

Image Concerns in Pledges to Give Blood: Evidence from a Field Experiment*

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Abstract

We use a field experiment to study how social image concerns affect pledges to engage in a charitable activity. We work with two different blood banks and a municipal government in Germany to offer sign-ups for human whole blood donations. Motivated by a simple signaling framework, we randomly vary the type of organization to donate to and the visibility of the pledge. Our setting also provides natural variation in the group of people that form the “audience” for social image concerns. We find evidence for strong social image concerns when subjects are asked in public whether they would like to pledge a donation with a well-known charity. Almost all subjects renege on their pledge, with no detectable differences between treatments. We discuss avenues for further research and end on a cautionary note for organizations looking to harness pledges as nudges to do good.

Keywords: prosocial behavior, social image, commitment, pledges, nudges, field experiment.

JEL Classification: C91, D64, H41, I18.

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1 Introduction

We want to be seen by the people around us as doing good, as being generous and altruistic. Costly prosocial behavior such as donations of time, money, or body tissue, can act as a signal to others that demonstrates such generosity (Benabou and Tirole, 2006). Although people do not always welcome such signaling opportunities (DellaVigna et al., 2012; Andreoni et al., 2017), social image concerns can be leveraged to induce individuals to behave in socially desirable ways, including giving to charity (Ariely et al., 2009; Meyer and Tripodi, 2017), voting (Gerber et al., 2008), and participating in energy conservation programs (Yoeli et al., 2013).

In many settings, however, prosocial actions themselves cannot be made public. One way for individuals to still benefit from public recognition of their prosocial activities is to demonstrate proof of contribution ex-post, for example by wearing a lapel pin for blood donors or sharing a picture of volunteer activity on social media. Charities often recognize donors on publicly-visible plaques or donor walls. Ex-ante, social pressure can be leveraged by encouraging public pledges to act charitably in the future. Such pledges are used to rally individuals to contribute to future charitable activities, for example through public calls for action in online and offline social networks.¹ These pledges are the focus of our study. Like other more commonly used “nudges”, offering an individual to pledge a contribution to charity does not significantly alter economic incentives and is easy to avoid.

Two steps are involved for a pledge to increase contributions to a charitable activity: First, individuals need to take up the initial commitment. Second, individuals need to follow through and fulfill their pledge. In this paper, we set out to study how social image concerns affect both of these steps.

In the first step, an observable promise to do good – similar to an observable act of doing good – can be used to signal generosity to others.² This signaling process will be the focus of our field experiment. Building on a simple theoretical framework, we study three channels through which social image effects can affect the uptake of pledges: the degree to which an individual cares about being seen by others as “doing

¹A well known example is The Giving Pledge (givingpledge.org), which encourages wealthy people to contribute a majority of their wealth to philanthropic causes. In the domain of human tissue donations, the pharmaceutical company Abbott has been conducting a global media campaign to promote blood donations. The campaign features celebrities in YouTube clips and encourages individuals to “make a pledge and BE THE 1 [to save a life]”, with the hope that these individuals fulfill their pledge (“Pledging is only the first step in the BE THE 1 campaign. Now that you’ve made your pledge, keep your promise by finding your donation center and scheduling an appointment to donate blood and plasma”). It also encourages sharing of this pledge on social media (bethe1donor.com/join).

²Andreoni and Serra-Garcia (2017) provide an alternative explanation and illustrate how people may want to substitute immediate donations with pledges to donate to help overcome pressure to give (DellaVigna et al., 2012; Andreoni et al., 2017) and time inconsistency in their preferences for giving (Dreber et al., 2016; Saito, 2015).

good” by taking a pledge, the expectation that an individual has over how socially-desirable others around her perceive her pledge, and the ability of others to update their beliefs about an individual, given her pledge.

In the second step, various mechanisms can explain why individuals would renege or follow through. A pledge can produce an internal commitment that individuals with preferences for moral consistency (Cioffi and Garner, 1996; Cialdini and Trost, 1998) or promise-keeping (Charness and Dufwenberg, 2006) might not want to break.³ Increasing the psychological costs of renegeing could then increase follow up (Andreoni and Serra-Garcia, 2017). Given the challenges of disentangling these mechanisms in our context, we study the second step empirically.

We conduct a field experiment in a the mid-sized German city where various organizations compete for prospective blood donors. In the service center of the municipal government located in the city hall, we approach customers waiting for their appointment with a short questionnaire and an offer to sign up for blood drives scheduled in the city over the following weeks. The experiment randomly varies treatments over two dimensions: In the first dimension, we vary the organization holding the blood drive. We work with the German Red Cross, which generally never pays its donors, and a private commercial blood bank, which remunerates donors with 20 euros per donation. In the second dimension, we vary whether the sign-up is offered in private on a tablet computer only visible to our subject, or in public by our enumerator. Other customers as well as friends and family members coming along to the appointment serve as a natural “audience” for the public pledge. The sign-up is not binding, but represents a pledge vis-à-vis the blood collector. In the months after the survey, we observe whether our subjects indeed choose to donate by matching their names with the databases of the two collectors.

The share of subjects who sign up to donate blood at the German Red Cross increases by about 30 percent when the pledge is observed by the natural audience in the city hall waiting room, compared to a baseline rate 23.2 percent of pledges made in private. This effect is entirely driven by individuals that visit the municipal service center with friends or family: their pledging rate increases from 23.6 percent in private to 44.8 percent in public. On the other hand, people visiting the service center alone and people for whom we elicit a pledge to donate blood at the commercial blood bank are not affected by the visibility manipulation. We interpret this evidence as consistent with our theoretical framework in which image returns from prosocial actions are highest when these are unambiguously prosocial and observed by people we care about.⁴ Turning to actual blood donations from individuals in our study, we find that less than 1 percent fulfilled their pledges. This strikingly low rate makes it

³Vanberg (2008) points out that behavioral accounts that can explain why people stick to a promise include both a social preference of guilt aversion (Ostrom et al., 1992; Ellingsen and Johannesson, 2004) and a social norm of promise keeping (Dufwenberg and Gneezy, 2000; Battigalli and Dufwenberg, 2007), and provides evidence for the latter as primary motive for people to stick to pledges.

