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## Promises Undone: How Committed Pledges Impact Donations to Charity

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# Promises Undone: How Committed Pledges Impact Donations to Charity

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**Promises undone:**

**How committed pledges impact donations to charity**

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**Abstract**

The declining use of cash in society urges charities to experiment with digital payment instruments in their off-line fund raising activities. Cash and card payments differ in that the latter do not require individuals to donate at the time of the ask, disconnecting the decision to give from the act of giving. Evidence shows that people who say they will give mostly do not follow through. Our theory shows that having people to formally state the intended amount may alleviate this problem.

We report on a field experiment the results of which show that donors who have pledged an amount are indeed more likely to follow through. The firmer the pledge, the more closely the amount donated matches the amount that was pledged. 45% of all participants however refuses to pledge. This proves that donors value flexibility over commitment in intertemporal charitable giving.

*JEL classification:* C93, D64, D91, H41

*Keywords:* Charitable fundraising, Field experiment, Image motivation

## 1 Introduction

The declining use of cash in society urges charities to experiment with digital payment instruments in their off-line fund raising activities. One salient difference between cash and digital payment instruments is that whereas transactions in cash can only be completed while the receiving party is present, digital transactions allow for completion at a later moment. For retail point-of-sale (POS) transactions, this is mostly inconsequential because laws safeguard sellers for non-payment. In charitable giving, such safeguards are absent in all cases where donors say yes to a fund-raiser without signing any form of contract. This is the common practice in street and door-to-door fundraising; donors can usually renege on any promises made without any material cost by simply not completing the actual

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payment. In charitable giving, the replacement of cash by digital payment methods may hence change the dynamics of the donation process, by disconnecting the decision to give from the act of giving. This wedge will impact actual giving when people have time-inconsistent preferences for giving to charity and derive utility from the decision to give that is separate from the utility derived from the act of giving.

Andreoni and Serra-Garcia (2016) have recently first formalized this time dimension in charitable giving. They provide within-subject laboratory evidence that time inconsistency is prevalent in the charity domain: 23% of their subjects pledges to donate \$5 one week later, but chooses not to implement this choice when they return to the lab after seven days.<sup>1</sup> Interestingly, these subjects show a strong preference not to commit to this choice. This preference for flexibility distinguishes them from subjects that exhibit time consistent choices.<sup>2</sup> Exley and Petrie (2018) report evidence from the field that people may be reluctant to act prosocially in decision environments that have no flexibility to give less built into them, that is environments in which one cannot camouflage the reluctance to give. Both studies build on a body of empirical evidence showing that a sizeable fraction of people derives warm glow from the act of giving (Crumpler and Grossman, 2008; Chowdhury and Jeon, 2014), dislikes saying no to the fundraiser and therefore has a strict preference for ‘avoiding the ask’ (DellaVigna, List, Malmendier, 2012; Andreoni, Rao, and Trachtman, 2016).

This paper extends these earlier studies and examines the prevalence of broken promises in the fundraising activities of the Danish Refugee Council (DRC). In a field experiment, we study how charities can broken promises by making it for donors (morally) more costly to renege on earlier promises by extracting stronger commitments at the time of the ask.

In particular, we extend the work on time-inconsistent charitable giving by Andreoni and Serra-Garcia (2016). In their setup, subjects can decide to pledge and donate an exogenously given sum  $g$  set by the experimenter. They present a simple formal framework that splits the utility from giving into two parts. The first part is the ‘social’ utility consumed at the moment one says yes to the fundraiser and emerges because people dislike saying no. The second part is the (altruistic) utility from giving consumed at the time of the actual payment. Their model shows that, if offered the opportunity to pledge, people who pledge to give a pre-determined amount will be less likely to renege on their

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<sup>1</sup>Andreoni and Serra-Garcia (2016) report that 36.8% of their subjects acts time-inconsistent, with 62% of these subjects (which is 23% of the original sample) undoing their pledge to donate and the other 38% switching from not pledging in the first week to ultimately donating \$5 in the second week.

<sup>2</sup>Consistent with the view that giving is tempting (Dreber et al., 2016), the preference for commitment is also high among the time-inconsistent individuals who in week 1 choose not to give in week 2, but prefer to give when week 2 arrives.

pledge when this is morally costly. In the experiment, they operationalize this cost by sending people a thank-you note in the week in between the pledge and the final confirmation of the gift. In two versions of the thank-you letter, they test the importance of a ‘weak’ and ‘strong’ wording. They identify a significant higher rate of conversions of pledges to actual donations in the sub-group of subjects receiving a thank-you letter, but find no difference in impact between the weak and strong letter.<sup>3</sup>

We extend this work in two important ways. First, in our design the size of the gift is not predetermined but donors can freely choose the amount they wish to give. This difference is relevant not only from a practical point of view as it resembles many practical fund-raising situations, but also from a theoretical perspective because it allows donors to pledge an amount that is different from the amount that is eventually donated. We present a simple theoretical model that covers this case. Second, we test whether Andreoni and Serra-Garcia (2016)’s laboratory findings extend to the field by reporting the results of a door-to-door fund raising field experiment in collaboration with the DRC. In all treatments, donors are offered two payment instruments to make a donation: they can donate cash or by mobile phone. Our focus is on donors who indicate that they wish to make a donation by mobile phone.

The most important treatment variation in our design is in the strength of the pledge that is extracted from respondents, after they have said yes to the fundraiser and have indicated an intention to donate by mobile phone. The idea we aim to test is that firmer pledges make it morally more costly for donors to renege on their pledges by not wiring the payment. This may help charities to increase donations received from time-inconsistent donors. In the three treatments, the requested commitment is absent, soft or relatively firm. In the No Pledge (NP)-treatment, no commitment is extracted; in the Soft Pledge-treatment (SP), the solicitor asks donors how much they plan to wire to the DRC; in the Firm Pledge-treatment (FP), the solicitor not only asks for this amount but also writes this amount on the flyer, adds his or her signature and returns this to the donor as a mnemonic device.

The second treatment variable is whether participants who intend to make a donation by phone face a one-week deadline or not. From earlier studies, it is not *a priori* clear what the effect of a commitment combined with a time-limited payment window will be. Lab and field experiments have repeatedly shown that shifting deadlines are ineffective in increasing the number and level of donations (Damgaard and Gravert, 2016; Knowles and Servátka, 2015; Knowles, Servátka and Sullivan, 2016). In contrast, when people are asked to commit to a future donation, the amount committed is increasing

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<sup>3</sup>In the different context of motivating employees, Bradler and Neckermann (2016) have also identified the effectiveness of thank-you letters of appreciation.

with the time to the actual payment (Breman, 2011).<sup>4</sup>.

Our setup resembles the variation in thank-you letters in Andreoni and Serra-Garcia (2016)'s Pledge-or-Give-Now treatment, except for the fact that respondents are free to donate any amount plus some differences in the implementation of 'commitment-strength', to which we will return later. The pledge is made in person to the solicitor while the actual donation is made much more anonymously. Image motives may therefore induce people to pledge a higher amount than the sum they actually wish to give in the future.<sup>5</sup> However, the cost of renegeing on their pledge may induce them to stick to this higher pledge at the time it needs to be confirmed. In Section 2 we introduce a simple decision-theoretic framework that incorporates this additional mechanism. This model can be read as an extension to both Benabou and Tirole (2006) and Andreoni and Serra-Garcia (2016).

Our main theoretical results are the following. For future donations, the amount pledged is decreasing the higher the cost of renegeing. The reason is that when renegeing is harder, promising just any amount in front of the solicitor no longer is without consequences. This induces donors to report their intentions more truthfully. If image motives are present in the donor's utility function, the amount that is donated is increasing in the cost of renegeing. The intuition is that the image effects from higher pledges accrue instantaneously which induces donors to pledge higher sums to the solicitor. Higher renegeing cost then help charities to cash (part of) this increase. In the limiting case that renegeing is not possible, the amounts pledged and given will coincide and the charity will reap the full benefits of image motivation. For positive renegeing cost, the gap between the amount pledged and donated is increasing in the time till the payment is due. Higher renegeing cost dampens the positive effect longer deadlines have on the amount pledged while there is no impact on the amount donated.

Our main empirical results are as follows. First, we find no significant differences between the treatment with and without the seven-day payment window. The presence of this limit seems irrelevant as almost all donations are received within five days.<sup>6</sup> Given this, we pool the conditions with and without a limited payment window in the further analysis. First, we establish that charities indeed

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<sup>4</sup>Based on evidence of two field experiments, Damgaard and Gravert (2016) find that independent of the deadline, donations are made immediately or not at all. In a lab study, Knowles and Servátka (2015) similarly find no evidence that giving people more time to give reduces donations. In a related study, Knowles, Servátka and Sullivan (2016) focus on the effect of having no deadline (i.e. an infinite deadline). They find that specifying no deadline leads to a response that is not lower than the response obtained with a one week deadline and higher the response obtained with a one-month deadline. Whereas these studies have considered the impact of deadlines unaccompanied by a commitment to give, Breman (2011) looked at the effect of varying the timing of payment combined with a commitment to give. In a field experiment, she finds that people commit to significant higher amounts when payment is in two months instead of immediate.

<sup>5</sup>In Andreoni and Serra-Garcia (2016), this difference is absent because their subjects have to return to the laboratory in week 2 to complete the payment.

<sup>6</sup>Only one donation in the no-deadline treatments arrives more than a week later.

face a challenge in collecting donations from people who indicate that they will wire their donation at a later moment. Without commitment, only 23% of all donors follows through with a donation. When the intended donation is put on paper with the signature of the solicitor added, as in the firm pledge treatment, this rate improves to 36%. Second, our evidence confirms the laboratory findings by Andreoni and Serra-Garcia (2016): moral contradictions induce a kind of time-inconsistency that originates from a demand for flexibility. When asked to make a pledge, about 40% of all participants in our experiment refuses to do so. Third, when we confine our analysis to the respondents who did state the amount they intend to give, we find that the introduction of pledges significantly helps to increase the value of delayed donations that are wired to the charity. Finally, the results confirm our model prediction that firmer pledges that are harder to renege upon lead to lower pledges. Pledges in the FP treatment are significantly lower than in the SP treatment but much closer to the amount that respondents eventually donate.

In its focus on how changes in payments instruments impacts charitable giving, our work also contributes to a broader literature on payments instruments and consumer behavior. Rysman and Schuh (2016) offer a broad perspective on how the digitization of payment instruments will impact consumer payment behavior by reviewing recent research in this area.<sup>7</sup>

This paper will unfold as follows. Section 2 introduces the theoretical framework that is the basis for the experimental design that is discussed in Section 3. Section 4 presents the data which are subjected to analysis in Section 5. Section 6 summarizes our findings and offers some policy implications.

