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Abstract: This paper builds an experiment to investigate whether asking people to state how much they will donate to a charity (to pledge) can increase their actual donation. Individuals' endowment is either certain or a random variable. We study different types of pledges, namely private, public and irrevocable ones, which differ in individual cost of not keeping a promise. Public pledges appear to be associated to lower donation levels. Irrevocable pledges ensure an amount of donations equal to donations in absence of pledges. Moreover, a significant number of individuals keep their promises, in presence of either private or public pledges. A higher risk attached to the endowment increases donations.

JEL codes: C91, D03, D64

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1. Introduction

The French Telethon is the largest popular charity collection in the world. Inspired by US charity events, such as the Jerry Lewis telethon, once a year, French media call generous persons to donate in order to support the research on rare and serious genetic diseases. In a widely broadcasted event, potential donors are invited on a major TV chain, where they make public pledges; pledge can equally be made on a 24/7 phone line. Since 1987, when the French Telethon has been created, most of the time promises were fulfilled, and sometimes donations even exceed the total pledges. The reported situation of the French Telethon, where actual donations meet or even exceed pledges, is however an exception rather than the rule. Even the original US event lastly suffered from unfulfilled donation promises at high rates, for instance, in some years, only 50% to 75% of pledges were really fulfilled. The phenomenon is equally observed for numerous other pledge-based donations for instance, in Haiti, Gaza, Mali, Soudan, at the FAO level, only up to 10% of promises were actually collected, with officials as the former UN General Secretary Kofi Annan referring to "billions of promises to keep" (Annan, 2005); also, in small organizations, or at an individual level, a considerable amount of pledges still remain unfulfilled[2].

According to the Merriam-Webster dictionary, a pledge is simply "a promise to give money". It implies a commitment and a commitment can be of several types. Bryan et al. (2010) distinguish for instance between hard and soft, informal and formal commitments, and question their effectiveness in a review of numerous commitments schemes.

Why do people not keep their donation promises? Or why do they make promises that they will not be able to keep? One explanation is that many individuals do not keep accurate budgets of current spending (Browne-Wilkinson, 2005), so at the time when the pledge should be fulfilled, they realize they overestimated their available budget for donations; this also impedes their ability to promise more. On the other hand, in front of the media, people may be pushed to over-sell their generosity, and this show-off effect might vanish once that they have to sign the check in their office out of the camera.

Pledges are used in a variety of situations as a commitment device. For instance, Warren Buffet and Bill Gates launched in 2010 the "Giving Pledge" (Buffet, 2010), i.e. a commitment by the world's wealthiest individuals and families to dedicate the majority of

[2] Here a 175 euros pledge is recorded as unfulfilled http://www.fondation-terre-espoir.org/

their wealth to philanthropy. The underlining mechanism relies on the effectiveness of public commitments. Indeed, in many circumstances, people are asked to announce their future behaviors if some well-defined situations arise. For instance, what will you do if you earn a lot of money in a national lottery or inherit from an unknown parent? Does asking people how much they will give can increase their likelihood to give and the overall donated amount as compared to the same request in absence of any commitment announced before? In this vein, some studies showed that making people thinking about their future behaviors such as voting or using public transports influence the subsequent behaviors (Gollwitzer, 1999). Close to real-world situations, Cotterill and Richardson (2009) present the functioning of "pledge banks", which allows users to set up pledges and then encourages other people to sign up to them.

This paper develops an experiment backed by a simple theoretical framework aiming to analyze whether the nature of the pledge and the uncertainty surrounding donor's resources have an impact on the amount of pledges and the amount of donations. Besides a standard Dictator game with no commitment, we consider three types of commitments: private, public and irrevocable, which differ in the (increasing) private cost for the individual of not keeping his promise. The donor is subject to variable uncertainty about his future endowment to be used for the donation. In the benchmark situation, the endowment is certain; we also consider the case where the endowment is a random variable with the same mean as the certain endowment; we further distinguish between a low and a high risk situation, depending on the variance of the random endowment. Thus the experiment has a 4 x 3 design.

In a nutshell, it will be shown that, for a given level or risk, public pledges are associated to lower donations as compared to all other pledges (or not pledge at all). In general, higher uncertainty about the future endowment (donor's resources) is associated to higher donations. Irrevocable pledges ensure an amount of donations equal to donations in absence of pledges. Moreover, a significant number of individuals keep their promises in presence of private or public pledges. The gap between the actual donation and the pledged amount is narrower when the pledges are public.

The remainder of the paper is organized as follows. The next section provides a brief overview of related literature. In section 3, we introduce a simple decision making model of individuals' giving behavior and formulate our main behavioral propositions. Section 4

describes the experimental strategy. Section 5 provides the main results. Section 6 discusses them and concludes.

2. Overview of the related literature

The literature provides several non-mutually exclusive rationales that can be related to how asking people to announce their future behaviors can impact them in a predictable way. Below, without purporting to be exhaustive, we indicate the main mechanisms and the expected effect in relation to future behavior. *First*, we build on the self-prophecy effect (Greenwald et al., 1987), that states that simply asking people whether they expect they will perform a socially desirable action (e.g., vote) causes them to subsequently do so. *Second*, an *implementation intention* intervention involves prompting subjects to state a particular plan for how or when they will undertake a behavior (Gollwitzer, 1999). *Third*, recent experimental evidence documented the "windfall giving" or "giving when you win" effect, showing that people are three times as likely to give if they are asked before they receive a windfall than when asked after (Arkes et al., 1994, Sanders et al., 2012).

On the one hand, in a classical transactions based economics analysis (Becker, 1967), when donating, individuals incur (and form expectations about) costs, and their decisions are the result of a cost-benefit simple computation. Rational individuals should engage into donation, if any, only if their utility is maximized. Positive donations can be explained by altruism, where one individual cares about the utility of the others and empathy. Krebs (1975) analyzed the altruistic behavior of participants playing a roulette game and found a close link between altruism and empathy. On the other hand, this also relates to the dual interest theory (Lynne,1999) documenting a natural cognitive dissonance, reflected in the human tendency to egoistic–hedonistic based self-interest, tempered by the human tendency to empathy–sympathy based other-interest, both jointly pursued, non-separable and quite interdependent. All in all, two explanations are usually advanced for promise-keeping as those operating in pledges: the commitment-based explanation, according to which individuals have preferences for promise keeping per se (Vanberg, 2008), already documented as a personal cost of being inconsistent (Ellingsen and Johannesson, 2004), or a coherence with a norm of promise keeping (Braver, 1995); the expectation-based explanation for promise-keeping, according to which individuals dislike letting down others' payoff expectations (Charness and Dufwenberg, 2010).