⁴Blood donations at the commercial blood bank may not be perceived as unambiguously prosocial because of the monetary incentive associated to the donation of blood.

hard to investigate how our treatment manipulations affected donations. We discuss potential explanations for this finding. While our experimental design aimed to be minimally invasive and closely resemble a real-world blood drive, we also discuss potential extensions that could shed more light on the low fulfillment.

This paper makes at least three contributions to the literature. First, it contributes to a burgeoning literature in psychology and economics concerned with the effect of social image concerns on individual behavior (Bursztyn and Jensen, 2017). We show that image concerns can be leveraged to get people to commit to charitable pledges and that image concerns are likely stronger when the audience of prosocial actions is more closely related to the agent. Second, with the use of charitable pledges, we contribute to a literature on *soft* commitment devices (Bryan et al., 2010).⁵ This literature most commonly studies how such devices can help avoid temptations. Our study uses a soft commitment device that leverages the immediate temptation to give, which alone may not necessarily translate into future giving behavior (Andreoni and Serra-Garcia, 2017). The third contribution is methodological. Our field experiment combines an intercept survey, commonly used in an older marketing literature (Bush and Hair, 1985), with experimental manipulations more commonly used in the modern laboratory. This approach increases ecological validity by letting us (i) approach a sample of vastly heterogeneous individuals (ii) from a narrowly-targeted geographical area and by (iii) exploiting natural conditions of the venue of intercept for the identification of behavioral mechanisms.

2 Theoretical Framework

To fix ideas for our empirical analysis of how social image concerns can affect the act to pledge a later donation, we rely on the theoretical framework by Benabou and Tirole (2006), in which the decisions of agents to participate in some prosocial activity carry reputational costs and benefits.⁶ We abstract from any direct payoffs from intrinsic and extrinsic motivations that agents might have to participate in the prosocial activity to focus on the implications of visibility. We restrict our attention to social image concerns using the simplified framework provided by Bursztyn and Jensen (2017).

Formally, each agent i in our environment can undertake a binary action, say a pledge to donate, $p_i \in \{0, 1\}$. This action may be visible to a reference group j . Taking the action is informative about the type of agent $\sigma_i \in \{l, h\}$, where to her reference group j type h is seen as more socially-desirable by others than type l . Utility from

⁵Bryan et al. (2010) define *hard* commitment devices to impose both material and psychological costs from deviation while *soft* commitment devices only impose psychological costs.

⁶This theoretical framework builds on theories of esteem (Bernheim, 1994) and self-signaling (Bodner and Prelec, 2003), and provides a unifying theory to explain prosocial behavior in the presence of incentives.

social image to agent i is then

$$S_i = \lambda_{i,j} E_i [\omega_j] \Pr_i(\sigma_i = h|p_i) \quad (2.1)$$

where $\lambda_{i,j}$ is the degree to which the agent cares about being perceived as socially desirable in her reference group j . $E_i [\omega_j]$ is the expectation that agent i has about how socially-desirable it is to be seen as a high type by other agents in her reference group j , measured by $\omega_j > 0$. Finally, $\Pr_i(\sigma_i = h|p_i)$ is the probability that taking action p_i reveals agent i to be of type h to others in the reference group.

Following this framework, we can empirically detect social image effects in at least three ways. First, and maybe most obviously, social image concerns depend on whether other agents can update their beliefs about the type of agent i , $\Pr_i(\sigma_i = h|p_i)$. When pledges are not observable, agents in the reference group cannot update their beliefs and social image concerns vanish. Conversely, the easier it is for agents in the reference group to observe the actions of agent i , the more salient social image concerns become. Most of the literature has tested for social image concerns by exogenously varying whether actions are observable (Ariely et al., 2009; DellaVigna et al., 2012, 2017), we vary the visibility of the pledge to donate.

Second, the degree to which an agent i cares to be perceived in a positive light by others in a reference group j , $\lambda_{i,j}$, amplifies the effect of any social image concerns that might be operative. A test for social image concerns that exogenously varies visibility should thus find a greater effect in when the agent cares more about being perceived in a positive light in group j , i.e. when $\lambda_{i,j}$ is bigger. This can be due to personal preference, the setting in which actions are taken, or the composition of the reference group. We might, for example, care more about how our actions are perceived when reference group consists of close friends and family and more generally to people with whom we prospect future interactions as opposed to complete strangers. Funk (2010) finds evidence that social pressure to vote in Swiss elections is stronger in smaller and more close-knit communities. Third, the expectation of agent i about social desirability in the reference group j of taking an action and being seen as the high type, $E_i [\omega_j]$. Similar to concern for being perceived in a positive light by the reference group, the expectation about social desirability amplifies any social image effects that might be at work. Social desirability depends both on the underlying value that the group attaches to being a high type, and the agent's expectations thereof. The former could differ, for example, for different charities. The latter could be affected by social norms. Ariely et al. (2009) manipulate the nature of the cause that subjects of a lab experiment can donate to and show that donations for a "bad cause", in their case the National Rifle Association, are not significantly different in public and in private. We are not aware of any other empirical tests of how the social desirability of taking an action shapes the effect of social image concerns.

3 Experimental Design and Procedures

Our experimental setup lets us study the three factors that shape social image concerns in a natural setting. Our experiment uses a 2×2 between-subject design. In the first dimension, we randomly vary the visibility of actions (*PUBLIC* or *PRIVATE*). In the second dimension, we randomly vary the organization that agents can pledge to donate to (*CHARITABLE* or *COMMERCIAL*).⁷ The two organizations that we work with, a well-known charity and a commercial blood bank that pays its donors for giving blood, are likely perceived differently in terms of social desirability in the sample of people in our study. We offer donations to each of these organizations to separate, random subsamples of subjects.

