice before he does, and will be told what you chose. The difference between the scenarios is *when* Mr 2 is told what you chose. In one scenario Mr 2 is told what you chose first, and then makes his own choice. This scenario gives Mr 2 an opportunity to consider what you chose before making his own choice. We will call this the 'Can-Consider' scenario. In the other scenario, Mr 2 makes his own choice first and only then is told what you chose. In this second scenario, Mr 2 *can not* consider what you chose before making his own choice. We will call this the 'Cannot-Consider' scenario. The following describes the scenarios in more detail:

•"Can-Consider" scenario: You make a choice of how much money to give to Save the Children. Mr 2 is told what you chose. Mr 2 then makes his own choice. Once no one has further choices to make, Mr 2 would do other tasks such as playing a guessing game and answering a survey. The following shows the sequence of events:

When Mr 2 makes his choice, the only information he would have about what others chose would be what you chose.

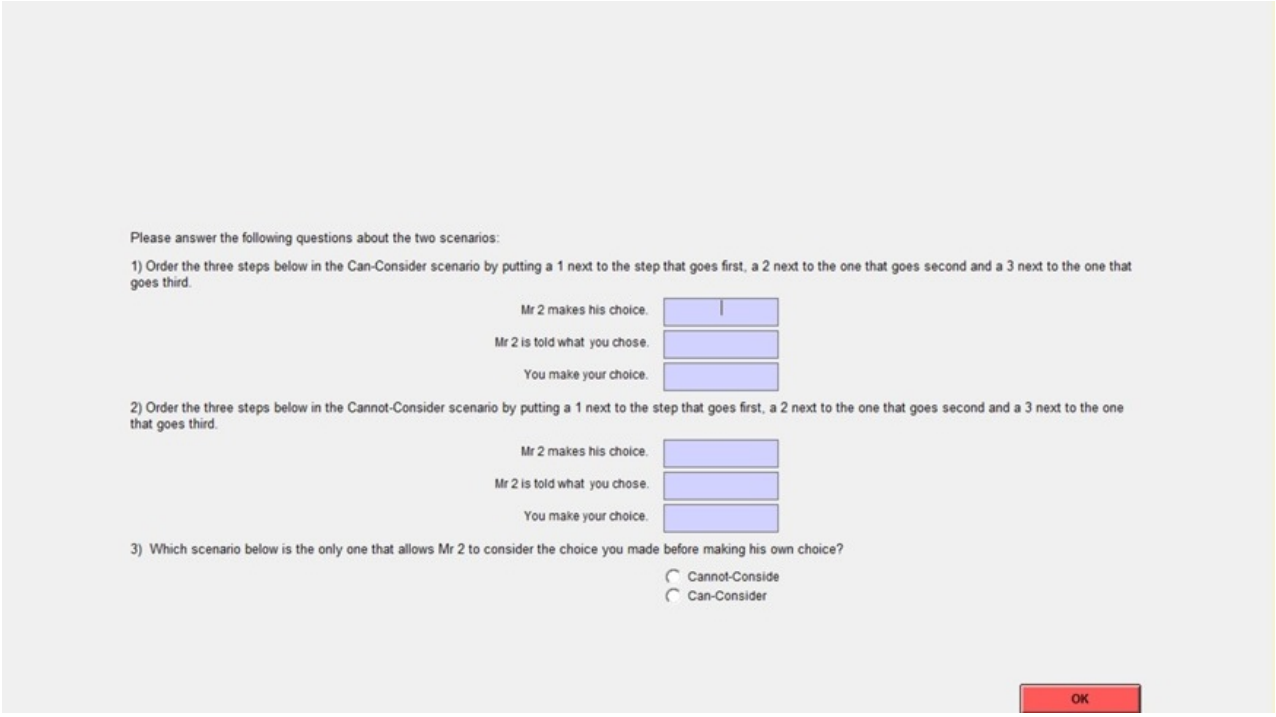
•"Cannot-Consider" scenario: As in the Can-Consider scenario, first you make a choice of how much money to give to Save the Children. The order of events is different from that point on. Before being told what you chose, Mr 2 makes his own choice. Only after no one has further choices to make, Mr 2 will be told what you chose. Mr 2 would then do the other tasks described in the Can-Consider scenario. The following shows the sequence of events:

When Mr 2 makes his choice, he would not have any information about what others chose.