Most of the previous research on charitable donations focused on increasing the perceived benefit of the act of donating without considering lowering its expected cost (Meyvis et al., 2011; List, 2007[3]). However, pledging (asking the individual to publicly commit in advance to a given behavior) can be an efficient tool, consistent with the dual interest theory, to lower the perceived cost of donation: indeed, when an individual commits to the other-interest, in public, and others-so commit too, as a result, the self-interest is tempered and conditioned. Therefore, the cost of donating is perceived as lower and each sacrifices a bit in that domain (Sheeder and Lynne, 2011). Such commitments have been successfully used by economists and psychologists in experiments related to speeding (Elliot and Armitage, 2006), using public transport, and buying organic food (Bamberg, 2002). For instance, in order to increase bus use, Bamberg (2002) asked people for specific details about a day and time for taking the bus instead of simply asking to commit to take it on an unspecified day.

This technique, known as implementation intention, has been studied by Gollwitzer and Sheeran (2006) in a meta-analysis of 94 independent experiments. Their results confirm the power of this tool to increase goal achievement. In addition, according to the self-determination theory (Deci and Ryan, 2000), people are indeed less motivated when they feel that a behavior arises due to external pressure, and more motivated when they feel their motivation is self-generated. It also deals with exerting self –control, by committing to a set of limited virtuous options and avoiding being tempted by a vice (Wertenbroch, 1998), and expressing *should* as opposed to *want* preferences (Milkman et al., 2009), and has been successfully used in SMarT saving for retirement programs (Thaler and Benartzi, 2004).

Finally, as commitment is construed at an abstract level (Trope and Liberman, 2003), this can be beneficial to increase donations, as abstraction implies that individuals will follow more general ideals (about altruism, charitable values) than in a concrete choice space. It also reduces the pain or cost of paying or giving money to the charity (Prelec and Loewenstein, 1998), as at the time of the commitments, the real action (giving money) is less vivid and salient. Indeed, Breman (2011) shows an increase of 32% in donations when contributors are asked to increase their donations two months from now, rather than immediately. From these results, it appears that internalizing commitments is a key factor in determining behavioral intentions.

[3] See also the special issue edited in 2011 by Andreoni and List (2011) on charitable giving, Journal of Public Economics, Volume 95, Issues 5–6.

However, other studies pointed out that a commitment can also backfire if donors are not distant from the money in addition to being distant from the act of donating (Meyvis et al., 2011). On one side of the decision process, if individuals are asked to commit on the money they already have (and not on an expected amount of money), commitments can result in lower donations. Pledges on money individuals do not have yet are easier to make. In a series of hypothetical studies, Meyvis et al. (2011) show that individuals commit more on the expected gain from a lottery than on the earnings just won. Cotterill et al. (2012) report on a randomized controlled trial on the effects of pledging to develop school libraries in South Africa by donating children's books. The trial tested whether asking people to pledge makes it more likely that they will later donate to a charitable campaign and secondly whether people are more likely to pledge and later donate if they are told their involvement will be made public. People who are asked to make a pledge and offered local public recognition are more likely to make a book donation than the control group. The combination of requesting a pledge and offering publicity raises book donations from 7.3 percent to 8.9 percent of households. Asking people to pledge alone, without the promise of publicity, has no statistically significant impact on giving.

On the other side of the decision process, pleasure from money given is easier to experience if the giving occurs now rather than in the future. If for instance, as in Andreoni (1990) or Mayo and Tinsley (2009), donors are supposed to associate donation with warm glow, delayed donation will decrease such a benefit individuals can get from giving. For pledges, for instance, actual payment occurs in very distant time and this can hamper benefits from giving as individuals will not remember feeling the warm glow. In a related paper, Kellner et al. (2015) analyze charity giving decisions under uncertainty about the donor's income. In their main treatment, donors must irrevocably commit on their donation before income uncertainty is removed. It turns out that men's donations are higher under uncertainty as compared to the certain income case, while women's donations are not affected by uncertainty.

In order to disentangle between those two effects, we test the effect of announced commitment of giving in an incentivized experiment by adding a further analysis: we manipulate the visibility of this commitment: in our setting the pledge can be private (unobservable), public (observable) and irrevocable.

3. Theoretical framework

Our paper helps answering several questions: Does pledging increase donations? Do people respect their pledges? Are some types of pledges more effective than others? Hereafter we describe a basic model of decision making in a charitable situation built on a variant of the dictator game. In the standard dictator game, the two players are the Dictator, benefiting from an endowment, and a Recipient, with whom the dictator can share his endowment, and who has no decision role. The recipient is, in our experimental setting, a charity, as introduced by Eckel and Grossman (1996). At the beginning of the game, at t=0 (see Fig. 1), the Dictator has no endowment. He expects to receive an endowment in the future and only knows the statistical distribution of this future endowment. At t=1, prior to observing his/her true endowment, he/she must commit by announcing the money donation *a* he/she will provide to the charity. We call *a* the pledge. At time t=2, Nature draws the true endowment in cash from the known distribution and the Dictator receives it. At time t=3, given the endowment (s)he receives, and given his/her former pledge *a*, the Dictator makes his/her donation *x*.

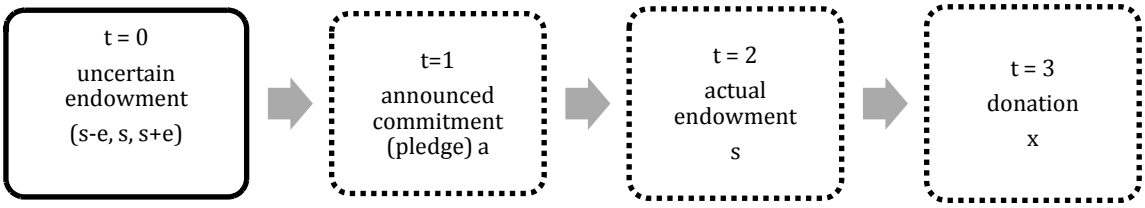

Fig. 1. Temporal sequence of the decision problem

We consider three conditions: the announced commitment (the pledge) can be private, public, or irrevocable. The private pledge corresponds to a promise only known by the Dictator himself; the public pledge is a decision the Dictator announces to the experimenter; the irrevocable pledge is a contract on which the Dictator commits, that will be enforced by the Administrator and cannot be revised. In the public and private pledge settings, the Dictator has the possibility to revise *a* (by increasing or decreasing it), or to keep it as announced. In the irrevocable setting, by design, the Dictator should stick to $x=a$.