Within this 2×2 design, we have natural variation in the reference groups of prospective donors, which should by construction be orthogonal to our treatments. This variation informs how a change in how much agents care about the opinions of others may shape social image effects.

3.1 Local Context and Partner Organizations

We conduct our field experiment in Germany, which stands out among high-income countries in that a sizable share of human whole blood donations are incentivized with cash payments. Germany is the fifth-largest blood supplier in the world (Paul Ehrlich Institut, 2015) and has the highest per capita rate of donations among all countries reporting to the World Health Organization ([World Health Organization, 2017](#)). Of the 4.4 million whole blood donations collected in 2014, about 71 percent were collected by the German Red Cross, which never pays its donors. The remaining 29 percent represent the military, private donors, and larger hospitals. The latter two groups commonly pay their donors, sometimes up to about 30 euro per donation.⁸ The German legal framework (*Transfusionsgesetz* §10) recommends unpaid donations but allows for an unspecified monetary “compensation” (*Aufwandsentschädigung*).⁹

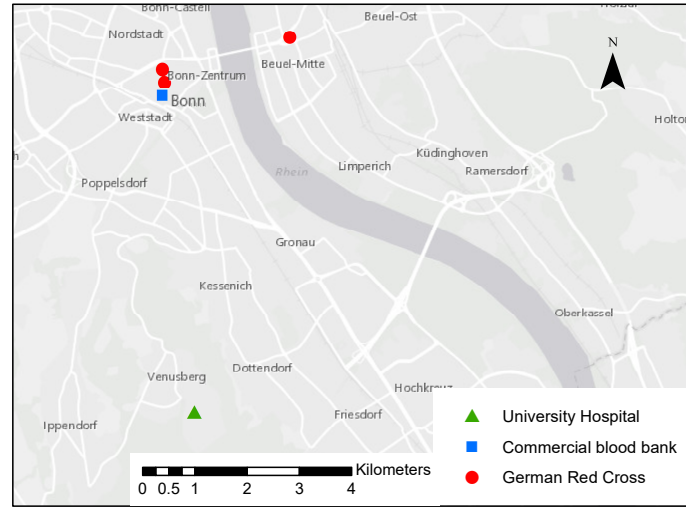
The fact that paid and unpaid incentive schemes coexist in Germany’s market for blood enables us to vary incentives to donate blood in a natural setting. We conduct

⁷The initial design had a third treatment in which agents could chose between a charitable pledge and a commercial pledge to donate. The data for this treatment is made available upon request from the authors, but we do not present it in this paper due to various differences between the collecting institutions that make this treatment uninformative and difficult to interpret.

⁸It is difficult to estimate exact numbers because the German government does not publish data on blood donations by type of remuneration, while the relevant WHO database on blood donations is not nationally representative.

⁹It is interesting to note that the German Red Cross, as quasi-monopolist, has unsuccessfully taken legal action to stop remunerated donations. Most recently in 2012, the Higher Administrative Court of Rhineland-Palatinate (*Oberverwaltungsgericht Rheinland-Pfalz*) dismissed legal action of the German Red Cross against the university hospital in Mainz, who regularly pays its donors. The court found the payment to be lawful. See also [Oberverwaltungsgericht Rheinland-Pfalz \(2013\)](#).

Figure 1: Map of Blood Collection Points in Bonn, Germany



Sources: Esri, DeLorme, HERE, OpenStreetMap contributors.

Notes: German Red Cross locations represent mobile donation drives during the period of the experiment (April and May 2017). The University Hospital (green triangle) is not part of this experiment.

our field experiment in Bonn, a city of about 310,000 people in the populous Rhine-Ruhr region in the west of Germany. We chose Bonn for its competition among various blood collectors in a well-defined geographic area.¹⁰ In Bonn, prospective donors can donate blood in three different ways: First, in frequent mobile donation drives of the German Red Cross held in public squares in the city center. The German Red Cross never pays its donors. Second, during fixed business hours at a commercial blood bank in the city center, which pays 20 euro per donation. Third, during fixed business hours at Bonn University Hospital located about 6km outside the city. The hospital pays 25 euro per donation. Figure 1 shows the location of all donation points on a map. The Red Cross locations represent mobile donation drives during the period of the field experiment (April to May 2017).

We exclude Bonn University Hospital for three reasons. First, it takes about 30 minutes to reach the hospital using public transport from the city center. In comparison, the commercial blood bank and the Red Cross donation drives are all in walking distance of the city hall.¹¹ Second, the comparison between the German Red Cross, a well-known charity, and a commercial blood bank presents a starker contrast in terms of social desirability of the donation. This is less clear for the University Hospital, which is in public ownership. Third, our enumerators were clearly identifiable as affiliates of the University of Bonn. Including blood drives at the university-owned hos-

¹⁰The authors considered various German cities and chose Bonn after studying local competition and after conversations with various actors in the market for blood.

¹¹We use the Google Maps Distance Matrix API to calculate travel times from the city hall at 8am on a Tuesday morning.

pital could have induced significant experimenter demand effects for those offers.

Before the experiment, we reached agreements with the regional chapter of the German Red Cross and the commercial blood bank to cooperate in advertising and data sharing. Subjects are informed that we formally cooperate with both organizations. Accordingly, the survey consent form reflects legal requirements of both organizations. The survey software and the “thank you” notes given to subjects use the official logos of our partners.¹²

We recruit subjects among customers of the service center of the Bonn municipal government. The service center, centrally located in the city hall, provides a wide range of in-person administrative services such as applications for official documents, driver’s licenses, registration of motor vehicles, and payments for city services. Customers arrive at the service center for appointments that they have previously scheduled online or via telephone. After signing in with the front desk, they wait for their appointment in a designated waiting area.¹³

We choose to conduct the experiment in the municipal service center for three reasons: First and most importantly, the population that we can sample from is highly diverse and relevant to study the behavior of potential blood donors. Second, the service center lends itself to an intercept survey because almost all customers have to wait for a few minutes, often with little to do. Third, the physical space of the waiting area with many other people standing and sitting around provides a natural “audience” that we can use to make social image concerns salient. Before the experiment, we agreed with the municipal government on suitable time periods and procedures. Staff of the service center was briefed on our experiment.