## 2 Theoretical framework: Image motivation and pledging

In this section we present a modified version of the Bénabou and Tirole (2006) image signaling model. We extend this model to incorporate intertemporal altruism where agents can decide at time  $\tilde{t} = 0$  to pledge an amount  $p \in \mathbb{R}^+$ , and to ultimately give an amount  $g \in \mathbb{R}^+$  at time  $t > 0$ . We will use our model to derive qualitative and testable hypotheses about how amounts pledged and actually donated relate to characteristics of the fund raising drive. Our interest is in the effect of the cost of renegeing on the pledged amount and the time until confirmation of the pledge is due. These hypotheses guide the experimental  $3 \times 2$  design and the subsequent analysis of the experimental findings.

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<sup>7</sup>A large literature investigates what factors influence consumer choice for a payment instrument, say, cash or card. Koulayev *et al.* (2016), Cohen and Rysman (2013) and Wakamori and Welte (2017) are some examples.



Assume the agent's preferences can be represented by the additive quadratic utility function

$$U(p, g) = vp + R(p) + \delta^t[v(g - p) - C(p, g)], \quad (1)$$

with  $p$  the amount pledged and  $g$  the amount actually donated. Individuals have an intrinsic motivation to donate a certain amount ( $v$ ) and are susceptible to image motivation ( $R(p)$ ). As in Andreoni *et al.* (2015), we assume that part of the intrinsic utility ( $vp$ ) is consumed at the time of deciding to pledge with the remainder ( $v(g - p)$ ) being gained at the time the actual transfer is completed.<sup>8</sup> This formulation imposes that, conditional on donating  $g$ , the total discounted intrinsic utility does not change with the amount pledged. The second term in equation (1) is the reputational payoff function, which is defined as:

$$R(p) = \gamma E[v|p], \quad \text{with } \gamma \geq 0. \quad (2)$$

This component represents the image motives the agent is possible prone to. The amount pledged contains information about the agent's type  $v$ . In the context of our experiment this term can be interpreted both as social-imaging (the act of pledging reveals information to the solicitor) and/or self-imaging (the act of pledging reveals information to the agent herself). For ease of exposition, we throughout assume that all agents have the same image concern  $\gamma$ .

The cost function takes the form

$$C(p, g) = g^2/2 + r(p - g)^2/2. \quad (3)$$

The first term denotes the cost of giving which we assume convex, in line with the literature (Benabou and Tirole, 2006; Soetevent, 2011). The second term denotes the cost of deviating from the pledged amount, where  $r \geq 0$ . This cost of renegeing is zero when  $g = p$  but positive if the agent gives an amount less than the amount pledged ( $g < p$ ).<sup>9</sup>

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<sup>8</sup>Note that an individual who donates the amount pledged,  $g = p$ , will gain all intrinsic utility at the time of the ask. Andreoni *et al.* (2015) allow the intrinsic utility of one dollar pledged to be less than the intrinsic utility of one dollar donated. This amounts to replacing the utility function in (1) with  $U(p, g) = v\phi p + R(p, g) + \delta^t[v(g - \phi p) - C(p, g)]$  with  $\phi \leq 1$ . Corollaries 1-3 and the research hypotheses we derive from them are unaffected by the specific choice of  $\phi \in (0, 1]$ , so for ease of exposition, we impose  $\phi = 1$ .

<sup>9</sup>It is useful to note that the other possibility, giving more than has been pledged ( $g > p$ ) will never occur if agents are rational and the pledge precedes the actual donation. To see this, suppose that  $g > p$ . then

$$\begin{aligned} \frac{\partial U(p, g)}{\partial p} &= v + \frac{\partial R(p, g)}{\partial p} - \delta^t[v + r(p - g)] \\ &= v(1 - \delta^t) + \frac{\partial R(p, g)}{\partial p} - r\delta^t(p - g) \geq 0. \end{aligned}$$

The latter inequality follows because the first two terms are non-negative and the third one as well because  $g > p$ . The inequality is strict for  $r > 0$ . So the agent can reach a higher utility by ramping up the pledge to the amount that will eventually be given.

The sequence of decisions is that the agent first decides on the amount to pledge and then whether to follow up the pledge with an actual donation. We solve for the equilibrium using backward induction. What is the amount  $g^*$  the agent should actually donate conditional on having pledged  $p$ ? From differentiating (1) with respect to  $g$  it is easy to see that this amount is

$$g(p) = \frac{v + rp}{1 + r}. \quad (4)$$

Absent costs of renegeing,  $r = 0$ , we are in the Bénabou and Tirole (2006) case of  $g^* = v$  where an agent's donation equals her intrinsic motivation.

Substituting (4) into (3) we arrive at

$$C(p, g(p)) = \frac{v + rp^2}{2(1 + r)}. \quad (5)$$

Inserting this into (1) and then differentiating with respect to  $p$ , we find the following unique equilibrium.

**Proposition 1** *Suppose all agents have the same image concerns  $\gamma$  and  $r > 0$ . Then there is a unique equilibrium  $(p^*, g^*)$  in which an agent with intrinsic motivation  $v$  pledges an amount*

$$p^* = -\frac{v}{r} + \gamma + \frac{1 + r}{\delta^t r} v \quad \text{if } r > 0 \quad (6)$$

at time  $t = 0$  and actually donates

$$g^* = \frac{v}{\delta^t} + \frac{r}{1 + r} \gamma \quad \text{if } r > 0, \quad (7)$$

at time  $t$  of the deadline. In these expressions,  $\delta \leq 1$  is the discount factor,  $t$  the time till the deadline and  $r$  the marginal costs of renegeing.

**Proof:** All proofs are in the Appendix.

The formulation naturally rules out negative pledges.<sup>10</sup> The best way to get some feel for the equilibrium outcome is to consider some special cases.

**$r = 0; \delta = 1$**  Absent any renegeing cost,  $p^*$  is undetermined: the agent can pledge any number but is not bound in any way such that the height of the pledge does not provide any information. The actual donation of the agent corresponds to her intrinsic motivation:  $g^* = v$ .

<sup>10</sup>Absent image motives ( $\gamma = 0$ ),  $p^* = (-1 + (1 + r)/\delta^t)(v/r)$  which is non-negative for any  $\delta \leq 1, t \geq 0$  and  $r > 0$ . Positive values for  $\gamma$  lead to higher pledges.

$\mathbf{r} \gg \mathbf{0}; \delta = \mathbf{1}; \mathbf{t} = \mathbf{0}$  When the costs of renegeing are prohibitively high, the agent will pledge the amount she will actually donate:  $p^* = g^* = v + \gamma$ . In this case, the charity will get all the benefits of image motivation.

$\mathbf{r} = \mathbf{1}; \delta = \mathbf{1}; \mathbf{t} = \mathbf{0}$  In this intermediate case,  $p^* = v + \gamma$  and  $g^* = v + \gamma/2$ . That is, when the cost of renegeing are small, the charity will reap less than the full benefits of image motivation because the (unobserved) ultimate donation will be less than the amount pledged to the solicitor.

$\mathbf{r} = \mathbf{1}; \mathbf{t} = \mathbf{1}; \delta = \mathbf{0.9}$  The separation in time of the pledge and the transaction leads to both higher pledges and higher donations, in this case  $p^* = (11/9)v + \gamma (> v + \gamma)$  and  $g^* = (10/9)v + \gamma/2 (> v + \gamma/2)$ .

A number of corollaries follow from Proposition 1. These will serve as the basis for the hypotheses that we will empirically test.

**Corollary 1** *If the future is discounted ( $\delta < 1$ ), pledges decrease with the cost of renegeing  $r$ . If image motives matter ( $\gamma > 0$ ), actual donations increase with the cost of renegeing  $r$ :*

$$\frac{dp^*}{dr} < 0 \quad \text{if} \quad \delta < 1; \quad \frac{dg^*}{dr} > 0 \quad \text{if} \quad \gamma > 0 \quad (\delta \leq 1).$$

**Corollary 2** *If the future is discounted ( $\delta < 1$ ), the higher the cost of renegeing, the less impact extending the deadline has on increasing pledges. For actual donations, there is no such effect:*

$$\frac{d^2p^*}{dt dr} < 0 \quad \text{if} \quad \delta < 1; \quad \frac{dg^*}{dt dr} = 0.$$

**Corollary 3** *If the future is discounted ( $\delta < 1$ ) and the renegeing cost is positive ( $r > 0$ ), both pledges and actual donations increase with a delay of the time the donation is actually due. Pledges increase with more than actual donations, thereby widening the pledge/donation gap. That is,*

$$\frac{dp^*}{dt} > 0; \quad \frac{dg^*}{dt} > 0; \quad \frac{d(p^* - g^*)}{dt} > 0 \quad \text{if} \quad \delta < 1.$$

In sum, pledges are dampened when they are harder to renege upon; actual donations will increase if agents are susceptible to image motives (Cor. 1). For  $r > 0$ , the pledge/donation gap is widening in the time to the deadline (Cor. 3) because a higher renegeing cost dampens the positive effect of a lower discount on pledges but not on actual donations (see equation (7) and Cor. 2).

Figure 1 illustrates how pledges and donations depend in equilibrium on renegeing cost and the deadline. The main insight is that the charity benefits from making renegeing more costly. Although

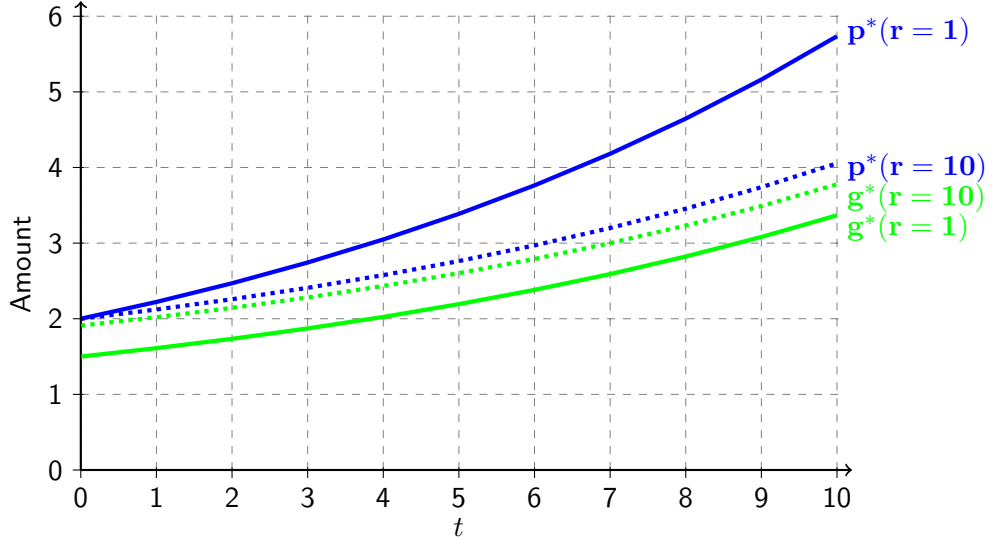


Figure 1: Relation between the optimal pledge ( $p^*$ ) and donation ( $g^*$ ) and the deadline  $t$  for low and high reneging cost ( $r = 1$  and  $r = 10$ , respectively). [ $\delta = 0.9$ .]

pledges will dwindle because of this, actual donations increase. Extending the deadline however fails to increase actual donations. Extended deadlines increase the amounts pledged, and the more so the lower the cost of reneging. At the same time, the low cost of reneging keeps the charity from reaping these higher pledges.