Uncertainty is introduced in the decision problem by assuming that endowment has the following statistical distribution (this trinomial distribution will be used in the lab experiment as well):

$$\tilde{s} = \begin{cases} s + e, \text{with probability } p = 1/3 \\ s, \text{with probability } p = 1/3 \\ s - e, \text{with probability } p = 1/3 \end{cases}$$

With this mean-preserving distribution, the mean value of the endowment is *s*, and *e* is a measure of the risk faced by the Dictator. We consider two particular situations: in one situation, the Dictator faces a low dispersion endowment (*e* is low), hereafter denoted "the low risk" case; in the other, the Dictator faces a high dispersion in her/his endowment, in which *e* is large, hereafter denoted "the high risk" case. The no-risk case can be seen as a special case of this more general problem, where e=0.

The model builds on several behavioral assumptions. It is assumed that the Dictator is neutral to risk. This assumption is in line with the condition of the experiment, where stakes are relatively low (the maximum gain is 10 euros).[4]

It is also assumed that the Dictator is altruistic; she/he cares about her/his own consumption and the "consumption" of the charity (the donation given to the charity). To make things as simple as possible, this consumption-based utility is expressed by a Cobb-Douglas form, where the utility of the dictator depends on his consumption ($\tilde{s}$-x) and the consumption of the charity (x), with equal weights. We have $u(\tilde{s},x)=(\tilde{s}-x)x$.

We also assume that the Dictator dislikes unfulfilling promises, i.e., bears an emotional or psychological cost c whenever $a \neq x$; this cost is assumed to be quadratic and depending on the type of the pledge. Formally, we have $c=k_j(x-a)^2$, where k_j is a "pledge factor", that capture the tightness of the commitment. Obviously, the more binding the commitment is, the higher is k. At a given difference (x-a), the cost is higher in the public pledge condition, since in this case, to the private cost will be added the cost of deceiving others. In the irrevocable condition, by design x must be identical to a: this is tantamount to an infinite k. If k_1 is the pledge factor in the private condition, k_2 is the pledge factor in the public condition, and $k_3 \to \infty$ is the pledge factor in the irrevocable condition, then $k_1 < k_2 < k_3$.

[4] Introducing risk aversion would not change the analytical problem.

We also assume that the Dictator gets an intrinsic benefit from making a high pledge. Parameter $\rho \geq 0$ is aimed to capture this "show-off" effect. In this analysis we will only consider the case where this effect is relatively weak.[5]

Finally, without the announcement effect and with perfect information about the endowment the dictator has an optimum donation equal to half of the actual endowment. In the line with the Fehr and Schmidt (1999) approach to fairness, we assume that if the dictator donates more than his full information optimum, he will incur a specific cost, also assumed to be quadratic and multiplied by a positive factor *m* related to the (negative) inequality aversion of the Dictator. (If he donates less, the cost is zero, there is no positive inequality aversion).

If we consider all these features, the (*ex ante*) expected utility function is thus:

$$U^e(x,a) = \frac{1}{3}\left[(s-e-x)x - k(x-a)^2 + \rho a - m\left(x-0.5(s-e)\right)^2\right] + \frac{1}{3}[(s-x)x - k(x-a)^2 + \rho a - m(x-0.5s)^2] + \frac{1}{3}[(s+e-x)x - k(x-a)^2 + \rho a]$$

Within one of the square brackets (where with p=1/3 nature draws one of the three possible states of the world), the first term is the consumption utility, the second term is the quadratic cost of unfulfilled promises; the third is the announcement "show-off" effect. The last term is the inequality aversion-related cost.

Given the sequential nature of the game, we firstly determine the optimal expected amount of the donation, taking the pledge *a* as given. The first order condition $dU^e(x,a)/dx=0$ allows us to determine the optimal expected donation as:

$$x^e(a) = \frac{1}{2}\frac{3s + 2ka + 2ms - me}{3 + 3k + 2m}$$

Next, we introduce the expected donation into the expected utility function and maximize it for the optimal pledge. The first order condition $dU^e(x^e(a),a)/da=0$ leads to:

[5] We formally determine the upper limit of ρ later.

$$a^* = \frac{1}{2}\left[s - \frac{m}{3+2m}e + \frac{3k+2m+3}{(3+2m)k}\rho\right]$$

We can check that: $\frac{\partial a^*}{\partial s} > 0, \frac{\partial a^*}{\partial e} < 0, \frac{\partial a^*}{\partial \rho} > 0, \frac{\partial a^*}{\partial k} = -\frac{\rho}{2k^2} < 0$. The pledge *a* is weaker if the dispersion of the endowment is high (as measured by *e*), it is stronger if the "show off" effect is strong (a large ρ), and smaller if the commitment is more binding (a large *k*).

Finally, we study the actual donation, once that risk has been removed. For a parsimony purpose, we analyze only the case where nature picks the central value *s*.

The optimization problem is to choose *x* which maximizes:

$$U(x,a) = (s-x)x - k(x-a^*)^2 + \rho a^* - m(x-0.5s)^2$$

The solution is:

$$x(s) = \frac{1}{2}\left[s - \frac{km}{3+5m+3k+2km+m^2}e + \frac{3k+2m+3}{3+5m+3k+2km+m^2}\rho\right]$$

This solution is meaningful only if $x(s) < 0.5s$. This involves that the "show-off effect" is weak enough, more precisely that $\rho < \frac{km}{3k+2m+3}e$. It is of course fulfilled for ρ=0.

It turns out that: *first*, the optimal donation is lower under a high ex ante dispersion (*e*); the reason is obvious: under risk (and high dispersion) the pledge is weaker, and, because the dictator dislikes unfulfilling promises, the actual donation cannot be too far from the promised amount; the promised amount (the pledge) acts as an anchor. *Second*, the optimal donation increases with the "show-off" effect; it should be higher in a public pledge condition than in the private pledge condition. *Finally*, the optimal donation is decreasing with the "commitment" strength, *k*. The derivative $\frac{\partial x(s)}{\partial k} = -\frac{1}{2}\frac{m(me+e-\rho)}{(m+k+1)(3+5m+3k+2km+2m2)}$ is negative if $\rho < \frac{km}{3k+2m+3}e$. In this respect, the optimal donation should be the lowest in the irrevocable condition, and it should be lower in the public *versus* the private condition.