3.2 Experimental Procedures

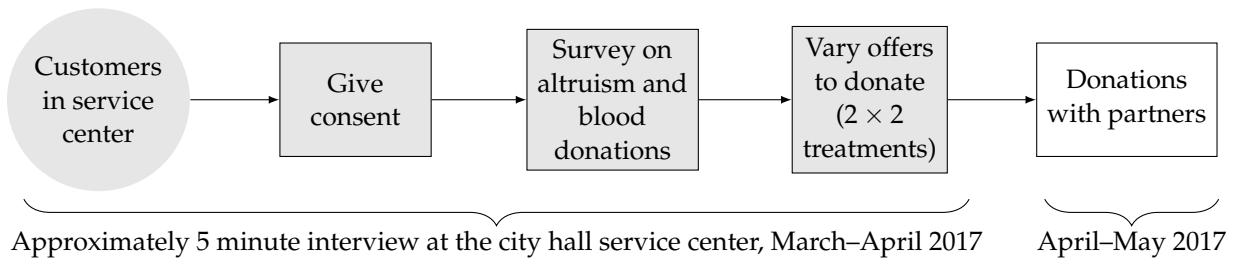
Subjects for our experiment are recruited using an intercept survey in the waiting area of the municipal service center. Throughout the operating hours of the service center, our enumerators wait for new customers to arrive in the waiting area. Given the large number of appointments, it was not feasible to interview all customers arriving for appointments. Instead, we opted for a procedure in which our enumerators are instructed to always approach the first new customer to arrive as soon as they have finished with the previous subject. This approach avoids that subjects are influenced by observing other interviews and maximizes the likelihood that our enumerators can complete the interview before subjects are called for their appointment. We restrict our sample to customers that have an appointment, are between 18 and 65 years of age, and are able to speak and read German.

¹²All survey materials are available in the online appendix

¹³On an average day, the service center handles about 1,300 appointments during 10 business hours from 8am to 6pm. The average wait time between arrival at the service center and appointment is about 4.5 minutes.

We use computer-assisted personal interviewing (CAPI) with a tablet computer.¹⁴ Enumerators can read instructions off the screen of their tablet. When approaching new customers using a rehearsed script, enumerators verbally ask for an initial consent to participate in a short survey. If customers agree, enumerators hand over the tablet to let customers read background information on the survey, a privacy notice, and to let them complete a written consent form. Once customers have completed the consent form with their personal details, we treat them as subjects. Subjects then use the tablet to complete a short self-administered questionnaire about prosocial behavior, perceptions and preferences related to donating blood, awareness of various ways to donate in Bonn, and number of years lived in Bonn. Finally, the survey software administers one of four treatments (see detailed description below). The order of questions is not randomized and the offer to sign up for a donation is always the last element of the survey. Answer choices for categorical questions are displayed on screen in a random order. When beginning the survey, subjects do not know that they will be offered to sign up for a donation at the end. Throughout the self-administered survey, enumerators stand by to guide and assist subjects in operating the tablet computer.¹⁵ Figure 2 summarizes the sequence of events in the experiment.

Figure 2: Sequence and Timeline of the Experiment



We recruited two student research assistants at the University of Bonn as enumerators. We require both enumerators to wear a visible photo ID badge that clearly identifies them as working for the University of Bonn, a large and well-known public university. We conduct a detailed training of enumerators to make sure that the procedures are implemented as described above. In addition to the tablet computer, “thank

¹⁴Each enumerator uses a 10.1" Android tablet running the Qualtrics Offline Surveys app. Surveys are programmed online in Qualtrics and then downloaded to the tablets for offline use. Tablets are operated in a kiosk mode that does not permit operations other than answering the survey. Responses are stored on the tablet and regularly transmitted to the Qualtrics server using an encrypted connection over a WLAN network in the city hall.

¹⁵Every time an enumerator approaches a customer of the service center, irrespective of whether the customer gives consent or completes the survey, the enumerator completes a short questionnaire designed to capture observable characteristics and environmental conditions. These include estimated age range, gender, whether customers came in a group, potential problems to complete the questionnaire, how crowded the waiting area was, and reasons for aborting the survey. This information serves to understand potential selection effects in our sample.

you” notes, and randomization protocol, enumerators carry a copy of the survey protocols that they can refer to. Surveys were conducted in the municipal service center for 92 hours, spread out over 18 workdays in four weeks in March and April 2017.