Notice that step 3 in the timeline of the Can-Consider scenario does not happen until step 5 in the timeline of the Cannot-Consider scenario. Before we continue, we will ask you some questions about what you just read to make sure the instructions are clear.

OK

Figure 1: Introductory Presentation Of Situations



Please answer the following questions about the two scenarios:

1) Order the three steps below in the Can-Consider scenario by putting a 1 next to the step that goes first, a 2 next to the one that goes second and a 3 next to the one that goes third.

Mr 2 makes his choice.

Mr 2 is told what you chose.

You make your choice.

2) Order the three steps below in the Cannot-Consider scenario by putting a 1 next to the step that goes first, a 2 next to the one that goes second and a 3 next to the one that goes third.

Mr 2 makes his choice.

Mr 2 is told what you chose.

You make your choice.

3) Which scenario below is the only one that allows Mr 2 to consider the choice you made before making his own choice?

Cannot-Conside

Can-Consider

OK

Figure 2: Questionnaire of Introductory Presentation Of Situations

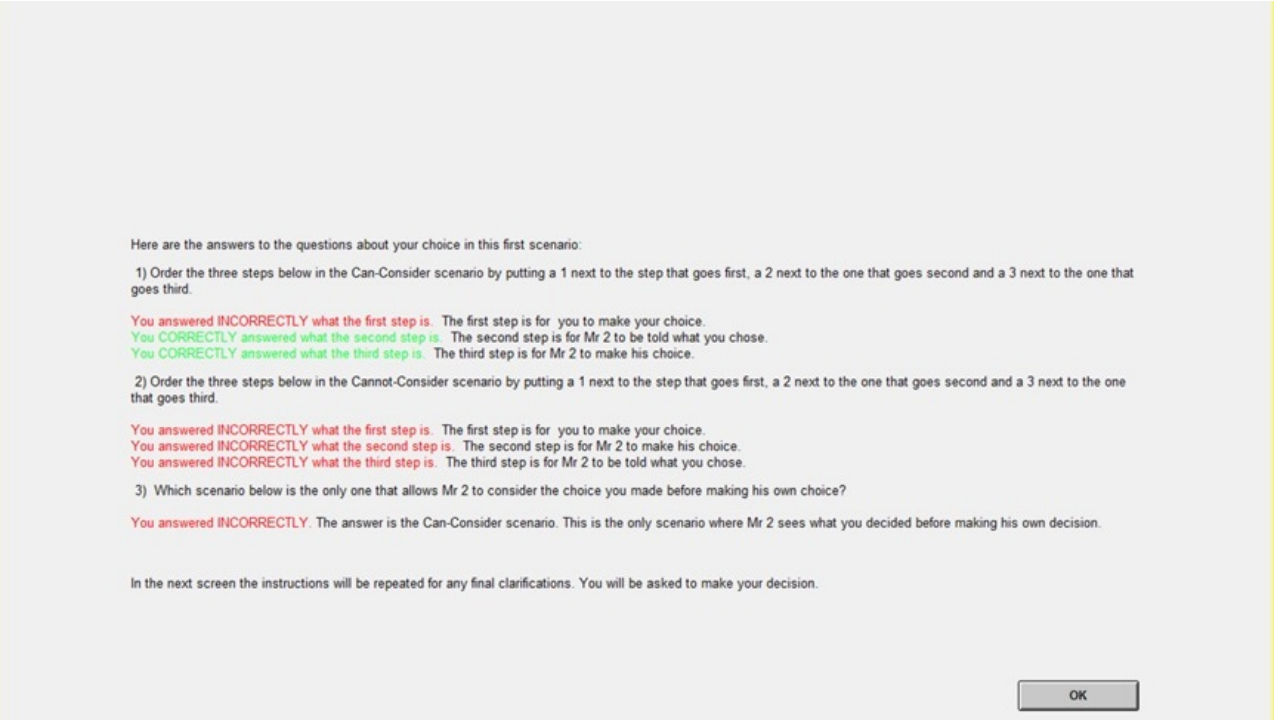
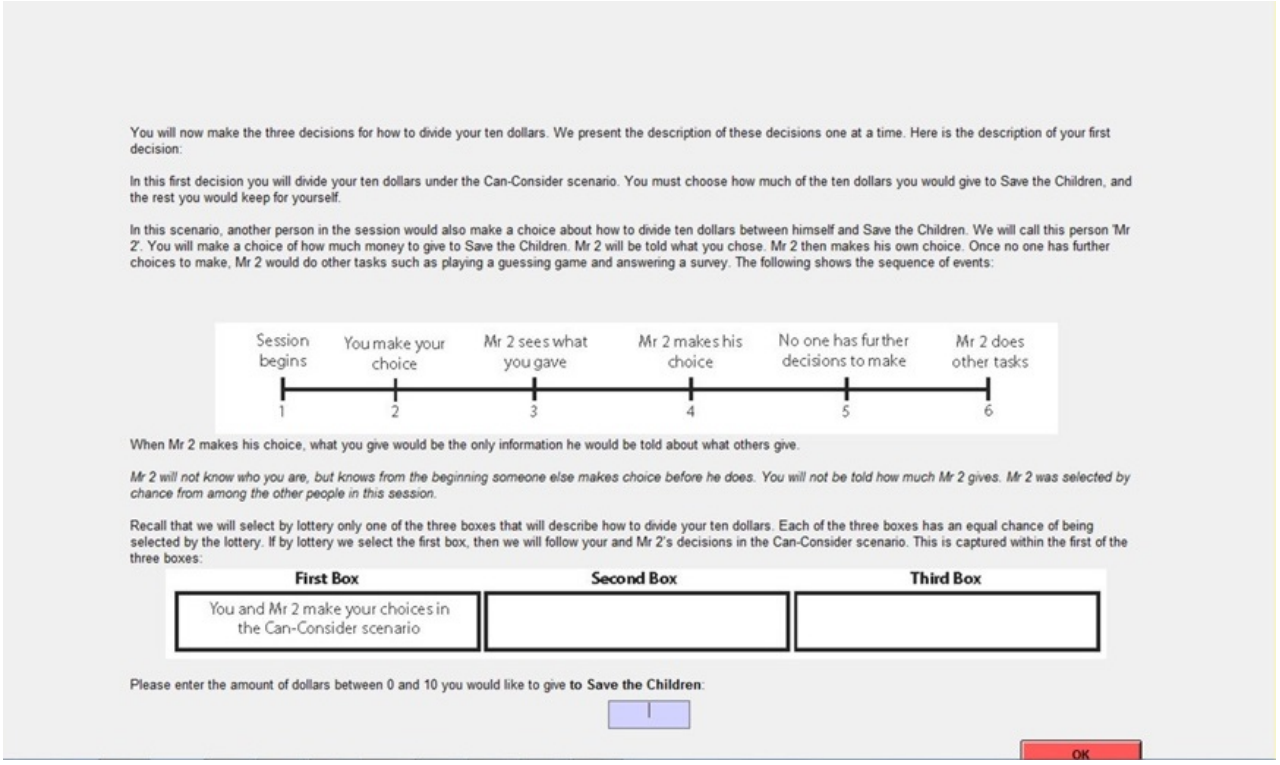