For charities, it is relevant to know which deadline maximizes revenues. Assuming for simplicity that the charity discounts future revenues using the same factor  $\delta$  as the potential donors, the net present value (NPV) of receiving at time  $t$  a donation  $g^*$  as in equation (7) equals

$$NPV(g^*(t)) = \delta^t g^*(t) = v + \frac{r\gamma\delta^t}{1+r}.$$

It is easy to see that the charity maximizes discounted revenues by choosing immediate payment:  $t = 0$ . The intuition is that the extra amount the agent pledges due to image concerns is independent of the selected deadline, see (7). Longer deadlines therefore do not result in higher ultimate donations; the sole effect on both pledges and donations is the value of money effect associated with the delay.

Charities that gauge the effectiveness of its fund-raising campaign by the pledged amounts instead of the ultimate donations may be misguided to increase the deadlines. To see this, note that the net present value of the pledges equals  $NPV(p^*(t)) = \delta^t p^*(t) = (1+r)v/r + \frac{r\gamma\delta^t}{1+r}$ . This increases with  $t$  when  $r < v/\gamma$ . That is, in situations when the costs of reneging are small relative to the intrinsic motivation weighted by the importance of image motives, the amount pledged may paint an overly

optimistic picture of the charity’s prospective revenues. This may happen when either image motives are important and/or the costs of renegeing are small.

### 3 Experimental Design

#### 3.1 Institutional Setting

The role of cash is diminishing in most European countries but in Denmark, this decline is more pronounced than in most other countries. In 2016, the share of cash payments at points of sale was down to 23% in Denmark, a number lower than that of all countries in the euro area.<sup>11</sup> The Dankort was introduced in 1984 and since the 2000s, card payments exceed cash payments in retail stores. The number of annual per capita card payments is about 270, which is about twice the number of per capita cash payments.<sup>12</sup> These numbers are higher, respectively lower, than those of all euro-area countries.

The Danish Refugee Council (DRC)<sup>13</sup> annually organizes a nation wide door-to-door fund raising campaign. Driven by the replacement of cash payments by card payments, the DRC offers donors since a number of years the possibility to make a digital payment. This next to the traditional option to donate cash in a box. In 2015, mobile phone payments were used by 6.97% of all donors in Copenhagen (up from 2.17% in 2014).<sup>14</sup> For the 2016 campaign on November 6th, we implemented a number of treatments in three different subareas of Copenhagen (Brønshøj, Frederiksberg and Vesterbro) in close collaboration with the DRC. Each subarea is managed by a local DRC-manager. Volunteers of the DRC act as solicitors. These volunteers show up at a central meeting point in the subarea to pick up their donation box. The set of routes is predetermined by the DRC but volunteers are free to select one of the available routes. According to the DRC, each volunteer normally visits about 100 houses, 150 apartments or 50 estates in the land zone; each solicitor normally collects 1000 DKK ( $\approx$  €134).

#### 3.2 Treatments

In all treatments, communication between solicitors follows the flow chart depicted in Figure 2. First, solicitors ask whether the respondent wishes to donate to the DRC. Conditional on a positive answer, the solicitor informs the donor about the two payment methods that are available to make a donation:

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<sup>11</sup>Denmarks Nationalbank (2017). For comparison the shares in The Netherlands (45%, the lowest of all euro-countries), France (68%), Germany (80%), Italy (86%) and Greece (88%, the highest of all euro-countries).

<sup>12</sup>Danish Payments Council (2016, p. 14). Card data from 2014, cash data from 2011.

<sup>13</sup><https://drc.ngo/>. The DRC is a Danish humanitarian non-governmental organization with activities in more than 30 countries and a balance sheet of 1.1 billion Danish kroner (DKK)  $\approx$  €147 million (Exchange rate 31.12.2016).

<sup>14</sup>Data on the time of payment by the mobile phone donors are not available so we cannot distinguish between postponed payments and payments on the spot.

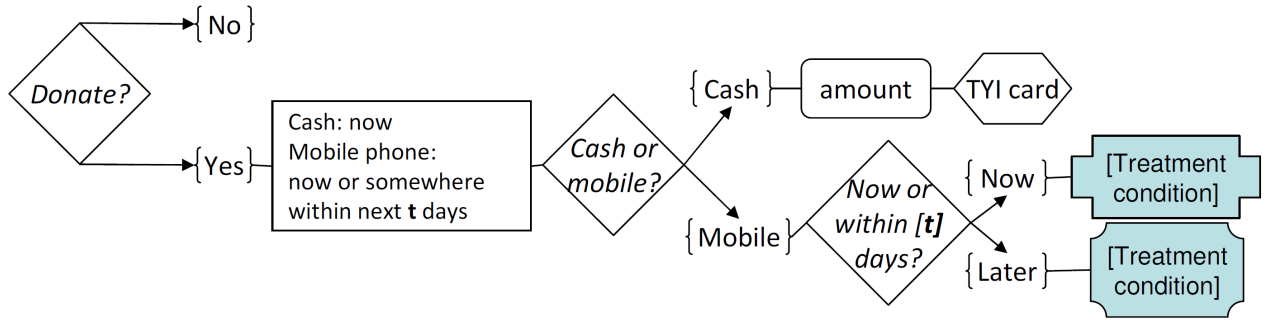


Figure 2: Flow chart solicitor-respondent communication

cash or a debit card payment using mobile phone. At this point, to control donors’ beliefs about the payment-delay possibilities provided by mobile phone transfers, the solicitor explicitly mentions that using the mobile phone comes with the option to donate at a later moment. The donor then decides whether to use cash or to pay by mobile phone. If the donor selects cash, she can put the donation in the solicitor’s box and receives a general flyer with the “Thank You”-message. If the donor selects the mobile phone payment, the solicitor asks the donor whether she wishes to make this donation now or at a later moment. In the treatments with the seven-day deadline (NP7, SP7, FP7), this deadline is mentioned at this point. The deadline is also explicitly mentioned in the flyer donors receive.

Only the people who have indicated that they wish to donate by mobile phone are exposed to treatment variation. Our main treatment variable (located in the shaded area of Figure 2) is whether solicitors extract an explicit commitment from mobile phone donors about the amount they intend to donate, where this commitment is either soft or firm. We deliberately decided to introduce our treatments after donors had indicated their preferred payment method to prevent that treatment differences influence the decision to use cash or debit. Previous studies (Andreoni, Rao and Trachtmann, 2016; Exley and Petrie, 2018) have pointed out that individuals with a low intrinsic motivation to give look for credible excuses not to give. In our context, saying “I will wire my donation later via mobile phone” might be one such excuse. Arguably, this excuse may be less attractive to use in the treatments where the choice for a mobile phone donation is combined with either a soft or firm commitment. By exposing donors to treatment variation when they have already chosen a payment method, we prevent differences in commitment strength to affect the choice of the payment instrument.<sup>15</sup> Of course, people may switch to cash after they have been told that they have to state the amount they plan to give

<sup>15</sup>See Soetevent (2011) for an analysis and an experiment where respondents learn about the set of payment options before deciding whether, how and how much to donate. Differences in the set of payment instruments offered lead to differences between treatments in the signaling value of using a certain payment instrument.

Table 1: Treatment summary.

	No Pledge		Soft Pledge		Firm Pledge	
Treatment	NP7	NPinf	SP7	SPinf	FP7	FPinf
Pledge	No	No	Yes	Yes	Yes	Yes
Deadline	Yes	No	Yes	No	Yes	No

but in such cases, solicitors observe this preference reversal and are instructed to record it. This has happened in less than 1% of all transactions (12 in total).

Our three main treatments, introduce variation in the cost of renegeing by varying the level of commitment to the pledged donation that is requested from respondents. In the No Pledge (NP)-treatments, no commitment is extracted, mobile phone donors are not asked to state or pledge an amount. In the Soft Pledge (SP)-treatment, the solicitor asks donors how many Danish kroner they intend to wire to the DRC but this amount is not written down on the flyer. In the Firm Pledge (FP)-treatment, the solicitor asks donors how many Danish kroner they plan to donate. The solicitor writes this amount on the flyer, adds his or her signature and returns this to the donor as a mnemonic device. The idea is that the firmer the commitment to the pledged donation, the more costly it is for the donor to renege on this pledge by not wiring the payment ( $r_{NP} < r_{SP} < r_{FP}$ ).

A summary of the treatments is presented in Table 1. The treatments NP7, SP7 and FP7 are combined with a deadline: respondents who wish to donate by mobile phone can do so within one week, up to and including Sunday November 13.<sup>16</sup> In the other treatments (NPinf, SPinf, FPinf), the option to pay by phone is not combined with a deadline. In all treatments, the solicitor hands a flyer to the respondent pointing out that the number on the flyer can be used to complete the payment and wishes the donor a nice day. The type of flyer a donor receives depends both on the treatment and the response given. In total there are four different flyers.<sup>17</sup> The default DRC-flyer is used when a solicitor finds nobody home or the donor uses cash.<sup>18</sup> This flyer is also used in the No Pledge and Soft Pledge treatments without a deadline. The other flyers have a similar content as the default flyer except that the date of November 13th is stated in the treatments with a deadline, and extra space is reserved for the pledged amount and the solicitor’s signature in the firm pledge treatments.

<sup>16</sup>The solicitor-specific phone numbers in the treatments with deadline were shut down at November 14th.

<sup>17</sup>Appendix C shows a specimen of each flyer and Table C.4 gives the allocation scheme of the different flyers.

<sup>18</sup>Usually, solicitors of the DRC offer a flyer to every person that opens the door. For individuals who have donated cash, the “Thank You”-message on the front page of the flyer [“Tak!”] applies; donors who wish to donate by phone can find a phone number printed on the front page. Non-donors and people not at home receive the same flyer. For them, the flyer contains on the inside a number of alternative means to donate to the charity.

**Research Hypotheses** Motivated by the theory developed in Section 2, the main hypothesis tested in this study is

$$H1 \ H_0 : g_{FPk} = g_{SPk} \text{ vs. } H_a : g_{FPk} \neq g_{SPk} \text{ for } k = \{7, \infty\}.$$

That is, the actual donation by respondents who indicate that they will give later via their mobile phone will not be affected by the firmness of the pledge they have to make. Rejection of the null hypothesis will lend support to the alternative hypothesis that a higher renegeing cost enables the charity to collect the higher amounts that are pledged due to image motivation.

We also test some other, more exploratory, hypotheses concerning the amounts pledged and donated in the soft-pledge treatments:

$$H2 \ H_0 : p_{SPk} = p_{FPk} \text{ vs. } H_a : p_{SPk} > p_{FPk} \text{ with } k = \{7, \infty\}.$$

The alternative hypothesis reads: the pledged amount by respondents with a preference for wiring their donation at a later point is lower when there the cost of renegeing is higher.

$$H3 \ H_0 : g_{SPk} = g_{NPK} \text{ vs. } H_a : g_{SPk} > g_{NPK} \text{ with } k = \{7, \infty\}$$

The alternative hypothesis reads: the actual donation by respondents with a preference for wiring their donation at a later point is higher when there is a cost of renegeing.