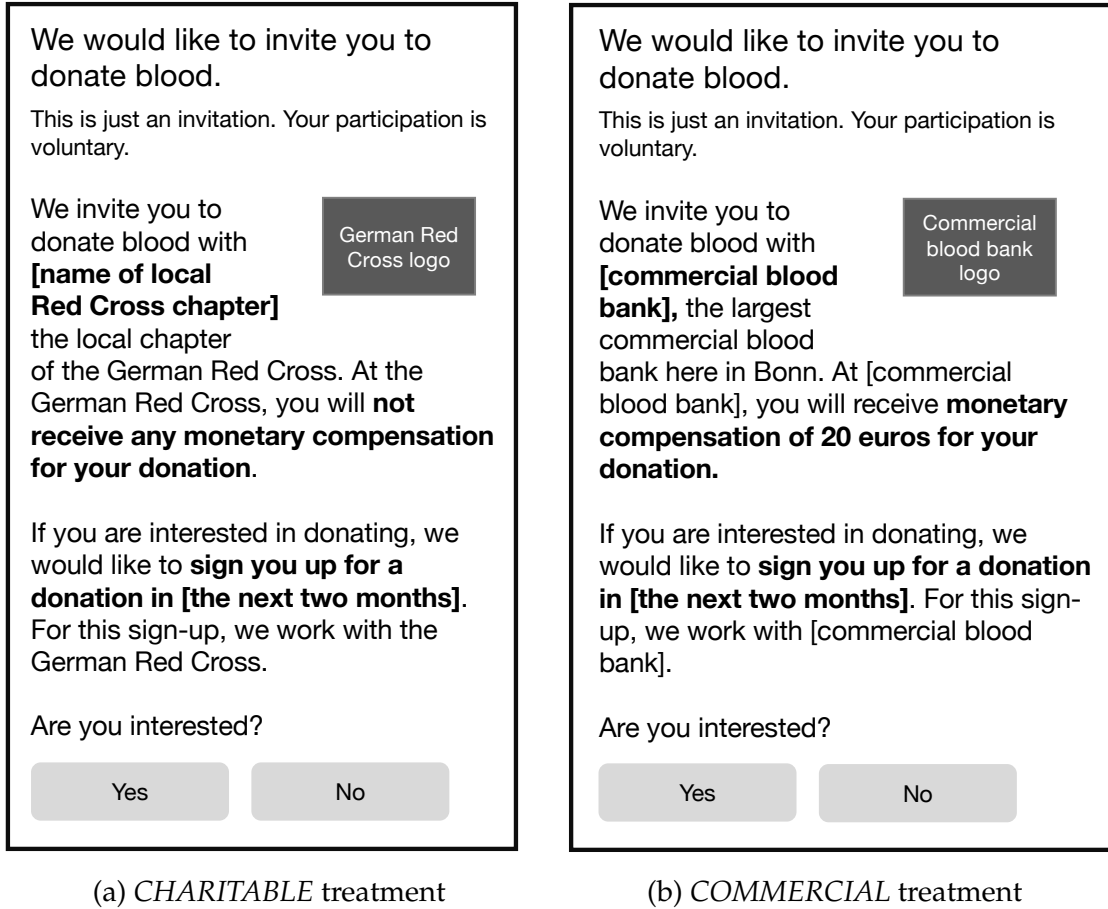
3.3 Treatments

Our experiment offers to sign subjects up to donate blood with one of our partner organizations. We cannot legally require subjects to follow through on their pledge. Instead we explain that we pass on sign-up confirmations for a donation drive to the relevant partner organization, thus emphasizing that the sign-up represents a pledge vis-à-vis the partner organization.¹⁶

We use a 2×2 between-subject design that varies the sign-up process over two dimensions: Along the first dimension, we vary the organization that subjects can pledge to donate to. This lets us manipulate incentives to donate in a natural way. In the first treatment, subjects can sign up for a donation with the local chapter of the German Red Cross, a well-known charity that does not provide monetary compensation for donations (*CHARITABLE* treatment). In the second treatment, subjects can sign up for a donation with a commercial blood bank, which provides a monetary compensation of 20 euros per donation (*COMMERCIAL* treatment). Subjects are informed about the compensation (or lack thereof) in their treatment but they do not learn about the other option to donate. Figure 3 illustrates the tablet screens for both treatments.

¹⁶The exact phrasing is as follows: “We invite you to donate blood with [partner organization, depending on treatment, with further explanation]. If you are interested in donating, we would like to sign you up for a donation in [the next two months]. For this sign-up, we work with [partner organization]. Are you interested?”. Full experimental instructions are available in the online appendix.

Figure 3: Illustration of Tablet Screens with Donation Offer, by Treatment



Notes: This figure is an illustration that approximates the layout of the tablet screens, with instructions translated from German. Original screenshots are available upon request.

Along the second dimension of the 2×2 between-subject design, we vary the visibility of the offer and sign-up process. In the *PRIVATE* treatment, subjects are presented with the offer to sign up privately on the screen of the tablet. After having completed the survey on altruism and preferences to donate blood, the software presents the offer to sign up for a donation as an additional, last screen. Subjects accept or decline using buttons on the screen. In the *PUBLIC* treatment, the software asks subjects to return the tablet computer to the enumerator after the survey has been completed. The enumerator then advances to a hidden next screen and reads out loud the same offer that in the *PRIVATE* treatment is presented on the screen. Instead of using buttons on the screen, subjects in the *PUBLIC* treatment are required to say out loud whether they would like to sign up for a donation. Other customers waiting in the service center and any friends and family who might be accompanying the subject serve as an "audience" for the public commitment.

All subjects who sign up for a donation receive a "thank you" card for the organi-

zation that they signed up with. The cards are printed on high-quality paper and are meant as a token of appreciation to remind subjects of their pledge to donate vis-à-vis the partner organization. They also provide information on where and when they can donate with the relevant partner. Figure A1 presents the card design for the German Red Cross (i.e. the card that is given out in the *CHARITABLE* treatment).¹⁷

The type of donation offer was randomized at the hourly level, i.e. over the 92 hours that enumerators were present in the municipal service center. We chose the hourly treatment assignment because it minimized the chance that subjects would see our enumerators offer donations with a different organization to later subjects (and thus potentially cause inquiries) and because it simplified administration of the survey, in particular the handling of “thank you” cards, for our enumerators. Randomization of donation offers was done before the start of the experiment using Microsoft Excel. The visibility of the offer was randomly allocated between all subjects by our survey software during the experiment.

3.4 Donation Drives and Tracking of Subjects

Our study design allows tracking of subjects from the municipal service center to blood drives of our two partner organizations in a period of two months after the initial interviews were conducted. Subject consent and personal information collected during the survey lets us match individual-level data for all subjects, irrespective of treatment, with donation records. For this purpose, the consent form included waivers of medical confidentiality so that both of our partner organizations could report donation behavior (but no other personal or medical information) back to us.

Our two partners pursue different strategies to collect donations. The Red Cross does not have a fixed donation center in Bonn, but offers widely-publicized mobile donation drives in public squares in the city center. The commercial blood bank has regular business hours every day during which it accepts walk-in donors. For the purpose of our experiment, we agreed with our partners on five fixed dates and times that were the same between both partners and that were highlighted on the “thank you” card.¹⁸ While we specifically invited subjects to come to one of these time slots (“we expect to see you at one of these donation drives”), our data also allows us to track subjects who chose to donate at other times or in other donation drives in the region.