We can summarize these findings by four propositions.

Proposition 1: The optimal donation increases with the actual endowment.

Proposition 2: The higher the dispersion in the expected endowment distribution, the lower the optimal donation.

Proposition 3: When the commitment strength is high, both pledges and real donations decrease.

Proposition 4: The strength of the "show-off" effects increases pledges, but this can result in higher subsequent adjustments.

One important difficulty is that changes in pledges conditions have an impact on both ρ and k (see Table 1).

Type of pledge	**cost of deviating**	**show-off effect**
Private	k low	ρ low
Public	k medium	ρ high
Irrevocable	k infinite	ρ unpredicted

Table 1. Impacts of the commitment condition on cheating and/or show-off effect

Therefore, when moving from the private to the public condition, both k and ρ can change. Which effect will take the lead? We implement an experiment as to distinguish these effects and inquire about the behavior of ρ in the irrevocable condition.

4. Experimental design and procedures

A total of 640 participants were involved in a paid experiment conducted in September 2012 and September 2013 in the LESSAC experimental economics laboratory in Dijon. Our experiment is a 4×3 between subjects design in which we varied the type of pledge (private, public, irrevocable – we also considered a baseline dictator game without commitment) and the donor uncertainty related to his future endowment (no risk, low risk and high risk). Participants were recruited from the student population registered for paid experiments and participants were attributed to a treatment or a session randomly upon arrival. One participant was involved in only one session in a typical between subjects design. As to avoid overlap and communication between sessions, sessions and treatments were randomized during a day and conducted at short temporal intervals by the same

experimenter. Table 2 reports the number of participants in each treatment. The sequence of decisions and details about the structure of each treatment are given in Fig. 2.

Endowment	Pledge	Baseline	Private	Public	Irrevocable	Total
	No risk (5)	57	55	66	25	203
	Low risk (3,5,7)	18	78	84	38	218
	High risk (0,5,10)	19	82	84	34	219
	Total	94	215	234	97	640

Table 2. Experimental design and number of participants

All participants played the role of a Dictator.[6] They were given the opportunity of donating to a charity who was the Recipient in the game. Each participant had to make his decision about donations (and pledge, according to the treatments), and to indicate the name of the charity to which he was donating the money.

In the "no risk" treatments and baseline condition, participants received an envelope containing exactly 5 euros in coins. They were instructed to keep for themselves any amount they desire from the received amount, and to leave in the envelope the amount they want to donate to the charity organization, and to indicate the name of this charity organization on the envelope and leave the envelope on the desk when leaving the room.

In the pledge conditions and "no risk", before receiving the envelope with the 5 euros, they first had to report on a sheet of paper how much money they commit to donate to one charity organization of their choice, knowing they will receive 5 euros. In the public condition, the pledge paper was collected by the experimenter who read it immediately. In the irrevocable condition, they were informed that this paper constituted a contract they could not change. In the private condition, they were informed that the pledge paper was for their use only and they had to keep it. However, in order to collect data on private commitments, at the end of the experiment, in the private pledge condition, participants were individually offered a price of 1 euro (not previously announced) if they accepted to sell to the experimenter the paper of their private pledge. This option was not announced at the beginning of the experiment, in order to avoid any strategic choice by the subjects. With no exception, all participants in that condition accepted the trade.

[6] An example of the instructions is to be found in the Appendix 1.

It was made clear for the participants that at the end of the experiment all money donated will truly be transferred by the administrator of the experiment to the charities chosen by the participants (see Appendix 3 for the list of Charities). Cash transfers were executed in the month that followed the experiment.

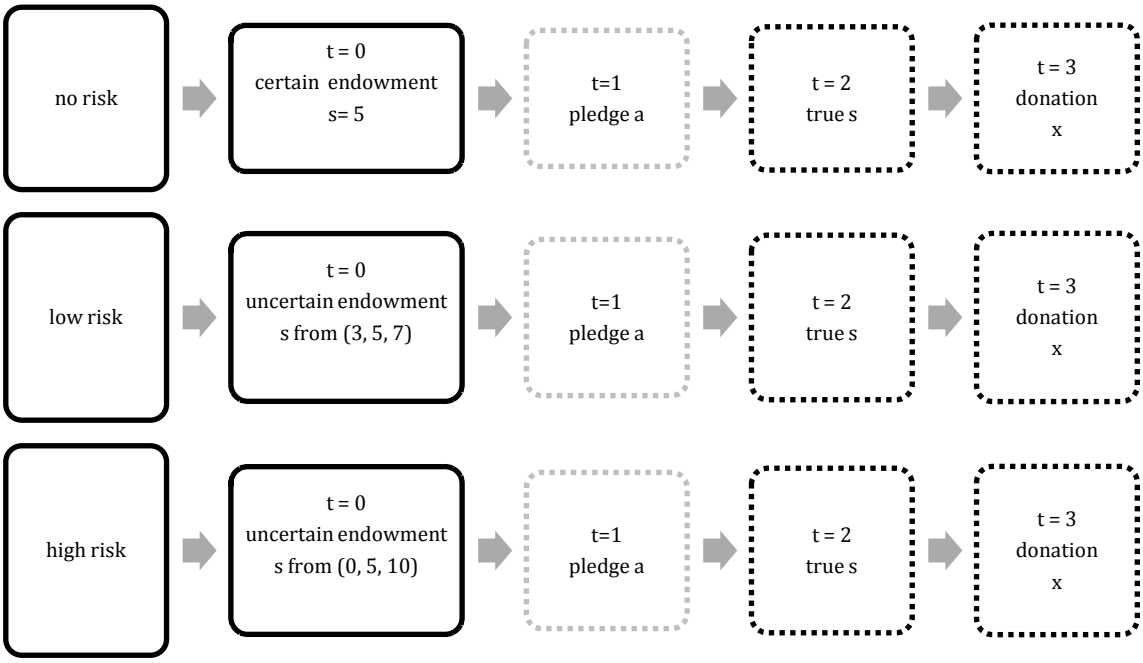

Fig. 2. Temporal sequences for the 3 endowment conditions. The grey steps are missing in the baseline (no commitment)

Procedures in the uncertain endowment conditions (low risk, high risk) were identical in all respects, excepting that, at the beginning of the experiment, participants were informed that 1/3 of them will receive the low, the medium, respectively the high amount from the respective trinomial distribution. Notice that the expected endowment is the same in the low risk and in the high risk condition, and is equal to the certain endowment in the no-risk condition. They received the envelope with one of the three amounts right after this information in the baseline condition and after filling the pledge in the commitment conditions.