At first sight, the difference between the soft-pledge and no-pledge treatments seems similar to the difference between the firm- and soft-pledge treatment that is the subject of our main hypothesis H1. However, compared to the no pledge treatments, the pledge treatments not only have a pledge-dimension but also remove the donor's anonymity. In the pledge treatment the intended gift is announced to another person, the solicitor, and this may have an effect of its own.

We can separate the two effects by comparing the respondents who choose to donate on the spot in the no-pledge and soft-pledge treatments. These donors pay immediately such that the indicated and actual amount given are identical. For this subsample, any increase in average donations must therefore be caused by the isolated impact of the loss of anonymity.

### 3.3 Method of randomization

Randomization is at the solicitor level. Our interest is only in those donors who pay by mobile phone. For this reason, we had to cast our net wide in order to get sufficient observations. Together with



budgetary constraints this forced us to rely on the volunteers recruited by the DRC.<sup>19</sup> This necessitates paying careful attention to the following issues.

First, DRC solicitors will more heterogeneous than student recruits. We assume that differences in unobserved solicitor characteristics on which we have no information (looks, voice, etc.) will even out across treatments. We account for differences on which we do have information (gender, age) by including the relevant covariates in the regression analysis.<sup>20</sup> This will reduce noise, but still our treatment effect estimates will be less precise than with a more homogeneous set of solicitors.

Second, we can only instruct the DRC-solicitors on the day of the campaign, a training session prior to the study is not possible. A related point is that, unlike student recruits who sign up for a paid research assistantship, DRC solicitors go at a meeting point because they wish to collect donations for the DRC. The link with a research study is new to them and although the local DRC-manager stresses the importance of the study for the DRC, some volunteers may nevertheless decline the request of our assistants to go to a designated room to receive additional instructions on how to approach potential donors. Eleven students of the University of Copenhagen were trained as assistants by one of us [Fosgaard] to provide these instructions on a one-to-one basis. In a double-blind procedure, the assistants assigned each DRC-solicitor to a treatment.<sup>21</sup> Volunteers who have been instructed may decide not to follow the procedure once they start soliciting.

For the above reasons, we have formulated a number of exclusion rules in the Pre-Analysis Plan (PAP) to this study, that was submitted prior to the fund-raising date (Fosgaard and Soetevent, 2016). The exclusion rules outline when the data collected by a volunteer will (not) be included in the data to be analyzed. One of us [Soetevent] applied these exclusion rules on the blinded outcome data to arrive at the analysis set, i.e. the estimation sample used in the main analysis of the paper. The analysis set combines three data sources: the MobilePay transaction data on mobile payments as received from the bank, data on solicitor features as registered by the research assistants, and the individual-level data on pledges and donations as recorded by the solicitors. Appendix B briefly summarizes the three data sets. Application of the exclusion rules as formulated in the PAP leads to dropping 3,007 of the 9,980

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<sup>19</sup>This in contrast to studies that can recruit a very homogenous set of (student-)solicitors, e.g. in Andreoni, Rao and Trachtman (2017) who only use 22 year-old white females as bell-ringers.

<sup>20</sup>The DRC could not provide us with this background information beforehand such that we could not use this to arrive at stratified randomized groups.

<sup>21</sup>This double-blind procedure was technically implemented as follows. Fosgaard took a set of six instruction packages (one of each treatment) and randomly put them in one of six bags that also contained the other materials solicitors needed. These six bags were randomly ordered in a bunch that was tied together with a piece of rope. At the intervention date, the assistants picked one of these bunches and assigned a bag to a arriving solicitor (taking out the instructions and reading them out aloud to the solicitor). Each time the helper had finished a bunch, he or she fetched a new bunch of six bags.

recorded solicitor-household interactions (including households not found home), leaving an analysis set of 6,973 observations from 83 unique routes. We initially aimed to instruct about 300 volunteers but as mentioned in the pre-analysis plan to this study (Fosgaard and Soetevent, 2016), we expected to end up with a lower number in case many volunteers would show up at about the same time to pick up materials. This has happened, with many arriving between 9 and 10 o'clock in the morning. The majority of the observations dropped originate from solicitors who, when they returned, indicated to the research assistant that in soliciting donations they did not follow the instructions. Precise details on this procedure can be found in Fosgaard and Soetevent (2017).

## 4 Data

Table 2 gives a brief overview of the records included in the analysis set. Of the 6,973 records, 3,197 households have been reported home. Of these, 2,409 (75.4%) made or promised a donation. 1,806 donations (75% of the total number of donations) were immediate cash donations, for 10 donations (<1%) the payment method is unknown.<sup>22</sup> The remaining 593 donations were made by mobile phone: 263 (44.3% of all mobile phone donations) were immediate and 327 were promises to make a mobile phone payment at a later point in time. In three cases, information on whether a mobile phone payment is an immediate donation or a promise for a future donation is unknown.

Table 2: Summary Solicitor Data [individual records]

<b># Records</b>	<b>6,973</b>
Not home	3,776
<b>Households home</b>	<b>3,197</b>
No donation	788
<b>Donations</b>	<b>2,409</b>
cash	1,806
unknown	10
<b>Mobile donations</b>	<b>593</b>
now	263
unknown	3
<b>Delayed mobile donations</b>	<b>327</b>

<sup>22</sup>Given that information on the payment method is essential for the analysis, these ten observations are discarded.

## 4.1 Mobile phone donations

The analysis set contains a total of 361 MobilePay transactions, 281 of which can be exactly matched with one of the 6,973 records in the solicitor data. The other 80 transactions can be matched to a treatment and a solicitor but not to a specific address/respondent. For 53 of these transactions, we can however determine whether the transaction was related to an immediate (“now”) or a promised (“later”) donation.<sup>23</sup> See Table 3 for a summary.<sup>24</sup>

Table 3: Timing of mobile payments [MobilePay records]

	Address match	Solicitor match	Total
now	239	2	241
later	38	51	89
unidentified	0	27	27
other	4	0	4
total	281	80	361

Figure 3 shows the timing of the mobile phone payments. The figure reveals two things. First, most digital donations arrive at the day of the fund-raising drive: of all 361 donations, only five arrive at a later day, and all five within three-days.<sup>25</sup>

How do the promised mobile donations in the solicitor records match with the actual administrative MobilePay data summarized in Table 3? The table shows that of the 263 immediate mobile phone donations recorded by the solicitors, 241 can be linked to an actual transfer recorded by MobilePay. Of the 327 donations promised to be transferred later, 89 can be matched to an actual MobilePay transfer. For 27 MobilePay transfers, it is unclear whether these are immediate or later payments.<sup>26</sup> Having identified 241 of the 263 recorded immediate donations, we know that at most 22 of these can be immediate donations.<sup>27</sup> In other words, of the 327 future donations respondents announce to the

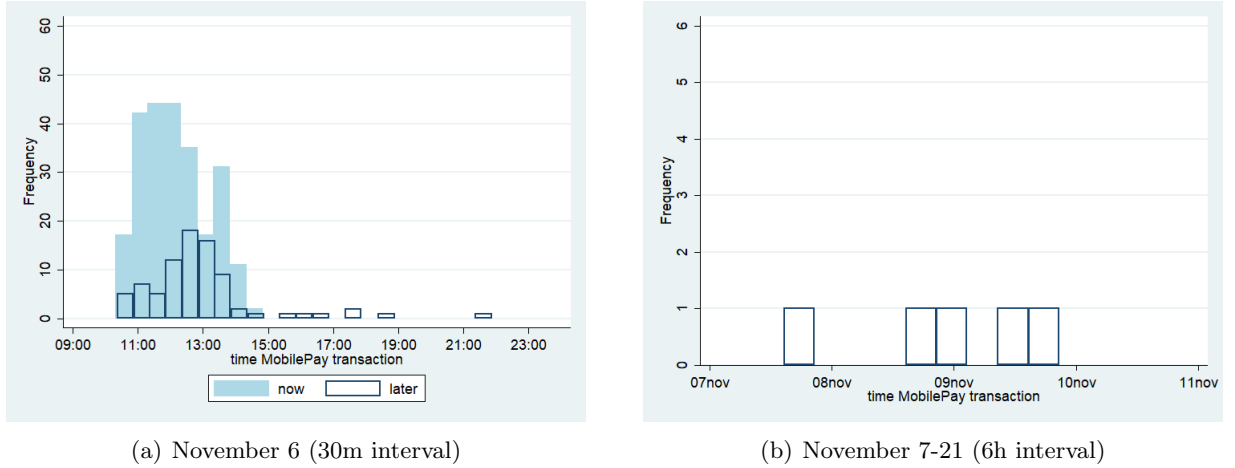
<sup>23</sup>This for example happens when a solicitor’s record sheet does not contain any unmatched future payments but does contain two immediate payments without an exact time stamp. In such an instance, we know that both MobilePay transactions must be immediate donations, but we cannot tell which transaction should be matched to which immediate payment in the record sheet.

<sup>24</sup>In four cases, respondents complemented a donation in cash with a donation via MobilePay. Table 3 labels these transactions ‘other’. In light of the initial cash donation, we will treat them as cash payments throughout and ignore the additional contribution through MobilePay. This choice is inconsequential for our analysis.

<sup>25</sup>The pattern of arrivals in the analysis set is comfortably similar to the one in the initial sample: of the 712 MobilePay transactions in the initial sample, only 25 arrive at a later day, with the final donation coming in after fourteen days, see Appendix C.1 for a figure similar to Figure 3 for the initial sample.

<sup>26</sup>More than two-thirds of these observations (19) can be ascribed to the records of three solicitors. For these three solicitors only, the timing (NOW or LATER) of more than half of the received MobilePay donations is unknown. For this reason, we drop the complete records of these solicitors when we compare NOW vs. LATER payments, such as in our calculations of the fraction of promises received.

<sup>27</sup>The actual number will be lower when, say, for technical reasons, a transfer has been aborted without the solicitor



Notes: Panels *a* and *b* give the distribution of the arrival times of the 361 MobilePay donations.

Figure 3: Arrival of MobilePay donations over time.

solicitor, between 94 ( $= 89 + (27 - 22)$ ) and 116 ( $= 89 + 27$ ) are actually transferred. The implication is that two-thirds of the announced digital donations is never received by the charity.