¹⁷In the *PRIVATE* treatment, the enumerator learns about the subject choice when the tablet computer is returned to the enumerator. The survey software shows a small graphic at the top of the screen that enables the enumerator to quickly recognize whether the subject chose to sign up.

¹⁸The times were 12.30pm to 5pm on April 7, April 20, April 21, May 12, and May 19, 2017. Three of the Red Cross drives were scheduled to start an hour later and to last an hour longer than the time slots at the commercial blood bank.

4 Empirical Analysis

4.1 Sample Characteristics and Balance Across Treatments

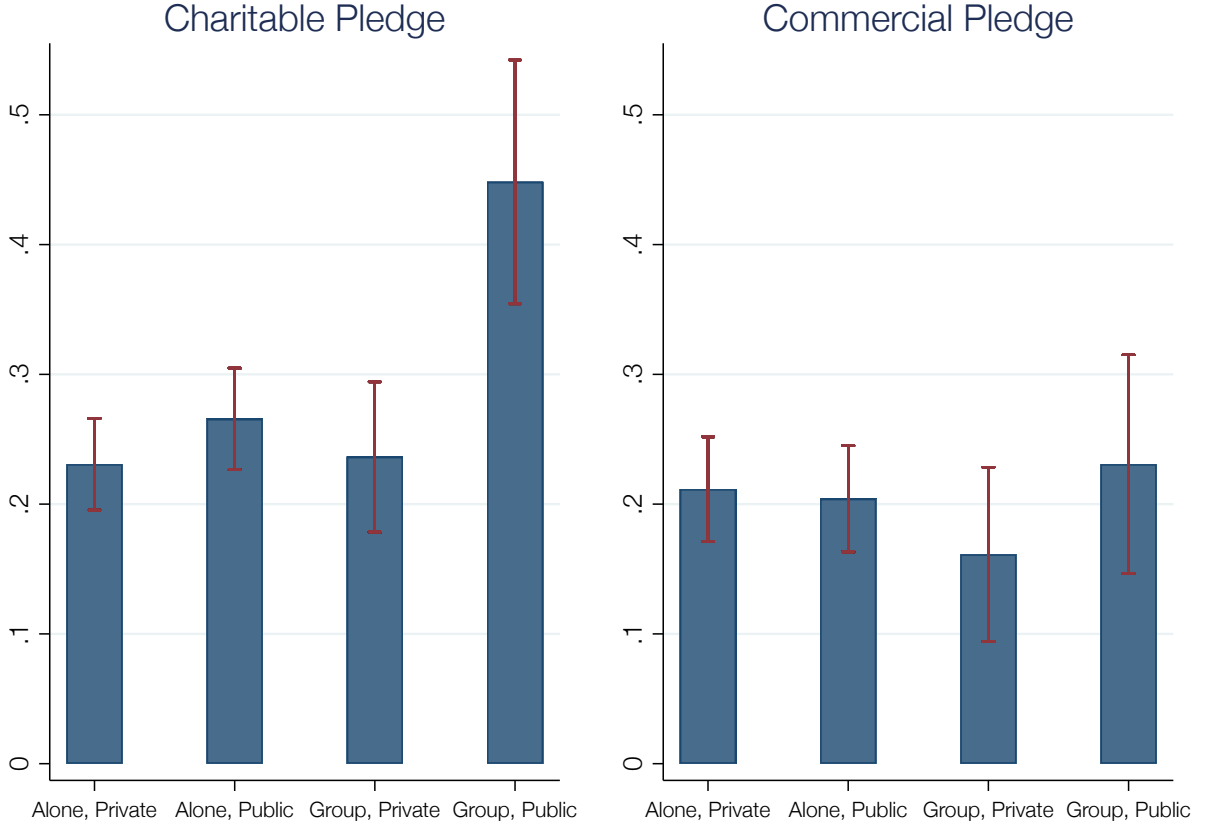
Given the random sampling protocol adopted by our enumerators, we would expect our sample to be representative of the population of customers of the municipal service center. Over the four weeks of the study, our enumerators approached a total of 1,072 individuals. From this random sample, 264 refused to participate and 194 dropped out during the survey. Our final sample of completed surveys consists of 614 responses and selects our population of interest by over-representing women, younger individuals, non-immigrants, and individuals who come alone to visit the offices of the city-hall. Compared to the population of the City of Bonn, our final sample has the same gender composition as the city average, but is younger and includes fewer immigrants (Appendix Table A1). Older people appear to have dropped out disproportionately due to difficulties of handling the tablet computer. For immigrants, language difficulties appeared to have been the most common reason for not participating or completing the survey.

We observe no differential abortion rates across treatment groups after treatment assignment. Our sample is mostly balanced on observables. (Table A2 presents summary statistics for the final sample of 614 individuals across treatment assignments.) We use a one-way ANOVA on ranks (Kruskal-Wallis) to compare observable characteristics, reported by subjects before treatment and measured by the enumerators after the treatment. We document imbalance in pre-treatment measure of awareness of the commercial blood bank in Bonn and in the gender of subjects (as reported by enumerators). In our discussion of results below, we use parametric estimates that include controls for observable characteristics.

4.2 Take-up of Pledges in City Hall Experiment

In this section, we study how social image effects shape the take-up of pledges to donate blood. We use the conceptual framework by [Bursztyn and Jensen \(2017\)](#), outlined above, to guide our analysis. Recall that our experimental design randomly varies whether survey respondents were offered to pledge a blood donation publicly in front of a natural audience, or privately on a tablet computer. We also vary randomly the organization that subjects can pledge to donate to. If subjects perceive these organizations to be different in their social desirability, this should change the strength of the social image effect. We then exploit the fact that a considerable share (30 percent in our sample) of customers of the municipal service center are accompanied by one or more friends or family members. We assume that surveyed subjects care to be seen in a positive light by these people. Through this design we are able to first identify social image effects in front of the natural audience, and then test the additional implication of the social signaling model, which predicts a stronger social image effect around

Figure 5: Share of Subjects Pledging a Blood Donation Across Treatments, Split by Whether They Visit the City Hall Alone



Notes: “Public” and “private” are randomly assigned treatments, while “alone” and “group” are based on whether or not the subject is accompanied by one or more friends or family members. Error bars indicate standard error of the mean.

people whose opinion matters more to the agent and for actions that are perceived to be more socially-desirable.