5. Results

We first report in this section results about the effectiveness of donations. Detailed data is available in Appendix 2. Table 3 provides average amounts donated across all treatments. Our first important observation is that in treatments without pledge (baseline), individuals donate systematically more than in treatments with pledges, with very few exceptions.

Average donation (std. dev.)	Real endow.	Baseline	Private	Public	Irrevocable	Total
No risk	**5**	2.35[a1,b1,c1,A1,B1] (1.47)	2.09[a1,d1,e1, A2,B2] (1.59)	1.74[b1,d1,f1,A3,B3] (1.50)	2.24[c1,e1,f1,A4,B4] (1.3)	2.06[A,B] (1.50)
Low risk	**3**	1.75 (0.98)	1.70 (1.18)	1.21 (1.11)	2.05 (1.08)	1.60 (1.14)
	5	3.60[a2,b2,c2,A1,C1] (2.19)	2.08[a2,d2,e2,A2,C2] (1.79)	1.98[b2,d2,f2,A3,C3] (1.25)	2.72[c2,e2,f2,A4,C4] (1.34)	2.25[A,C] (1.60)
	7	4.28 (2.92)	3.58 (2.15)	2.76 (2.04)	3.00 (1.82)	3.24 (2.16)
	Subtotal	3.25 (2.39)	2.51 (1.94)	2.01 (1.66)	2.50 (1.40)	2.38 (1.82)
Kigh risk	**0**	0 (0)	0.20 (0.81)	0 (0)	0 (0)	0.06 (0.48)
	5	1.85[a3,b3,c3,B1,C1] (1.86)	3.03[a3,d3,e3,B2,C2] (1.54)	2.62[b3,d3,f3,B3,C3] (1.67)	2.43[c3,e3,f3,B4,C4] (1.59)	2.66 [B,C] (1.63)
	10	7.00 (2.68)	4.62 (2.41)	4.53 (2.81)	4.50 (2.57)	4.76 (2.64)
	Subtotal	2.89 (3.46)	2.73 (2.50)	2.12 (2.63)	2.66 (2.45)	2.50 (2.64)
	Total	2.63 (2.19)	2.49 (2.11)	1.97 (2.02)	2.57 (1.96)	2.41 (2.10)
	Total equivalent endowments (5 euros)	2.39[a,b,c] (1.58)	2.32[a,d,e] (1.67)	1.97[b,d,f] (1.51)	3.5[c,e,f] (1.68)	2.41 (2.10)

Table 3. Descriptive statistics of donations across all treatments[7]

Let us examine in detail this result and discuss it. In order to compare equivalent things, in the following, we analyze these results by looking at donations out of an endowment of 5 euros. Figure 3 represents the key data. It turns out that individuals donate on average 46% of their actual endowment, an amount that is higher than the normal gift in standard Dictator games (about 20%), which can be explained by our framing of the experiment as a charity donation.

Two interesting results appear in this table: first, when asked to pledge, individuals give less than in the baseline condition, and this is true when they are confronted to no risk or low risk about their endowment. Indeed, when they have to publicly pledge, the donated amount significantly decreases down to 1.74 from 2.35, respectively to 1.98 from 3.6 in the no, respectively low-risk situation, as compared to the baseline (significant at 1% and 6%, see footnote 7). Asking them to publicly pledge makes them realizing that the commitment

[7] Mann-Whitney (p-values): a1(0.2400), b1(0.0114), c1(0.8096), d1(0.2288), e1(0.4242), f1(0.0617), a2(0.1499), b2(0.0673), c2(0.2654), d2(0.8032), e2(0.1422), f2(0.1536), a3(0.1137), b3(0.2821), c3(0.4884), d3(0.3759), e3(0.2615), f3(0.7484), a(0.5830), b(0.0051), c(0.0560), d(0.0048), e(0.0086), f(0.0000), A1(0.1152), B1(0.4181), C1(0.1787), A2(0.7539), B2(0.0099), C2(0.0175), A3(0.2370), B3(0.0233), C3(0.2171), A4(0.3466), B4(0.8410), C4(0.5229), A(0.4280), B(0.0074), C(0.1227)

should maybe be fulfilled as it is externally enforced: so, if they pledge to donate too much, they may anticipate the subsequently frustration of donating more than the optimum (or more than the lower expected amount) or incurring a cost about deceiving the experimenter who is aware of the pledge. This may be caused as well by the fact that a public pledge may activate the fear of not receiving exactly the 5 euros amount. This also translates into a significant proportion of individuals "hiding" behind the endowment dispersion and giving a donation equal to the minimum expected endowment (3), when receiving in reality the average endowment (5), which can be a "show-off" effect since it can be interpreted, however, by the experimenter, as a donation equal to the received endowment (3 out of 3 instead of 3 out of 5).