## 4.2 Descriptive Statistics

**Background Variables** Table 4 summarizes the background variables of the sample of solicitors. We have pooled the deadline and no deadline conditions per pledge-commitment condition because the outcome variables show no notable differences.<sup>28</sup> Moreover, the summary statistics in the previous section suggest that the seven-day deadline does not impact ultimate giving. The number of solicitors is balanced between treatment groups ( $\chi^2(2) = 1.90, p = 0.39$ ). The table shows no significant treatment differences in solicitor traits such age, gender, the presence of accompanying children or the experience with soliciting donations for the DRC (experience measured as having engaged in door-to-door fund raising for the DRC before). We assume that differences in unobserved solicitor characteristics on which we have no information (looks, voice, etc.) will even out in a similar way. The large majority of solicitors ( $\sim 90\%$ ) has experience with soliciting on behalf of the DRC. In all treatments, a slight majority of solicitors is female. The average solicitor age is between 37 and 46 years. It is relatively common to bring children with you while soliciting, this happens in about one-third of all cases. In all treatments, most observations are from the Frederiksberg area. All treatments show a very similar distribution across the three different areas.

noticing.

<sup>28</sup>See Table C.2 in the Online Appendix for the statistics for all six subcategories.

Table 4: Summary statistics solicitors [by treatment]

	NP	SP	FP
Age	43.38 (15.23)	46.29 (17.05)	37.24 (16.23)
Fraction female	0.70 (0.47)	0.61 (0.5)	0.69 (0.47)
Fraction with accompanying children	0.32 (0.48)	0.47 (0.52)	0.33 (0.49)
Experience	0.92 (0.28)	0.88 (0.33)	0.93 (0.27)
Brønshøj	0.31	0.23	0.34
Frederiksberg	0.55	0.59	0.53
Vesterbro	0.14	0.18	0.13
obs.	29	22	32

Notes: \*\*\*(\*\*,\*) : statistically different from NP at the 1%-level (5%-level, 10%-level).  
†††(††,†) : statistically different from SP at the 1%-level (5%-level, 10%-level).

Table 5: Basic outcomes [solicitor level]

	NP	SP	FP
Nr. addresses visited	89.39 (30.57)	87.14 (32.12)	88.64 (32.83)
Fraction home <sup>1</sup>	0.50 (0.25)	0.42* (0.14)	0.45 (0.23)
Fraction <sup>2</sup>			
no	0.32	0.16***	0.22*
cash	0.5	0.64***	0.59*
mobile, of which...	0.18	0.20	0.19
... NOW <sup>3</sup>	0.36	0.47	0.51**
... LATER <sup>3</sup>	0.64	0.51*	0.49**
<b>Cash donations [in DKK]</b>			
Total	1003.09 (480.6)	1091.59 (493.73)	1027.09 (584.82)
Average <sup>2</sup>	51.76 (22.84)	53.38 (52.34)	55.31 (22.65)
obs.	29	22	32

Notes: 100DKK ≈ €13.40. Each solicitor observation is proportionally weighted using the number of records that gave rise to the solicitor's average: <sup>1</sup>denominator = addresses visited; <sup>2</sup>denominator = households home; <sup>3</sup>denominator = total nr. of donations by phone.

\*\*\*(\*\*,\*) : statistically different from NP at the 1%-level (5%-level, 10%-level).

†††(††,†) : statistically different from SP at the 1%-level (5%-level, 10%-level).

**Treatment Independent Outcome Variables** Having established that our randomization is balanced in terms of observable solicitor traits, we next check whether the solicitors have correctly followed the procedure as visualized in the flow-chart of Figure 2. We do this by considering the values of a number of outcome variables that should not show cross-treatment variation when the procedures have been implemented correctly. As Figure 2 shows, the treatment variation only occurs near the end of the solicitor-respondent interaction, after the potential donors have already decided *i*) whether to donate, *ii*) which payment instrument to use, and, in case of a donation by phone, *iii*) whether to donate now or later.

Table 5 reassuringly shows that the number of addresses visited is very similar across treatments.<sup>29</sup> This suggests that the pledge-treatments did not inflict an extra burden on the solicitors in terms of time needed to complete a solicitation. The average conditional cash donation is also very similar across treatments, being in the range of 51 to 55DKK.<sup>30</sup> This indicates that any observed treatment effects are not driven by underlying differences in altruistic preferences of the frequented households. The average total amount of cash collected is similar across treatments (consistent with our design that treatment variation does not affect cash donations). The amounts are also very close to the revenue of 1000DKK per solicitor that the DRC usually collects.

We do find some notable differences with respect to the extrinsic margin. The percentage of respondents declining the invitation to donate in the pledge-treatments is lower than in the benchmark no pledge treatment: 16% and 22% of declinations vs. 32%. Correspondingly, the percentage of respondents donating cash shoots up from 50% to 64% and 59%, respectively. However, the percentage of respondents donating by phone is around 20% and very stable across treatments. This suggests that the pledge-treatments have had an effect on the decision to give. One possible explanation for this higher participation rate in the promise-treatments is that the additional instructions and tasks have made solicitors more involved in the fund-raiser and thereby more successful in persuading respondents to make a donation. The relatively stable share of donors giving by phone implies that the extra effort related to phone payments (asking for the intended donation in case of payments and writing this down with their signature) has not led solicitors to guide respondents (consciously or unconsciously)

<sup>29</sup>In cases where Table 5 shows fractions or average values across solicitors, these have been calculated using analytical weights, with the weights being inversely proportional to the variance of an observation. This is to account for the fact that the averages and fractions of solicitors that have visited more households, have found more households home or had more households making a donation by phone, are more informative. Table C.2 in the Online Appendix gives the values of the outcome variables for each of the six treatment subcategories.

<sup>30</sup>A regression of the total amount of cash collected on a full set of treatment dummies and a vector of control variables (including solicitor's age, gender and experience, and area dummies) reveals no impact of the treatments, a  $F$ -test on the treatment coefficients has  $p = 0.396$ .

towards cash donations.

Among the donors who state to donate by phone, Table 5 does reveal a difference in the timing of the transfer between the no-pledge treatment and the pledge-treatments: In the pledge-treatments a lower fraction of donors-by-phone opts for a donation later instead of a donation now. For the soft-pledge treatment the difference is 13 percentage points, significant at the 10%-level, for the firm-pledge treatment it is 15 percentage points, significant at the 1%-level. This indicates that one effect of eliciting promises is that some donors-by-phone switch from a later donation to donating immediately. This is as a positive effect for the charity because it prevents promises from being broken.

## 5 Analysis

Our main interest is in the respondents who have indicated to donate using their mobile phone and especially in the actual donations of the 327 respondents who have indicated to donate at a later point. Table 6 summarizes per treatment the promised and actual donations by phone. Before comparing the promised and actual amounts, we direct attention to the important fact that in the promise-treatments, about 40% of all respondents refused to state to the solicitor the amount they intended to donate. This shows that a significant part of the donors apparently have a distaste for being asked to reveal their intention and value flexibility. This however did not make them to opt out as, if anything, the fraction of participating households was higher in the pledge-treatments. One factor contributing to this is that solicitors allowed respondents to participate, even when they declined to state the intended donation amount.<sup>31</sup>

Table 6: Primary outcome variables – MobilePay Donations [solicitor level]

	NP	SP	FP
Fraction will not say		0.46	0.44
Total MobilePay donations [in DKK]	326.03 (365.28)	266.82 (188.08)	310.16 (233.51)
Fraction later payments received	0.23 (0.28)	0.29 (0.31)	0.36* (0.35)
obs.	29	22	32

*Notes:* 100DKK  $\approx$  €13.40.

\*\*\*(\*\*,\*) : statistically different from NP at the 1%-level (5%-level, 10%-level).

††(†,†) : statistically different from SP at the 1%-level (5%-level, 10%-level).

The average total amount received per solicitor via MobilePay does not show important differences

<sup>31</sup>In decision problems like these, exclusion is more difficult to enforce in the field than in the laboratory.

across, with about 300DKK, mobile payments account for 23 per cent of total revenues. Table 6 confirms that for charities like the DRC, it is a ‘problem’ that many respondents who say to donate later, in practice never do: in the no promise treatment, less than 25% of such intentions is followed by an actual donation. In other words, the median donation received from respondents who indicate that they will wire their donation is exactly 0DKK. Our promise treatments are (at best) moderately successful in increasing this follow up rate: The rate of intentions followed up, increases 29% in SP and 36% in FP, the latter rate of follow ups is significantly different from NP at  $p = 0.084$ .<sup>32</sup>

To test our main hypothesis, we consider the primary outcome variable  $g_j$ , the average donation made to solicitor  $j$  by respondents who indicated a preference to complete the donation by mobile phone at a later moment. Figure 4 shows that the mean donation that is actually received from delaying donors is slightly increasing with the presence and strength of the commitment made: the mean delayed donation increases from 16DKK in the no-pledge treatment to 22DKK and 23DKK in the soft and firm pledge treatments, respectively. The biggest difference is between the no-pledge to the soft-pledge outcomes. Remember that two features distinguish these two treatments: a pledge is introduced and the anonymity of the donation is removed. A between-treatment comparison of the gifts by donors who give immediately helps to pin down the isolated impact of the loss of anonymity, as for them only that difference matters. The first two bars in Figure 4 do not reveal that, in this context, the removal of anonymity itself increases giving. None of these differences is however significant. A nonparametric Wilcoxon-Mann-Whitney rank-sum test of two of the main hypotheses in this trial, cannot reject the null hypotheses  $g_{FP} = g_{SP}$  ( $H1$ ,  $p = 0.473$ ) and  $g_{SP} = g_{NP}$  ( $H3$ ,  $p = 0.547$ ).<sup>33</sup> Even in the firm-pledge treatment, the average amount given by delaying donors is not close to the amount given by MobilePay users who donate immediately.

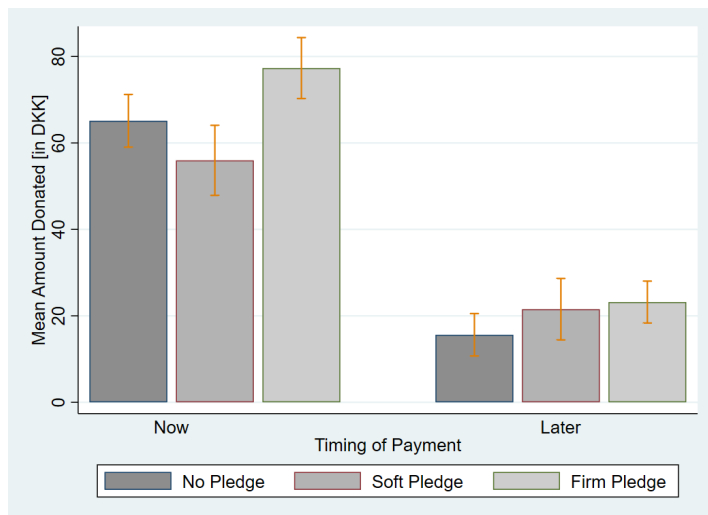
Another implication of the theory we have presented is that the amount that people pledge is decreasing in with the strength of the commitment that has to be made (Corollary 1), as firmer pledges are more costly to renege upon such that people take care not to promise too much in the first place. We test the related null hypothesis ( $H2$ ) that pledged amounts in the soft-promise and firm-promise treatment are identical against the one-sided alternative that pledged amounts are lower in the firm-promise treatment.