Figure 5 illustrates the descriptive evidence on the take-up of pledges. We wish to highlight two main patterns: First, we do not observe a strong visibility effect for pledges in the *CHARITABLE* treatment. Second, we observe a strong visibility effect for pledges in the *CHARITABLE* treatment. This effect is largely driven by individuals that visit the city hall with friends and family. Appendix Table A2 (panel b) lists donation rates. In the remainder of this section, we test the statistical significance of these patterns using a parametric analysis.

For each of the two treatments that vary the offer under which the pledge is elicited e (*CHARITABLE*, or *COMMERCIAL*), we estimate a separate logit model with following specification:

$$P_{e,i} = \alpha_e + \beta_e \text{Public}_{e,i} + \mathbf{X}'_{e,i} \delta_e + \varepsilon_{e,i} \quad (4.1)$$

where $P_{e,i}$ is a binary variable indicating whether subject i pledged to donate under treatment e , $Public_{e,i}$ denotes the binary variable taking value 0 if i was asked to pledge a blood donation privately on a tablet and 1 if i was asked to pledge a blood donation out loud from the enumerator in front of the natural audience of the waiting area in the municipal service center. $\mathbf{X}'_{e,i}$ is a vector of controls for individual characteristics.

Table 1 (columns 1, 2, 5, and 6) presents the average marginal effects from logit estimation of Equation 4.1. We find that varying the visibility of the pledge has no detectable effect on uptake in either of the two subsamples. In our simple theoretical framework, all three factors can explain this null result: (i) it could be that the probability that others can update their assessment of the subject's generosity based on the pledge is very small, i.e. that the signal is not effective, (ii) it could be that subjects do not care to be perceived in a positive light by the group of people in the waiting area, or (iii) it could be that subjects believe that pledging to donate by either of the collectors is not seen as socially desirable by the group of people in the waiting area. We now discuss each of these factors in turn.

Our survey data provides suggestive evidence that (iii) alone is unlikely to explain why social image effects are not operational. When we ask subjects pre-treatment whether they agree or disagree that blood donors are perceived as altruists, we find that 41 percent of subjects strongly agree and another 40 percent agree (overall mean of 4.15 on a 5-point Likert scale).

Turning to (ii), we can explore how the composition of the reference group affects individual propensity to pledge a blood donation by studying heterogeneous treatment effects of the visibility treatment for interviewed subjects who come to the municipal service center alone and those that come in a group. Therefore we extend Equation 4.1 as follows:

$$P_{e,i} = \alpha_e + \beta_e (Public_{e,i} \times Group_{e,i}) + \mathbf{X}'_{e,i} \delta_e + \varepsilon_{e,i} \quad (4.2)$$

where $Group_{e,i}$ is an indicator for whether individual i came to the city hall alone ($Group_{e,i} = 0$) or in a group ($Group_{e,i} = 1$).

Table 1 (columns 3, 4, 7, 8) presents average marginal effects. We find that the composition of the reference group indeed shapes social image effects in the uptake of donation pledges. When people are asked to pledge a donation with the German Red Cross, making the request public increases willingness to pledge among people who came in a group ($p < 0.05$) without affecting people coming alone. We can quantify this difference using a t-test on the difference between visibility effect for people coming alone and in group. We reject the null (p-value 0.047 and 0.029 for model (1) and (2) of Table 1, respectively). Interestingly, social image effects for the *COMMERCIAL* treatment are generally much weaker and are not detectable at any conventional level of confidence, both for people coming alone, as well as for people coming in groups. We interpret the stronger effect for the *CHARITABLE* treatment as consistent with the theoretical framework, in that the strength of the social image effect should be an increasing function of the perceived social desirability of the action.

Table 1: Logit for Heterogeneous Social Image Effects on Pledge to Donate Blood
(Average Marginal Effect Estimates and Standard Errors in Parentheses)

	Charitable				Commercial			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Treatments (baseline: Private × Alone)</i>								
Public	0.070 (0.047)	0.073 (0.047)			0.034 (0.056)	0.035 (0.055)		
Private × Group			-0.051 (0.068)	-0.063 (0.067)			-0.055 (0.085)	-0.061 (0.083)
Public × Alone			0.016 (0.054)	0.014 (0.054)			0.009 (0.063)	0.005 (0.062)
Public × Group			0.210** (0.103)	0.217** (0.102)			0.078 (0.111)	0.090 (0.112)
<i>Control variables</i>								
Male	-0.035 (0.050)	-0.042 (0.050)	-0.038 (0.050)	-0.047 (0.050)	0.039 (0.059)	0.031 (0.059)	0.030 (0.059)	0.020 (0.059)
Group	0.040 (0.057)	0.036 (0.057)			-0.001 (0.069)	0.002 (0.069)		
Donor at DRK	0.075 (0.091)	0.081 (0.091)	0.059 (0.089)	0.064 (0.089)	-0.015 (0.091)	-0.017 (0.093)	-0.011 (0.092)	-0.011 (0.093)
Commercial blood bank donor	-0.044 (0.188)	0.014 (0.220)	-0.053 (0.181)	0.010 (0.216)	0.322* (0.176)	0.214 (0.195)	0.304* (0.177)	0.191 (0.193)
Personal characteristics	Y	Y	Y	Y	Y	Y	Y	Y
Awareness blood market	N	Y	N	Y	N	Y	N	Y
Social image effect: Group vs Alone Difference (p-value)			0.047**	0.029**			0.379	0.302
Observations	355	355	355	355	259	259	259	259

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Notes: Binary variable indicating pledge to donate blood is the dependent variable in all regression models from (1) to (4). Models (1) and (2) estimate regression for pledge to charitable blood donation, (3) and (4) for pledge to commercial blood donation. “Personal characteristics” include age group, migration background, charitable behavior (stated intensity on a 1 to 5 Likert scale), perceived relevance of donating blood (stated intensity on a 1 to 5 Likert scale), and perceived altruism of people donating blood (stated intensity on a 1 to 5 Likert scale). “Awareness blood market” include binary variables indicating awareness of DRK, awareness of the commercial blood bank, and awareness of the Bonn university hospital blood collection center.