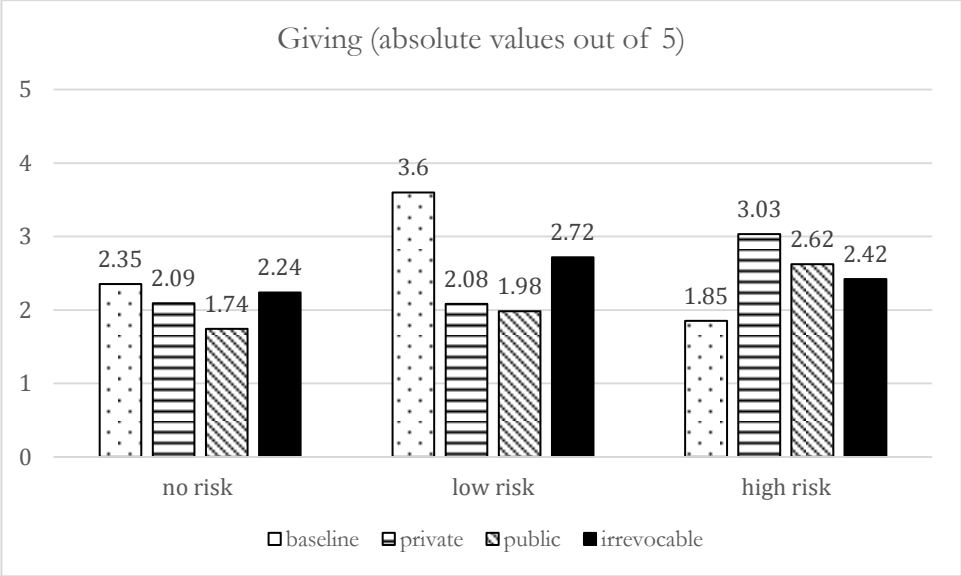

Fig. 3. Average donations (out of an endowment of 5) in €

The second result, higher uncertainty is associated to higher donations. The higher percentage donated when individuals get an endowment of 5 euros may come from the exuberance of actually not having the zero endowment. However, the percentage of individuals donating zero is higher than the 1/3 distribution: several individuals hide behind the probability of having 0. In turn, those receiving the highest amount (10 euros) donate much less (45% or 46% of their endowments in presence of pledges and 70% in absence of pledges). Pledges help them rationalizing and getting closer to the theoretical optimum (half the endowment).

Result 1: In general, pledges are associated to lower donations. Private pledges reduce donations, and public pledges reduce them even more.

Result 2: For a given type of commitment, a higher risk about the future endowment is associated to higher donations.

The irrevocable pledge is a contract: there is no difference in results with the baseline situation. When deciding to commit without the possibility to revise, the situation is, finally, a one-shot choice: what individuals pledge is also compulsory their subsequent choice, which they only have to execute without extra decisions to take.

Let us now analyze whether pledges were fulfilled, i.e. individuals kept their promises). Table 4 reports average pledges and average real donations for compiled data as to disentangle only between private and public pledges. Individuals commit less when prompted to public pledges as compared to private pledges (on average, 2.02 vs. 2.62 euros), they also give less (1.97 vs. 2.49). But they respect better their commitments: the difference between pledges and actual donations is significantly lower in presence of a public pledge. It is noticeable that these average differences are relatively low. When they do not increase donation as compared to no-pledge situations, pledges are an important commitment device generating consistency between promises and real donations.

Type of pledge	Pledge	Donation	Difference *(pledge – donation)*	Relative unfulfilled pledge (p-d)/d
Private	2.6246[a, C]	2.4906[a]	0.1339[D]	5.37%
Public	2.0286[b,C]	1.9773[b]	0.0512[D]	2.58%

Table 4. The effect of the intention (pledge – donation)[8]

Result 3: On average, absolute and relative unfulfilled pledges are higher in the private condition than in the public condition.

However, the distribution of the differences between what individuals promise and their real donation (computed as pledge-donation) is similar between the two conditions and in both conditions, almost half the individuals respect their promises (52% in the public condition vs. 48% in the private condition, see Fig. 4, not significant difference). The only

[8] Wilcoxon test (p-value): a(0.3962), b(0.7380); Mann-Whitney test (p-value): C(0.0069), D(0.0048)

noticeable difference is when the difference between the pledge and real donation is equal to (-1); individuals increase their actual donation by 1 point as compared with the pledge. In this case, twice as much individuals actually increase their donation in the public commitment pledge condition as compared to the private pledge (12% vs. 6%). This is an important feature and it drives the previous result.

Result 4: Half the individuals keep their promises, both in the public and in the private conditions.

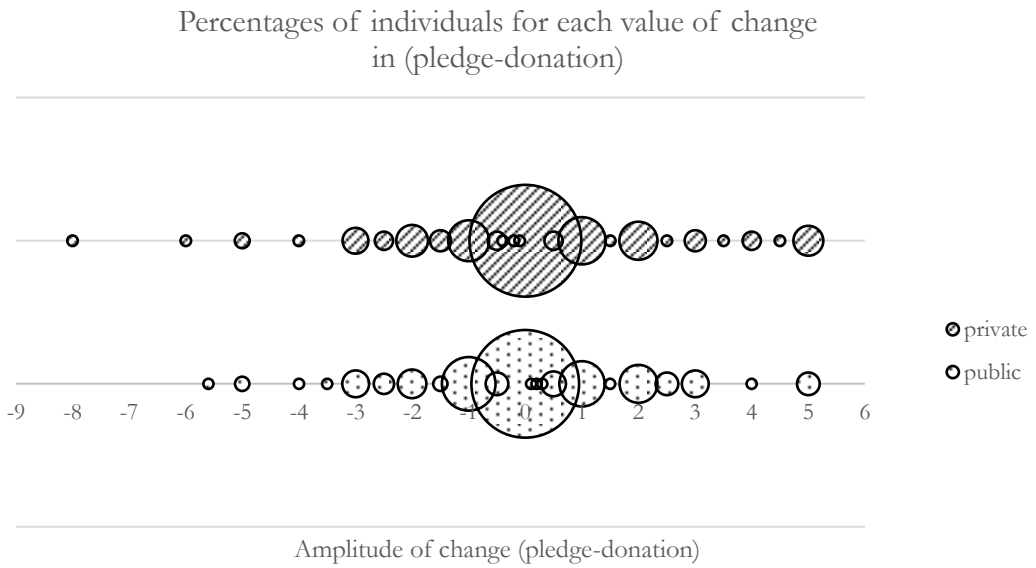

Fig. 4. Percentages of individuals changing their minds for each amplitude

In order to check the robusteness of our former results we run several regressions, using as the dependent variable the amount of the donation (*donation*). The theoretical model has emphasized that the pledged amount (*pledge*) is endogenously determined, given the expected endowment, the uncertainity about the endowment and the type of commitment. We thus run regressions with and without the pledge as an explanatory variable.

The covariates are: *endowment* - the true value of the endowment drew by the computer in the set of (0, 3, 5, 7, 10); *pledge* - the pledged amount; *private* (*public*, *irrvocable*) is a dummy variable, taking the value 1 in the private (respectively public and irrevocable) pledge condition; equivalently, *high risk* is a dummy variable taking the value 1 in the high dispersion endowment treatments. The benchmark is the baseline treatment (no pledge -

no-risk) condition. The interaction terms (*high risk*private* and *high risk*public*), meant to capture the moderator effect of the type of treatment (private and public) on the high risk situation were not significant (the uncertainty effect is not reinforced by a higher uncertainty about the endowment as expected).