Figure 3: Questionnaire Answers of Introductory Presentation Of Situations



You will now make the three decisions for how to divide your ten dollars. We present the description of these decisions one at a time. Here is the description of your first decision:

In this first decision you will divide your ten dollars under the Can-Consider scenario. You must choose how much of the ten dollars you would give to Save the Children, and the rest you would keep for yourself.

In this scenario, another person in the session would also make a choice about how to divide ten dollars between himself and Save the Children. We will call this person 'Mr 2'. You will make a choice of how much money to give to Save the Children. Mr 2 will be told what you chose. Mr 2 then makes his own choice. Once no one has further choices to make, Mr 2 would do other tasks such as playing a guessing game and answering a survey. The following shows the sequence of events:

When Mr 2 makes his choice, what you give would be the only information he would be told about what others give.

Mr 2 will not know who you are, but knows from the beginning someone else makes choice before he does. You will not be told how much Mr 2 gives. Mr 2 was selected by chance from among the other people in this session.

Recall that we will select by lottery only one of the three boxes that will describe how to divide your ten dollars. Each of the three boxes has an equal chance of being selected by the lottery. If by lottery we select the first box, then we will follow your and Mr 2's decisions in the Can-Consider scenario. This is captured within the first of the three boxes:

First Box	Second Box	Third Box
You and Mr 2 make your choices in the Can-Consider scenario		

Please enter the amount of dollars between 0 and 10 you would like to give **to Save the Children**:

OK

Figure 4: Explanation Of First Contribution For Leaders in Treatment 1

	Leadable Situation Situation First	**Non-Leadable Situation First**	**Total**
Age	30.068	31.25	30.631
	(13.279)	(12.469)	(12.836)
Sex	0.568	0.575	0.571
	(0.501)	(0.501)	(0.498)
Passed College	0.682	0.8	0.738
	(0.471)	(0.405)	(0.442)
In College	0.25	0.175	0.214
	(0.438)	(0.385)	(0.413)
Passed High School	0.068	0.025	0.048
	(0.255)	(0.158)	(0.214)
N	44	40	84

Standard deviations in parentheses.
First two columns show results depending on which decision was made first.

Table 1: Summary Statistics

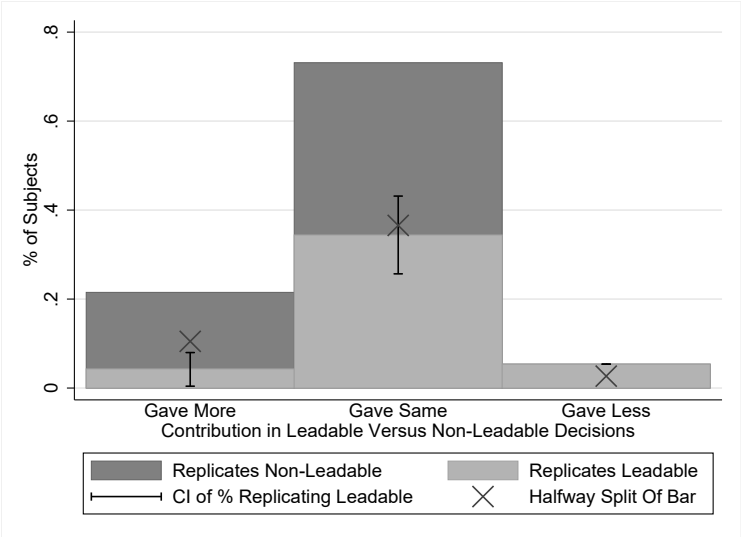


Figure 5: Percentage of Leadership and Replication Decision.

	(1) Contribution	(2) Contribution	(3) Contribution	(4) Contribution
Leadable	0.484***	0.471***	0.122	0.113
	(0.174)	(0.169)	(0.0968)	(0.0841)
Soc Expectation to Lead		-0.241		-0.498*
		(0.250)		(0.268)
Leadable * Soc Exp to Lead		0.233*		-0.0196
		(0.135)		(0.0475)
Decision 1 Leadable			0.859	1.237*
			(0.629)	(0.724)
Leadable * Decision 1 Leadable			0.764**	0.455
			(0.356)	(0.389)
Decision 1 Leadable * Soc Exp to Lead				0.274
				(0.604)
Triple Interaction				0.527*
				(0.296)
Constant	-0.910	-1.136	-0.178	-0.832
	(6.099)	(6.025)	(6.000)	(5.687)
Observations	186	186	186	186
R^2	0.372	0.377	0.397	0.418

An observation is a subject-scenario, and standard errors reported in parentheses are clustered at the subject level. The dependent variable is the donation contribution out of ten dollars. 'Leadable' is an indicator variable for the leadable scenario. 'Social Expectation to Lead' is the difference in the subject's guess of what others guessed was the average contribution in the leadable scenario minus the non-leadable scenario. 'Decision 1 Leadable' is an indicator variable for whether the subject's first decision was in the leadable scenario. The regression controls for age, gender, education, student status, economics major, number of past experiments, knowledge of the objective of Save the Children, opinion on whether Save the Children fulfills its objective, a battery of questions about possible leadership positions, risk aversion and a battery of questions about leadership personalities.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Contribution Decisions