The right two bars of Figure 5 show the mean amount pledged (averaged across solicitors) for the SP and FP treatment. The mean amount of 57.4DKK pledged in the firm-pledge treatment is significantly lower than the 84.8DKK pledged on average in the soft-pledge treatment ( $p = 0.032$ ,

<sup>32</sup>The fractions include donors in the promise treatments who did not state the intended amount.

<sup>33</sup>A WMW-test of the difference between the NP and FP averages gives  $p = 0.143$ .





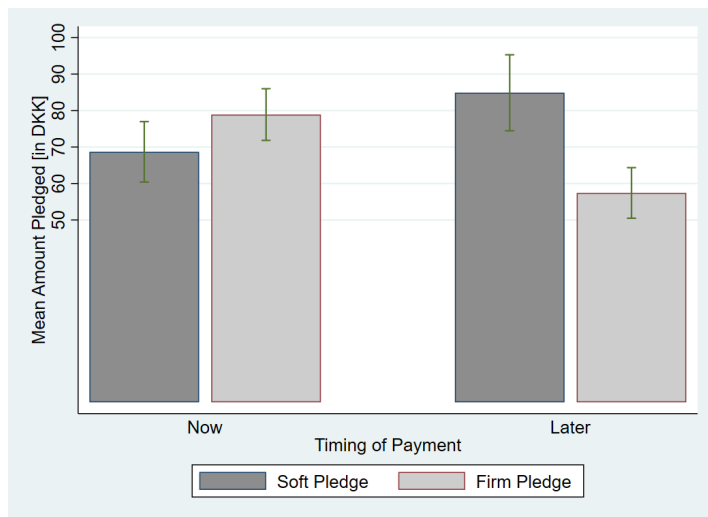
Note: Includes 0's for promised donations that do not arrive. The error bars denote  $\pm 1$  standard error.

Figure 4: Average amount donated [Solicitor level].

one-sided test). This difference is in line with the prediction of our model (Corollary 3) that pledges are dampened when they are harder to renege upon. Apparently, putting the amount on paper and adding the solicitor's signature as in FP indeed has the effect of making renegeing more difficult for the donor. Selection may offer an alternative explanation for the observed difference: In FP, the set of donors who are willing to state the intended may be a subset of the donors who is willing to do so in the soft-pledge regime. However, if true, one also expects the fraction of donors who is not willing to state the intended to be higher in the firm-pledge treatment. Table 6 does not show this, but reports that the fractions are roughly equivalent in both treatments. Another possibility is that despite our randomized design, by pure chance we have selected more avid pledgers into the soft-pledge treatment. However, in that case we should also observe higher pledging in the soft-pledge treatment among the donors who choose to give immediately. We do not: Among donors who use MobilePay to pledge and donate at the same time (first two bars of Figure 5), there is no significant treatment-difference in the mean amount pledged ( $p = 0.815$ ).

## 5.1 Exploratory analysis

Next we turn to some additional exploratory analysis of our data that may help to shed more light on the underlying mechanisms. So far, our analysis of the effectiveness of pledges in increasing donations has included all respondents in the pledge-treatments. However, we have observed that in both the SP and FP treatments, about 40% of all donors did not comply with the treatment by refusing to



Note: Excludes donors who do not pledge an amount. The error bars denote  $\pm 1$  standard error.

Figure 5: Average amount pledged [Solicitor level].

state the amount they intended to donate. If pledges have an impact, we expect actual donations to be higher for donors who have made a pledge than for donors who did not make such a commitment. Figure 6 depicts for both promise-treatments the mean donation by mobile donors who opted for a delayed donation, conditioned on whether or not they pledged an amount. Unsurprisingly, in both treatments the mean donation received is higher for the group of donors who have made an explicit commitment.<sup>34</sup> Of course, this difference is the sum of a selection-effect (those who refuse to state an amount are on average less generous donors) and a treatment effect (explicit commitments are harder to renege upon). The 5.3DKK that is on average received from non-committing donors in the soft pledge treatment is significantly lower than the corresponding 15.6DKK in the no pledge treatment ( $p = 0.044$ ), which indicates that in particular donors who would give smaller amounts select into not stating that amount. It is intuitive and in line with Andreoni and Serra-Garcia (2016), that especially these smaller donors value flexibility in that they do not wish to commit to a future donation amount.

Finally, we limit attention to the sub-sample of donors in the pledge-treatments who did make an explicit pledge. If firmer pledges are more costly to renege upon, and if the way we implement commitment in treatments SP and FP indeed induces a difference in renegeing cost, we expect actual donations to match pledges more closely in FP than in SP. Figure 7 shows the average relative deviation from the pledged amount for the two treatments, where non-received pledges count as  $-1$ . In FP, the amount received falls on average 4.8% of the amount pledged but this difference is not significantly

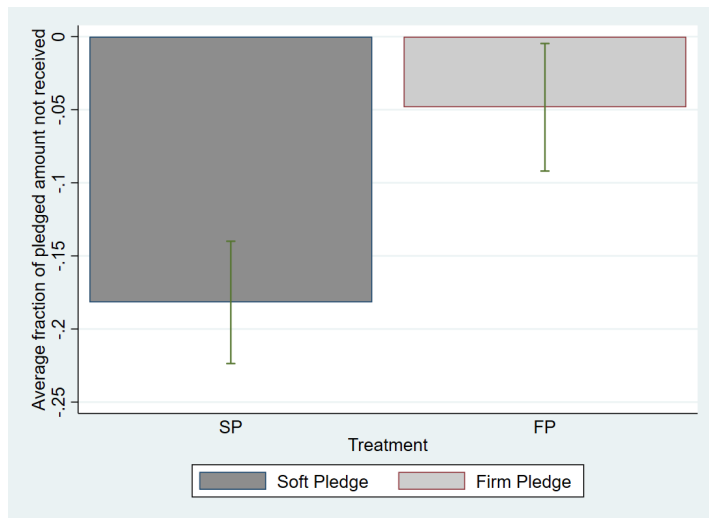
<sup>34</sup>Based on a two-sided WMW-test,  $p = 0.004$  and  $p = 0.006$  for the SP and FP treatment, respectively.



Note: The error bars denote  $\pm 1$  standard error.

Figure 6: Average amount donated by respondent who do (not) state intended amount [Solicitor level].

different from zero.<sup>35</sup> With 18.1%, the difference between the amount pledged and the amount received is much larger in SP and significantly different both from zero as from the average in FP.<sup>36</sup>



Note: The error bars denote  $\pm 1$  standard error.

Figure 7: Mean deviation from pledged amount [Household level].

<sup>35</sup> $p = 0.2702$ , two-sided  $t$ -test.

<sup>36</sup> $p = 0.000$  ( $t$ -test) and  $p = 0.036$  (WMW), respectively. If we exclude the non-arriving donations, the magnitude of the deviations is naturally smaller but the significance remains:  $-0.035$  ( $p = 0.047$ ) for SP and  $0.041$  ( $p = 0.286$ ) for FP, respectively.

## 6 Summary and discussion

We can summarize the results in this paper as follows. First we establish that in door-to-door fundraising, charities face a major challenge in collecting donations from people who indicate that they will wire their donation at a later moment. If no commitment is extracted, such promises will not be followed through in 77% of all cases. When the intended donation is put on paper with the signature of the solicitor added, this rate improves to 64%.

Our evidence confirms the observation Andreoni and Serra-Garcia (2016) have made earlier in the laboratory: moral contradictions induce a kind of time-inconsistency that originates from a demand for flexibility. When asked to make a pledge, about 40% of all participants in our field experiment refuses to do so. As a result, the estimated differences in the mean amount donated in our pledge-treatments versus the no-pledge control group are small and insignificant. When we confine our analysis of pledges to the effect of the treatment on the treated – the respondents who did state the amount they intend to give – we find that the introduction of pledges significantly increases the value of the delayed donations that are wired to the charity. For this effect, which in part may be driven by selection into treatment, it seems sufficient to just have respondents state to the solicitor the amount they intend to donate. The estimates further confirm our model prediction that firmer pledges for future donations that are harder to renege upon will lead to lower pledges. Pledges in the firm pledge treatment are significantly lower than in the soft pledge treatment, but much closer to the amount that respondents will eventually donate.

Two main messages can be distilled from the considerable treatment noncompliance in the pledge treatments and the discrepancy between the nonsignificant intent to treat and the significant treatment on the treated estimates. First, also in field settings of charitable giving, donors who do not give on the spot demand flexibility to act in a time-inconsistent way. They dislike making explicit commitments that morally tie them to donating a specific amount. Second, in field settings such as door-to-door fund raising, charities may face considerable hurdles to capitalize the knowledge that donors are more likely to follow through when they have made an explicit commitment. They have to weave commitments into the soliciting-procedure in such a way that donors comply. Until that point, the intent to treat estimates seem to better reflect how revenues from delayed donations will change when pledges are introduced in actual fund-raising programs.

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## A Proof of Proposition 1

The proof to a great extent follows the line of argument used by Bénabou and Tirole in the proof of their first proposition (2006, p. 1674). Define  $r(p; \gamma) \equiv \partial R(p, g(p); \gamma) / \partial p$  as the marginal reputational return from pledging at level  $p$  and note that from (5), it immediately follows that

$$\frac{\partial C(p, g(p))}{\partial p} = \frac{r \cdot p}{1 + r}. \quad (\text{A.1})$$

We insert this and expression (7) in the derivative of (1) with respect to the pledge:

$$\begin{aligned} \frac{\partial U(p, g(p))}{\partial p} &= v + r(p) + \delta^t \left[ v \left( \frac{\partial g(p)}{\partial p} - 1 \right) - \frac{\partial C(p, g(p))}{\partial p} \right] \\ &= v + r(p) + \delta^t \left[ v \left( \frac{r}{1 + r} - 1 \right) - \frac{r \cdot p}{1 + r} \right] \\ &= v + r(p) - \frac{\delta^t}{1 + r} [v + r \cdot p] \\ &= \frac{(1 + r - \delta^t)v}{1 + r} + r(p) - \frac{\delta^t r}{1 + r} p. \end{aligned} \quad (\text{A.2})$$

In equilibrium the latter expression needs to equal zero. An agent's choice of pledging  $p$  for this reason reveals that her  $[(1 + r - \delta^t)v] / (1 + r)$  is equal to  $\frac{\delta^t \cdot r}{1 + r} p - r(p)$ . So, the expectation of the agent's intrinsic motivation conditional on observing pledge  $p$  is

$$E[v|p] = v + \left[ \frac{\delta^t \cdot r}{1 + r} p - r(p) - \frac{1 + r - \delta^t}{1 + r} v \right].$$

equivalent to equation (9) in Bénabou and Tirole (2006). Differentiating this expression with respect to  $p$  leads to

$$\frac{dE[v|p]}{dp} = \frac{\delta^t \cdot r}{1 + r} - r'(p).$$

This implies that  $r(p)$  is a solution to the linear differential equation

$$r(p) = \frac{dR(p)}{dp} = \gamma \frac{dE[v|p]}{p} = \gamma \left[ \frac{\delta^t \cdot r}{1 + r} - r'(p) \right],$$

the general solution of which can be written as

$$r(p) = \frac{\delta^t \cdot r}{1 + r} (\gamma + \zeta e^{-p/\gamma})$$

with  $\zeta$  the constant of integration. The only well-defined equilibrium is for  $\zeta = 0$  because for all other values, the agent's objective function is not globally concave and is maximized at  $p = +\infty$ . That is,

$$r(p) = \frac{\delta^t \cdot r}{1 + r} \gamma.$$

Using this expression for  $r(p)$  in (A.2) and solving for  $p$  results in  $p^*$  of equation (6).  $q^*$  in (7) follows from substituting  $p$  in (4) by (6).