Table 5 reports the output of two OLS regression models for the whole sample of 640 participants.[9] Model (1) includes the whole sample, while model (2) only includes individuals confronted to pledge (so only 546 data). From model (1), we observe that, compared to the baseline, private pledges are associated to lower donation levels (-0.362), and the public pledges are associated to even lower donation levels (-0.717). All things equal, the public pledge (tantamount to a strong commitment but also a higher show-off effect), has a net negative impact on the donation: the uncertainty effect (negative) takes over the positive show-off effect. This is consistent with our theoretical framework and corroborates our **Result 1**.

Yet, compared to the baseline (no uncertainity), low uncertainty about the future ressurces is associated to higher donations (+0.393) as compared to the no undertainty case, and high uncertainty is associated to even higher donations (+0.523). This result is not consistent with the predictions of the theoretical model, but in line with the descriptive findings presented earlier. and with Kellner et al. (2015) who report that men tend to give more to charities when their endoment is uncertain.

Last, if we include the pledge in the regression model (model 2), this variable is positively significant as expected, but all other variables become insignificant. This clearly shows that the pledge is engogenous to the context of the experiment, as indicated in the theoretical model. We can further observe from Table 5 that an additional euro of pledge is associated to an average rise in the donation by 0.68 euros.

Finally, we perform a similar OLS regression analysis with the pledge as a dependent variable (reported in Table 6, on 546 participants from the pledge treatments). All variables used are defined exactly as in Table 5. We do not include here the endowment (as individulas pledge before receiving the endowment).

[9] Tobit regressions models present similar qualitative results.

	(1) donation	(2) donation
endowment	0.458***	
	(0.0256)	
private	-0.362*	-0.0129
	(0.212)	(0.202)
public	-0.717***	-0.121
	(0.209)	(0.200)
irrevocable	-0.342	
	(0.247)	
pledge		0.682***
		(0.0412)
high risk	0.523***	-0.0260
	(0.167)	(0.182)
low risk	0.393**	-0.00164
	(0.167)	(0.180)
constant	0.153	0.725***
	(0.222)	(0.223)
Observations	640	546
R-squared	0.353	0.352

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5. The Donation Regression Model (without and with the pledge)

VARIABLES	(1) pledge	(2) pledge
private	0.0216	0.0123
	(0.213)	(0.210)
public	-0.574***	-0.565***
	(0.210)	(0.207)
high risk		0.756***
		(0.187)
low risk		0.485***
		(0.187)
constant	2.603***	2.148***
	(0.177)	(0.214)
Observations	546	546
R-squared	0.027	0.056

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. The Pledge Regression Model

From model (1) and (2) of Table 6, we observe that when the pledge is meant to be public, the pledged amount is reduced as compared to the baseline (-0.574; respectively -0.565), which further supports previous results and results presented in Fig. 3. The private

condition has little impact on the pledged amount. Model (2) shows that the pledged amount is higher in the low risk context as compared to the no risk context, and the pledged amount in the high risk context is even higher than in the low risk context. Uncertainty appears to have a positive effect on the pledged amount too, as it has been shown to have on the effective donation.

This unexpected role of uncertainty could be explained if over-optimisitc individuals make promisses based on the best state of the world (i.e. overestimate their chances to "get rich") then would not renege on their promisses, or if when feeling unsecure about the real endowment, they are able to be more empathetic towards others and this results in higher donations.

6. Discussion and conclusion

Are pledges an effective way to increase donations? This paper addresses this question by the means of a controlled experiment, varying the strength of the pledge and the uncertainty surrounding the future endowment of the donor.

First, we find that pledges work as a donor discipline device. On average, individuals respect their promises amounts, and they are closer to their pledges in public settings as compared to private settings. However, this result hides important behavioral differences among individuals: half of individuals really respect them, in private or public conditions. Obviously, in the irrevocable condition, when the pledge is in fact a contract, all pledges are respected. Irrevocable pledges ensure an amount of donations equal to donations in absence of pledges. Surprisingly, in this extremely constrained context, the donated amount is relatively high. This calls, as in Cotterill and Richardson (2009), for a more frequent use of formal commitments (for example, written), that would bring about a better cost analysis from individuals and would help them determining the optimal level of donation, and would reduce the show-off effect. This recommendation should be qualified by taking into account the cost of drafting and enforcing the contract, that was not explicitly taken into account in our experiment. However, this result also brings some support for direct donation campaigns, in which, without any pledge, individuals are able to determine their optimal donation. Our result therefore does not conclude on the inefficiency of pledges in donation, but rather calls for a more careful way to design pledge campaigns.

Second, we find that pledges are associated to lower donations, and the decline in donation is the stronger for public pledges. Asking individuals to publicly pledge makes them realizing that the commitment should maybe be fulfilled as it is externally enforced: so, if they pledge to donate too much, they may anticipate the subsequent frustration of donating more than the optimum (or more than the lower expected amount) or incurring a cost about deceiving the experimenter who is aware of the pledge.

Third and unexpectedly, a higher risk about the future endowment is associated to higher donations, a result that corroborates a result put forward by Kellner et al. (2015). This outcome was not predicted by our model but it could be explained by over-optimistic individuals making promises based on the best state of the world (i.e. overestimating their chances to get rich). This result should bring into the attention of charities the strategy to target individuals experiencing risky situations and who are likely to win money (traders, potential winners in lotteries etc…).

As in McKenzie-Mohr (2000) and McKenzie-Mohr and Smith (1999), these results can be interpreted as a need to combine pledge schemes to other mechanisms of involvement as to contribute to an increased involvement of the individuals, make use of group commitment, help people project in the future and identify possible barriers to donation, as well as adequate target populations, before designing a pledge.