	(1) Repl.	(2) Repl.	(3) Repl.	(4) Repl.
Gave More In Leadable	-0.288**	-0.279*	-0.109	-0.0871
	(0.128)	(0.143)	(0.199)	(0.258)
Soc Expectation to Lead		0.0965**		0.0762*
		(0.0402)		(0.0451)
Gave More In Leadable * Soc Exp to Lead		-0.170**		-0.00731
		(0.0687)		(0.187)
Decision 1 Leadable			0.129	0.0591
			(0.130)	(0.127)
Gave More In Leadable * Decision 1 Leadable			-0.342	-0.297
			(0.232)	(0.325)
Decision 1 Leadable * Soc Exp to Lead				0.0813
				(0.0939)
Triple Interaction				-0.196
				(0.211)
Constant	0.469	0.465	0.563	0.524
	(1.005)	(0.995)	(0.999)	(1.025)
Observations	93	93	93	93
R^2	0.381	0.428	0.401	0.440

Robust standard errors in parentheses. The dependent variable is the decision to replicate the leadable scenario in the third decision. 'Gave More In Leadable' is an indicator variable equal to one if a subject gave more in the leadable scenario. 'Social Expectation to Lead' is the difference in the subject's guess of what others guessed was the average contribution in the leadable scenario minus the non-leadable scenario. 'Decision 1 Leadable' is an indicator variable for whether the subject's first decision was in the leadable scenario. The regression controls for age, gender, education, student status, economics major, number of past experiments, knowledge of the objective of Save the Children, opinion on whether Save the Children fulfills its objective, a battery of questions about possible leadership positions, risk aversion and a battery of questions about leadership personalities.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Replication Decisions

B Interaction of Beliefs and Sequencing

Table 4 considers the impact of the interaction between situation ordering and beliefs on the difference in contributions across situations. We consider four beliefs: the 'expectation to lead', or the difference in beliefs over what starting subjects gave in the leadable versus non-leadable situation; the 'social expectation to lead', which has been our main explanatory variable in terms of beliefs, and which is defined by the difference in beliefs over beliefs over what starting subjects gave in the leadable versus non-leadable situation; the 'expected response', or the linear slope of the starting subjects' beliefs over what ending subjects will do in the leadable situation for each integer value of the starting subject's contribution; the 'socially expected response', or the linear slope of the starting subjects' beliefs over beliefs over what ending subjects will do in the leadable situation for each integer value of the starting subject's contribution. The first four columns present how one of these four beliefs explains the increase in giving in the leadable situation. Only expectation to lead and social expectations to lead has a significant impact. The fifth column includes all the interactions. Significance drops for all the variables, but the impact of social expectations to lead is higher than that of expectation to lead (difference insignificant, p-value of .12).

Table 5 tests whether the impact of the four beliefs has an impact on the replication decision. Only social expectation to lead has a significant impact among those who give more in the leadable situation, both when considered by itself (column 2) and in a regression that includes all the interactions (column 5).

	(1) Contribution	(2) Contribution	(3) Contribution	(4) Contribution	(5) Contribution
Leadable	0.421**	0.471***	0.302**	0.403***	0.227**
	(0.167)	(0.169)	(0.120)	(0.135)	(0.113)
Expectation to Lead	-0.0749				-0.0492
	(0.193)				(0.201)
Leadable * Exp to Lead	0.197**				0.110
	(0.0931)				(0.0953)
Soc Expectation to Lead		-0.241			-0.235
		(0.250)			(0.276)
Leadable * Soc Exp to Lead		0.233*			0.219
		(0.135)			(0.147)
Expected Response			0.845		0.933
			(0.885)		(1.244)
Leadable * Expected Response			0.604		0.578
			(0.596)		(0.728)
Socially Expected Response				0.254	-0.126
				(0.572)	(0.759)
Leadable * Soc Expected Response				0.161	0.0721
				(0.189)	(0.204)
Constant	-0.887	-1.136	-1.575	-1.826	-1.565
	(6.167)	(6.025)	(6.091)	(6.101)	(6.276)
Observations	186	186	186	186	186
R^2	0.375	0.377	0.385	0.376	0.391