### A.1 Proof of Corollary 1

Take the derivative in the expression for  $p^*$  in equation (6) for the first result:

$$\frac{dp^*}{dr} = \frac{\delta^t v r - (1+r-\delta^t)v\delta^t}{(\delta^t r)^2} = \frac{(\delta^t - 1)v}{\delta^t r^2} < 0 \text{ for } \delta < 1. \quad (\text{A.3})$$

Take the derivative in the expression for  $g^*$  in equation (6) for the second result:

$$\frac{dg^*}{dr} = \frac{(1+r)\gamma - r\gamma}{(1+r)^2} = \frac{\gamma}{(1+r)^2} > 0. \quad (\text{A.4})$$

### A.2 Proof of Corollary 2

Take the derivative of equation (A.3) with respect to  $t$  to obtain:

$$\frac{d^2 p^*}{dt dr} = \frac{(\ln \delta)\delta^t v \delta^t r^2 - (\ln \delta)\delta^t r^2 (\delta^t - 1)v}{(\delta^t r^2)^2} = \frac{v \ln \delta}{\delta^t r^2} < 0 \text{ for } \delta < 1.$$

From equation (A.4), it immediately follows that  $\frac{d^2 g^*}{dt dr} = 0$ .

### A.3 Proof of Corollary 3

From equation (6) it follows that:

$$\frac{dp^*}{dt} = -\frac{(1+r)v \ln \delta}{\delta^t r} > 0 \text{ for } \delta < 1.$$

From equation (7) it follows that

$$\frac{dg^*}{dt} = -\frac{v \ln \delta}{r} > 0 \text{ for } \delta < 1.$$

From a comparison of the two equations above and noticing that for given  $t \geq 0$ ,  $dp^*/dt > dg^*/dt$  because  $(1+r)/r > 1$  for any  $r \in (0, \infty)$ , it follows that  $d(p^* - g^*)/dt > 0$ : pledges rise faster than actual donations as the time to payment  $t$  increases.

## B Construction of the analysis set

The data generated in the study consists of the following three separate but related data files:

1. **MobilePay transaction data [MD]** retrieved from the bank. This is an administrative list on which amount has been wired when to which solicitor-specific mobile phone number. This is the core data set for the empirical analysis in the paper.
2. **Solicitor data [SD]** Upon arrival at their meeting point, DRC volunteers were asked by the student-assistants to participate in the experimental set up. The assistants recorded some background information on the volunteers who agreed to act as a solicitor in the experiment. Also, upon their return, the assistants had a short interview with these solicitors in which they asked them whether they had followed the experimental procedure.
3. **Donation data [DD]** based on the record sheets handed in by the solicitors. This data set contains information on 9,980 individual donations (was someone home, which amount has been donated/promised, what has been the payment mode? etc.) as recorded by the solicitors.

The personal details of 184 interviewed volunteers have been recorded in the SD.<sup>37</sup> The 9,980 records of individual donations in the Donation Data are from 132 uniquely identified solicitors (plus 9 solicitors for which there is an unique mobile phone number but no match with background characteristics). This implies that a sizeable share of solicitors who were interviewed did not record data. These mostly are solicitors who indicated not to have followed the procedure. Application of the exclusion rules from the PAP leads to dropping 3,007 records of donations such that the analysis set contains 6,973 observations from 83 unique routes.<sup>38</sup> We reiterate that the analysis set has been created using the blinded outcome data.

A total of 712 donations were received via MobilePay. The average MobilePay donation received is about DKK 70 ( $\approx$ €9.40).<sup>39</sup>

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<sup>37</sup>We initially aimed to instruct about 300 volunteers but as mentioned in the pre-analysis plan to this study (Fosgaard and Soetevent, 2016), we expected to end up with a lower number in case many volunteers would show up at about the same time to pick up materials. This has happened, with many arriving between 9 and 10 o'clock in the morning.

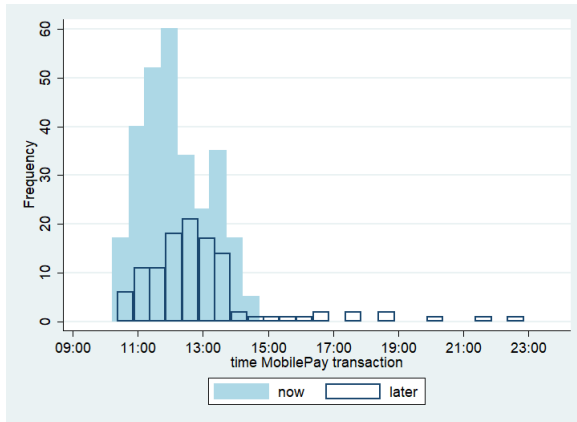
<sup>38</sup>In more than half (1,664) of the cases, observations are dropped because the solicitor did not follow the instructions. See Fosgaard and Soetevent (2017) for all details on how the exclusion rules have been applied and on how the observations in the data sets have been matched. Given 83 solicitors and three main treatments, for a significance level  $\alpha = 0.05$  and a power  $\kappa = 0.80$ , the standardized effect size (MDES) equals 0.30 ( $MDES = (t_\kappa + t_\alpha)/(1/3 \cdot 1/3 \cdot N) = (0.842 + 1.960)/9.22 \approx 0.30$ ). In other words, treatment effects with a minimum impact equal to 0.30 standard deviations will be detected. This means that our design is moderately powered.

<sup>39</sup>A total of 343 MobilePay transactions could be one-to-one matched with a record in the initial sample; the average donation is virtually the same for matched and unmatched payments: For the matched payments, the average is DKK 68.86 (s.d. 44.81), and for the unmatched payments DKK 71.35 (s.d. 56.82).

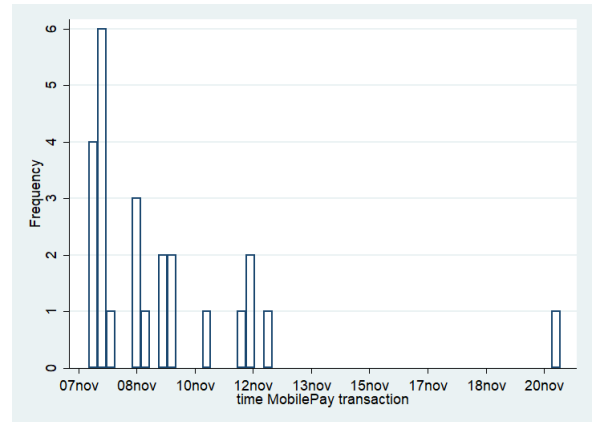


## C Online appendix

### C.1 Additional Results



(a) All MobilePay transactions: November 6 (30m interval)

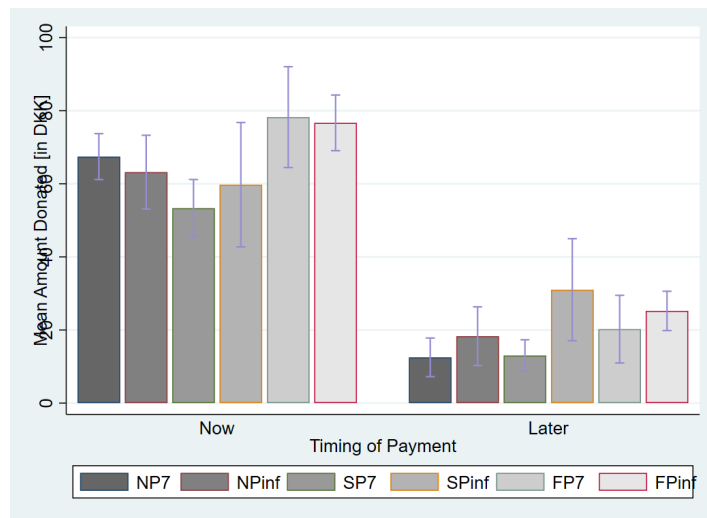


(b) All MobilePay transactions: November 7-21 (6h interval)

Notes: Panels *a* and *b* show the arrival of all 712 MobilePay donations in the initial sample.

Figure C.1: Arrival of MobilePay donations over time [Initial sample]

### C.2 Tables and Figures per treatment subcategory



Note: Includes 0's for promised donations that do not arrive. The error bars denote  $\pm 1$  standard error.

Figure C.2: Average amount donated [Solicitor level].

Table C.1: Summary statistics solicitors [by treatment, sublevel]

	NP		SP		FP	
deadline	Yes	No	Yes	No	Yes	No
Age	45.50 (18.18)	41.57 (12.6)	46.80 (19.01)	45.57 (15.25)	33.45 (11.11)	40.21 (19.23)
Female	0.67 (0.49)	0.73 (0.46)	0.70 (0.48)	0.50 (0.53)	0.58 (0.51)	0.76 (0.44)
Acc. children	0.2 (0.42)	0.42 (0.51)	0.38 (0.52)	0.57 (0.53)	0.44 (0.53)	0.22 (0.44)
Experience	0.91 (0.3)	0.93 (0.27)	0.89 (0.33)	0.88 (0.35)	1.00 (0)	0.87 (0.35)
Brnshj,	0.17	0.41	0.25	0.20	0.36	0.33
Frederiksberg	0.75	0.41*	0.58	0.60	0.50	0.56
Vesterbro	0.08	0.18	0.17	0.20	0.14	0.11
obs.	12	17	12	10	14	18

Notes: \*\*\*(\*\*,\*) : statistically different from treatment with deadline at the 1%-level (5%-level, 10%-level).