As reported in Liu and Aaker (2008), when asked to answer a question about an intention, people both "do not retrieve a preexisting intention but instead construct an answer to that question" (Feldman and Lynch, 1988) and change their subsequent behavior. This is interpreted as the accessibility that individuals have to mentally simulate the situation. Individuals will “underhelp” or give less if the idea of helping others is not salient. Liu and Aaker (2008) state that "measuring one’s intention to donate money will likely make people consider the implication of contributing to charity in light of a value-maximizing goal. This assessment is likely to be unsatisfying, however, because the economic utility of giving money to a charity is relatively ambiguous. Even though a direct monetary sacrifice is incurred, the nonmonetary benefits to the self (as well as the impact of the donation for the charitable cause) are difficult to assess. Therefore, the activation of a value-maximization mind-set in the charity contribution context may in fact induce a less positive inclination toward giving and, in the end, lower levels of actual contribution."

In our experiment, donations intervene immediately after the commitment. In further research it would be interesting to study the resilience of our results when there is a lengthier gap between the time of the promise and the time of the donation. Rand et al. (2012) reported that individuals behave in a way more consistent with neoclassical predictions when given time to decide. In this case, the role of uncertainty could be reversed, with donors subject to higher uncertainty being less influenced by emotional choices and pledging less.

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Appendix 1

Instructions (translated from French, example for public commitment)

1. You are going to participate in an experiment about decision making. Please note that during the experiment communication is not allowed. If you have questions, please raise your hand and a monitor will come by to answer your question. If any difficulties arise after the experiment has begun, raise your hand, and someone will assist you.

In this experiment, you will receive an envelope containing 5 euros. You will have the possibility to donate some money to a charity, out of the 5 euros. Please answer these two questions: a) When you will be given 5 euros, how many euros out of these 5 would you give to a charitable association? b) Name this charitable association (or name a field).

Please show this paper to the experimenter and give it back to him/her.

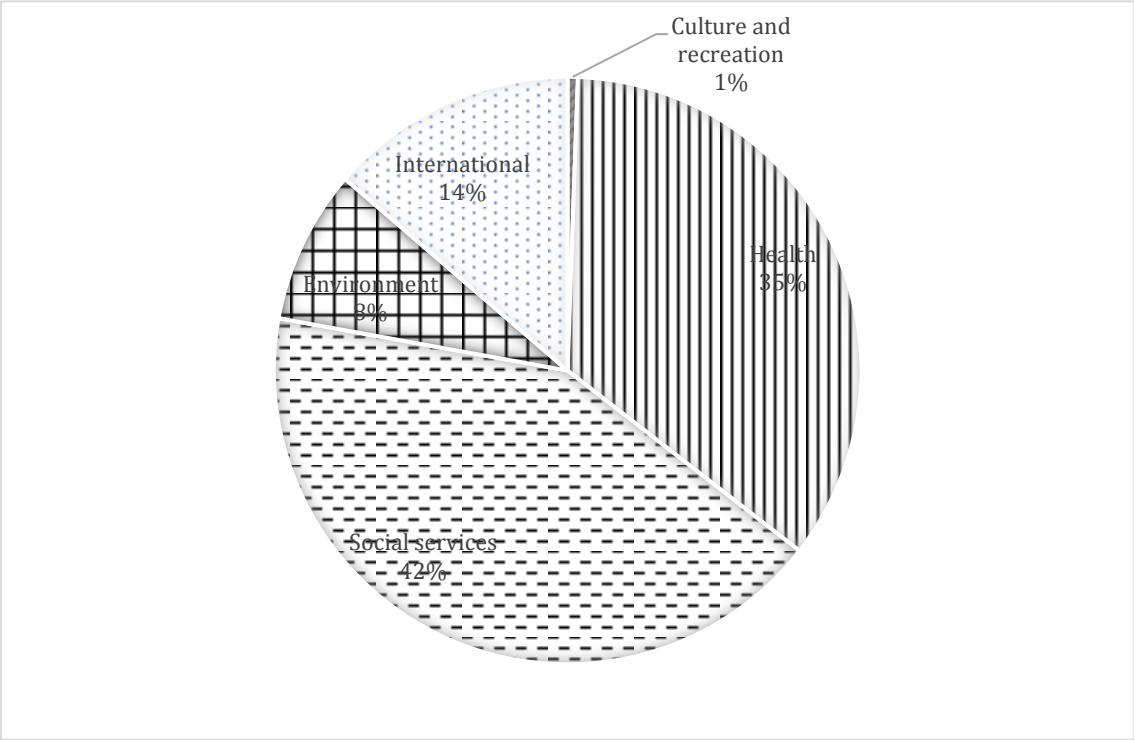
2. Here is an envelope with 5 euros. These 5 euros are yours. You are free to give to the charity of your choice any amount you decide out of the 5 euros. The money you decide to keep for yourself will remain yours. The money you decide to give to the charitable organization will be given to this organization by our accountant, at the end of the experiment. Please put the money you want to donate in the envelope. Close the envelope. Write on the envelope your seat number and the name (field) of the charitable association. Give the envelope to the experimenter. Keep the remaining money for you.

Appendix 2. Detailed data in our experiment

	Type of pledge	Real endow.	Absolute pledge	Normalized pledge (in % of 5)	Absolute donation	Normalized donation (in % of endowment)	Avg.	Avg. (without zeros)
No risk	**baseline**	**5**	-	-	2.35	47	47	47
	private	**5**	2	40	2.09	41	41	41
	public	**5**	1.67	33	1.74	34	34	34
	irrevocable	**5**	2.24	44	2.24	44	44	44
Low risk	**baseline**	**3**	-	-	1.75	58	63	63
		5	-	-	3.6	72		
		7	-	-	4.28	61		
	private	**3**	3.15	63	1.70	56	49	49
		5	2.35	47	2.08	41		
		7	3.15	63	3.58	51		
	public	**3**	1.83	36	1.21	40	39	39
		5	2.08	41	1.98	39		
		7	1.93	38	2.76	39		
	irrevocable	**3**	2.58	51	2.05	68	57	57
		5	2.27	45	2.72	54		
		7	2.35	47	3	42		
High risk	**baseline**	**0**	-	-	0	0	35	52
		5	-	-	1.85	37		
		10	-	-	7	70		
	private	**0**	2.48	49	0	0	37	53
		5	2.76	55	3.03	60		
		10	3.12	62	4.62	46		
	public	**0**	2.22	44	0	0	28	48
		5	2.5	50	2.62	52		
		10	2.48	49	4.53	45		
	irrevocable	**0**	4.14	82	0	0	37	47
		5	2.7	54	2.43	48		
		10	2.87	57	2.5	45		

Complete data (averages only) of our experiment

Appendix 3. Distribution of the charity domains for the real donations (in %)



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