An observation is a subject-scenario, and standard errors reported in parentheses are clustered at the subject level. The dependent variable is the donation contribution out of ten dollars. 'Leadable' is an indicator variable for the leadable scenario. 'Decision 1 Leadable' is an indicator variable for whether the subject's first decision was in the leadable scenario. 'Expectation to Lead' is is the difference in the subject's guess of the average contribution in the leadable scenario minus the non-leadable scenario. 'Soc Expectation to Lead' is the difference in the subject's guess of what others guessed was the average contribution in the leadable scenario minus the non-leadable scenario. 'Expected Response' is the average guess of how second movers responded to first movers' contributions in the leadable scenario, where each guess was calculated by regressing subjects' predictions of how second movers responded to each possible integer contribution by the first mover. 'Socially Expected Response' is the average guess of how others guessed second movers responded to first movers' contributions in the leadable scenario, where each guess was calculated by regressing subjects' predictions of how others predicted second movers responded to each possible integer contribution by the first mover. The regression controls for age, gender, education, student status, economics major, number of past experiments, knowledge of the objective of Save the Children, opinion on whether Save the Children fulfills its objective, a battery of questions about possible leadership positions, risk aversion and a battery of questions about leadership personalities.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Interaction of Sequencing And Beliefs on Contributions

	(1) Repl.	(2) Repl.	(3) Repl.	(4) Repl.	(5) Repl.
Gave More In Leadable	-0.284**	-0.279*	-0.259	-0.200	-0.129
	(0.136)	(0.143)	(0.169)	(0.164)	(0.196)
Expectation to Lead	0.0140				-0.0262
	(0.0426)				(0.0506)
Gave More In Leadable * Exp to Lead	-0.0168				-0.0110
	(0.0680)				(0.0741)
Soc Expectation to Lead		0.0965**			0.110**
		(0.0402)			(0.0510)
Gave More In Leadable * Soc Exp to Lead		-0.170**			-0.187**
		(0.0687)			(0.0794)
Expected Response			0.0911		0.116
			(0.189)		(0.233)
Gave More In Leadable * Exp Response			-0.0815		-0.0488
			(0.343)		(0.389)
Socially Expected Response				0.0241	-0.0142
				(0.106)	(0.124)
Gave More In Leadable * Soc Exp Response				-0.156	-0.167
				(0.155)	(0.157)
Constant	0.511	0.465	0.486	0.493	0.640
	(1.074)	(0.995)	(1.046)	(0.998)	(1.100)
Observations	93	93	93	93	93
R^2	0.382	0.428	0.384	0.386	0.442

Robust standard errors in parentheses. The dependent variable is the decision to replicate the leadable scenario in the third decision. 'Gave More In Leadable' is an indicator variable equal to one if a subject gave more in the leadable scenario. 'Decision 1 Leadable' is an indicator variable for whether the subject's first decision was in the leadable scenario. 'Expectation to Lead' is is the difference in the subject's guess of the average contribution in the leadable scenario minus the non-leadable scenario. 'Soc Expectation to Lead' is the difference in the subject's guess of what others guessed was the average contribution in the leadable scenario minus the non-leadable scenario. 'Expected Response' is the average guess of how second movers responded to first movers' contributions in the leadable scenario, where each guess was calculated by regressing subjects' predictions of how second movers responded to each possible integer contribution by the first mover. 'Socially Expected Response' is the average guess of how others guessed second movers responded to first movers' contributions in the leadable scenario, where each guess was calculated by regressing subjects' predictions of how others predicted second movers responded to each possible integer contribution by the first mover. The regression controls for age, gender, education, student status, economics major, number of past experiments, knowledge of the objective of Save the Children, opinion on whether Save the Children fulfills its objective, a battery of questions about possible leadership positions, risk aversion and a battery of questions about leadership personalities.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Interaction of Sequencing And Beliefs on Replication Decision

C Online Appendix: Balance Tables

Table 6 shows the balance table for a range of values depending on which situation starting subjects were faced with first. There are only two variables which are significantly different: whether the subject thinks Save the Children fulfills its objectives, and whether the subject reportedly talks about her own values. Since we are considering 22 variables, these significances are consistent with random noise. Further, it is not clear why these variables would explain our results. In particular, notice how those who face the non-leadable situation first are more likely to think Save the Children fulfills its objective, even though they are less likely to give more in the leadable situation.