Table C.2: Basic outcomes [by treatment, sublevel]

	NP		SP		FP	
Deadline	Yes	No	Yes	No	Yes	No
Nr. addresses visited	79.08 (36.56)	97.13 (23.52)	92.36 (28.71)	81.4 (36.15)	85.64 (42.23)	90.59 (26.35)
Fraction home <sup>1</sup>	0.49 (0.26)	0.50 (0.25)	0.41 (0.12)	0.44 (0.17)	0.41 (0.21)	0.48* (0.24)
Fraction <sup>2</sup>						
no	0.22	0.38*	0.16	0.17	0.15	0.26
cash	0.56	0.46	0.63	0.65	0.67	0.55*
mobile, of which:	0.22	0.16	0.21	0.18	0.19	0.19
... NOW <sup>3</sup>	0.43	0.31	0.5	0.42	0.47	0.53
... LATER <sup>3</sup>	0.57	0.69	0.49	0.55	0.53	0.47
<b>Cash donations [in DKK]</b>						
Total	1071.78 (547.54)	955.54 (445.37)	1206.89 (536.46)	961.88 (438.13)	931.10 (576.37)	1107.08 (604.79)
Average <sup>2</sup>	47.68 (22.11)	54.67 (23.81)	55.37 (21.31)	50.91 (77.61)	55.85 (29.33)	54.98 (18.41)
obs.	12	17	12	10	14	18

Notes: 100DKK  $\approx$  €13.40. Each solicitor observation is proportionally weighted using the number of records that gave rise to the solicitor's average: <sup>1</sup>denominator = addresses visited; <sup>2</sup>denominator = households home; <sup>3</sup>denominator = total nr. of donations by phone.

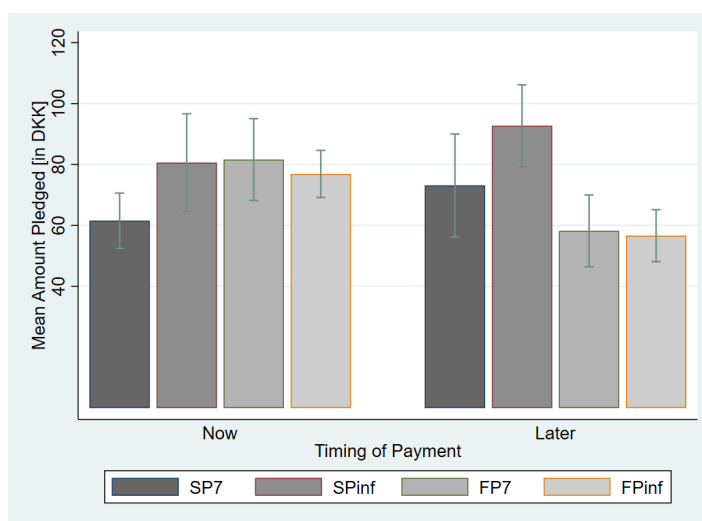
\*\*\*(\*\*,\*) : statistically different from treatment with deadline at the 1%-level (5%-level, 10%-level).

Table C.3: Primary outcome variables – MobilePay Donations [by treatment, sublevel]

	NP		SP		FP	
	Yes	No	Yes	No	Yes	No
Deadline						
Fraction will not say			0.49	0.43	0.44	0.44
Total MobilePay donations [in DKK]	317.08 (313.22)	332.35 (407.37)	294.17 (216.34)	234 (152.11)	219.64 (178.5)	380.56* (251.14)
Fraction later payments received	0.26 (0.34)	0.21 (0.24)	0.20 (0.18)	0.40 (0.24)	0.31 (0.38)	0.40 (0.33)
obs.	12	17	12	10	14	18

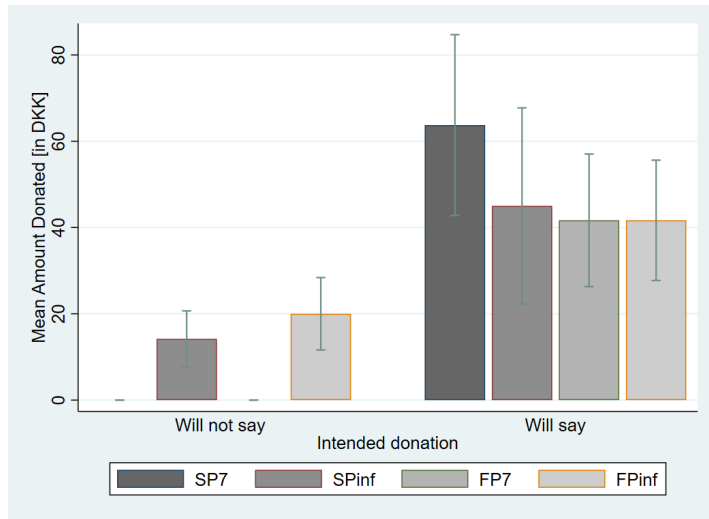
Notes: 100DKK  $\approx$  €13.40.

\*\*\*(\*\*,\*) : statistically different from treatment with deadline at the 1%-level (5%-level, 10%-level).



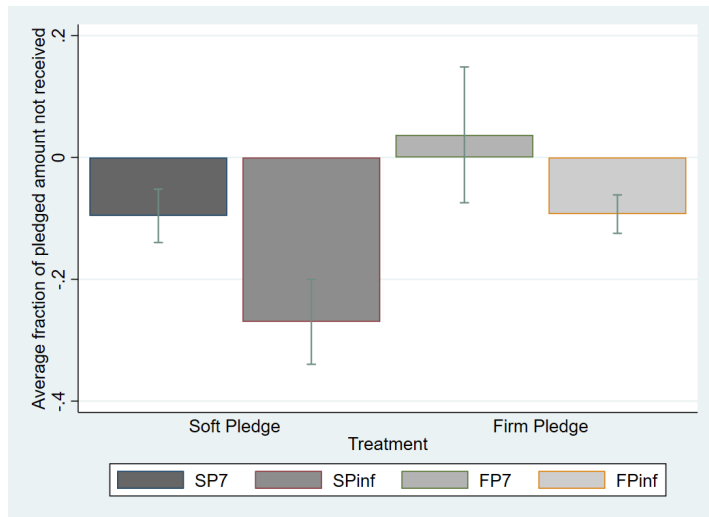
Note: Excludes donors who do not pledge an amount. The error bars denote  $\pm 1$  standard error.

Figure C.3: Average amount pledged [Solicitor level].



Note: The error bars denote  $\pm 1$  standard error.

Figure C.4: Average amount donated by respondent who do (not) state intended amount [Solicitor level].



Note: The error bars denote  $\pm 1$  standard error.

Figure C.5: Mean deviation from pledged amount [Household level].

## C.3 Information to solicitors and respondents

### C.3.1 Script solicitors

Good morning/afternoon,

I would like to ask you whether you want to make a donation to the Danish Refugee Council.

You can make your donation by putting cash into this box. Alternatively, you can make a donation by mobile phone. In the latter case, you can choose to make your donation now or at another convenient moment. The phone number you can use is on this flyer.

[**NP7, SP7, FP7**: You can wire your contribution up to and including **Sunday November 13.**]

1 Do you wish to make a donation? *Wait for answer [A1].*

- *A1 = “none/no donation”*: Thank you for your time and have a nice day!
- *A1 = “cash”*: Please put your donation in this box. Thank you for your donation and have a nice day! *Give flyer*

2 *A1 = “mobile phone”*: Do you wish to donate immediately or at a later point in time? *Wait for answer [A2].*

- *SP7, SPinf, A2={ “now”, “later”}*: Could you please tell me how many Danish Kronor you intend to donate? *Wait for amount [A3] to be stated.*
- *FP7, FPinf, A2={ “now”, “later”}*: Could you please tell me how many Danish Kronor you intend to donate? I will put this amount with my signature on this Thank-You letter. *Wait for amount [A3] to be stated.*
- *NPinf, SPinf, A2= { “now”, “later”}*: *Give flyer.* You can use this number to make the donation.
- *FPinf, A2= { “now”, “later”}*: *Write Amount A3 + signature on flyer V2 and give to donor*  
You can use this number to make the donation.
- *NP7, SP7*: *Give flyer*;
  - *NP7, SP7, A2= “now”*: You can use this number to make your donation.
  - *NP7, SP7, A2= “later”*: You can use this number till Sunday November 13<sup>th</sup> to make your donation.
- *FP7*: *Write Amount A3 + signature on flyer V1 and give to donor*

- **FP7**,  $A2=$  “now”: You can use this number to make your donation.
- **FP7**,  $A2=$  “later”: You can use this number till Sunday November 13<sup>th</sup> to make your donation.
- **NP7**, **SP7**, **FP7**, **NPinf**, **SPinf**, **FPinf**,  $A2=$  “now”: *Wait for donation.*
- **NP7**, **SP7**, **FP7**, **NPinf**, **SPinf**, **FPinf**,  $A2=$  { “now”, “later”}: Thank you for your donation and have a nice day!

### C.3.2 Flyers

The flyer a household receives depends on the treatment to which the solicitor is allocated and the answers given by the household member that opens the door. Table C.4 provides a scheme of the allocation of the different flyers.

Table C.4: Scheme of flyer allocation to donors

Payment method	Treatment					
	NP7	NPinf	SP7	SPinf	FP7	FPinf
Non-donors	Default	Default	Default	Default	Default	Default
Cash	Default	Default	Default	Default	Default	Default
Mobile – now	13Nov	Default	13Nov	Default	13Nov+Amount	Amount
Mobile – later	13Nov	Default	13Nov	Default	13Nov+Amount	Amount



Figure C.6: Default flyer: Number only.



Figure C.7: Flyer with deadline November 13th ['13Nov'].

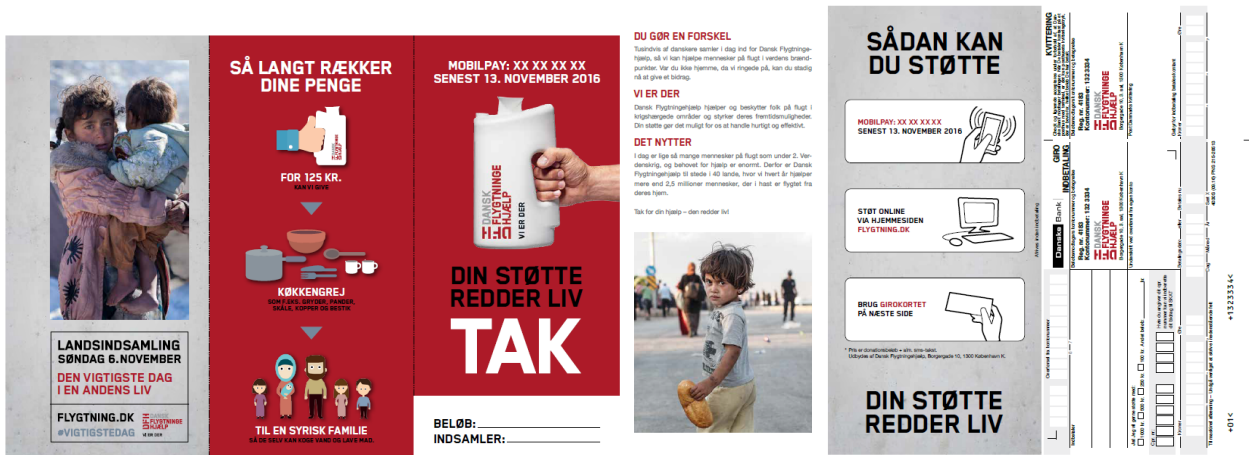


Figure C.8: Flyer with amount field and deadline November 13th ['13Nov+Amount'].



Figure C.9: Flyer with Amount field, no deadline ['Amount'].