	Non-leadable		Leadable		Mean diff
	mean	sd	mean	sd	t
Age	30.88	(14.27)	30.84	(12.08)	0.01
Gender (Female=1)	0.57	(0.50)	0.61	(0.49)	-0.41
Finished College	0.67	(0.47)	0.82	(0.39)	-1.61
Student	0.57	(0.50)	0.45	(0.50)	1.12
Economics Major	0.16	(0.37)	0.18	(0.39)	-0.23
Past Experiments	11.65	(16.86)	7.36	(6.44)	1.65
Knows S The C's Objective (10-point scale)	5.98	(2.67)	5.64	(2.71)	0.61
Thinks S the C Fulfills Objective (10-point scale)	5.61	(2.06)	4.32	(2.33)	2.82**
Has Taught A Course	0.45	(0.50)	0.50	(0.51)	-0.49
Is Oldest Sibling	0.92	(1.10)	0.61	(0.97)	1.42
Has Children	0.10	(0.31)	0.07	(0.25)	0.58
Has Been Team Captain	0.63	(0.49)	0.66	(0.48)	-0.26
Has Subordinates	0.24	(0.43)	0.25	(0.44)	-0.06
Risk Tolerance (10-point scale)	5.92	(2.36)	5.89	(2.07)	0.07
Enjoys Control Over Others	0.22	(0.42)	0.32	(0.47)	-1.01
Thinks Others Motivated By Personal Gain	0.33	(0.47)	0.27	(0.45)	0.56
Talks About Own Values	0.29	(0.46)	0.52	(0.51)	-2.36*
Doesn't Trust Others	0.22	(0.42)	0.14	(0.35)	1.10
Hesitant About Taking Initiative In A Group	0.10	(0.31)	0.11	(0.32)	-0.18
Predicts Behavior Accurately	0.22	(0.42)	0.30	(0.46)	-0.77
Looks Out For Group Welfare	0.59	(0.50)	0.70	(0.46)	-1.13
Inspires Enthusiasm For Projects	0.47	(0.50)	0.55	(0.50)	-0.73

Table 6: Balance Table According to Sequencing of Scenarios

Table 7 shows that there's little systematically different between those who gave more and those who didn't. Interestingly, economics majors give more. Those who are hesitant

	Gave Same Or Less		Gave More		Mean diff
	mean	sd	mean	sd	t
Age	31.11	(13.40)	29.95	(12.76)	0.36
Gender (Female=1)	0.60	(0.49)	0.55	(0.51)	0.41
Highest Degree	3.75	(0.43)	3.70	(0.47)	0.46
Student	0.52	(0.50)	0.50	(0.51)	0.16
Economics Major	0.21	(0.41)	0.05	(0.22)	2.25*
Past Experiments	9.99	(13.92)	8.30	(9.89)	0.61
Knows S The C's Objective (10-point scale)	5.79	(2.67)	5.90	(2.79)	-0.15
Thinks S the C Fulfills Objective (10-point scale)	5.00	(2.29)	5.00	(2.29)	0.00
Has Taught A Course	0.49	(0.50)	0.40	(0.50)	0.73
Is Oldest Sibling	0.68	(0.98)	1.10	(1.21)	-1.41
Has Children	0.08	(0.28)	0.10	(0.31)	-0.23
Has Been Team Captain	0.62	(0.49)	0.75	(0.44)	-1.16
Has Subordinates	0.26	(0.44)	0.20	(0.41)	0.57
Risk Tolerance (10-point scale)	5.73	(2.36)	6.55	(1.47)	-1.92
Enjoys Control Over Others	0.26	(0.44)	0.30	(0.47)	-0.34
Thinks Others Motivated By Personal Gain	0.29	(0.46)	0.35	(0.49)	-0.51
Talks About Own Values	0.38	(0.49)	0.45	(0.51)	-0.52
Doesn't Trust Others	0.21	(0.41)	0.10	(0.31)	1.26
Hesitant About Taking Initiative In A Group	0.14	(0.35)	0.00	(0.00)	3.38**
Predicts Behavior Accurately	0.26	(0.44)	0.25	(0.44)	0.09
Looks Out For Group Welfare	0.64	(0.48)	0.65	(0.49)	-0.05
Inspires Enthusiasm For Projects	0.49	(0.50)	0.55	(0.51)	-0.44
Decision 1 Leadable	0.44	(0.50)	0.60	(0.50)	-1.28

Table 7: Balance Table According to Difference in Giving Across Scenarios

about taking initiative in a group don't give more. The ordering of the situations does not lead to a significant difference.