Finally, turning to (i), we cannot rule out that our manipulation of visibility failed to increase the probability that others could update their assessment of the subject’s generosity based on the pledge. First, it could be that subjects were already signaling altruism vis-à-vis our enumerators. Even though the *PRIVATE* treatment had subjects accept or decline to pledge a donation on the screen of the tablet, subjects could reasonably assume that our enumerator would find out how they decided. Second, pledges are inherently different from actual prosocial behavior because they depend on later fulfillment. It could be that public image concerns are not operational because a reference group of strangers in the municipal service center cannot hold subjects accountable to fulfill the pledge later. This would be consistent with our finding that social image concerns are indeed only operational for subjects who are accompanied by other people.

4.3 Fulfillment of Pledges at Blood Drives

Our experiment is designed to investigate the effect of making the choice to commit to a blood donation visible on stated willingness to donate. Because of our partnership with two blood banks, we can also study how social image concerns affect fulfillment rates of pledges, hence actual donations.

We find that the conversion rate of pledges into actual donations is strikingly low. From the initial sample of 614 interviewed subjects we discard 18 observations for which we did not obtain full names to match to our partners' records. Of the 596 remaining observations 141 (23.66 percent) pledged to make a blood donation in April or May 2017. Of those subjects, only one subject donated during the suggested period. Surprisingly, of the 455 subjects who did *not pledge* to donate, four subjects donated during the same period following our survey (See Table 2 for a summary of actual donations across treatments). These conversion rates are low in comparison to another study that similarly elicits pledges to donate blood among university students ([Stutzer et al., 2011](#)).¹⁹

Among all 596 subjects in our sample who provided a complete name, 65 had previously donated either at the German Red Cross or at the commercial blood bank, with no significant differences between treatment assignment. While the number of actual donations is too small for a statistically meaningful comparison, it appears that subjects who have previously donated blood were slightly more likely to donate following our interview. Among the 65 subjects that had previously donated, 3 subjects (4.6 percent) donated again following the interview. Among the 531 subjects that had not previously donated, 2 subjects (0.38 percent) donated again following the interview.

We can benchmark these numbers to a series of experiments from [Goette et al. \(2009\)](#), in which a summer blood donation elicitation campaign lead to a conversion rate of approaches over donation of about 0.6 percent for Zurich citizens who had not previously donated and 45.3 percent of registered donors of the Swiss Red Cross in Zurich. Comparatively, our campaign was ineffective at inducing donations particularly among subjects that have previously donated.

¹⁹[Stutzer et al. \(2011\)](#) document a conversion rate of about 54 percent for pledges over blood donations that take place on the same day.

Table 2: Fulfillment of Pledges at Blood Drives, by Treatment Assignment
(Number of Subjects)

	Whole sample	Charitable		Commerical	
		Private	Public	Private	Public
<i>a) Name matching and donor status of study subjects</i>					
All Participants	614	198	157	135	124
Matched with donor databases	596	193	151	131	121
Previously donated with either blood collector	65	18	16	14	17
<i>b) Pledges and donations</i>					
Pledged a donation in study	141	44	45	26	26
of which donated	1	1	0	0	0
Did not pledge a donation in study	455	149	106	105	95
of which donated	4	3	0	0	1

5 Conclusions

Although pledges to donate are widely used by charities and NGOs to encourage contributions, there is little evidence on their efficacy in changing behavior. In this paper, we aim to shed light on social image concern as a mechanism underlying this particular type of nudge. Using a real-world setting, we set out to study how social image concerns affect both the uptake and the fulfillment of pledges to donate blood.

The results of our field experiment show that the uptake of pledges is fully consistent with a theoretical framework in which social image concerns are amplified when subjects care more about being perceived favorably by a reference group of people and when pledging to donate to a more socially-desirable organization. We find evidence for social image concerns when subjects are asked in public whether they would like to pledge a donation with the Red Cross. When subjects are accompanied by friends and family members, public offers significantly increase the likelihood of pledging to come to a donation drive. When subjects are not accompanied by anyone, but just surrounded by other customers waiting in the municipal service center, we do not find significant differences between public and private offers. Similarly, social image concerns do not appear to play a role when subjects are offered to sign up for a remunerated donation with a commercial blood bank.

These findings contribute to the growing academic literature on the role played by social image considerations in economic behavior. We document that pledging behavior is consistent with a simple model of social image concerns even when the act of doing good itself is not observable to others.

At the same time, pledges in our particular context do not appear to induce any additional blood donations. Almost all subjects renege on their pledge, with no detectable differences between treatments. This result is in line with [Lacetera et al.](#)

(2016), who conduct an experiment in an online social network and provide evidence that individuals may broadcast pledges to donate money in order to signal generosity. While broadcasting appears to be correlated with donations, a separate field experiment finds that very little stated support (in the form of costless “likes”) translates into actual donations.²⁰

We see the lack of fulfillment in our experiment as an important starting point for further academic and policy-oriented work:

From an academic perspective, various mechanisms could explain why individuals would renege or follow through on their pledges. While our experiment was not designed to disentangle them, future field experiments could systematically vary the psychological costs of renegeing on pledges, for example by varying the time lag between pledge and donation or by varying the framing of the initial pledge. Additional laboratory-based work could help shed light of the relative importance of moral consistency (Cioffi and Garner, 1996; Cialdini and Trost, 1998) and promise-keeping (Charness and Dufwenberg, 2006) as underlying reasons for not wanting to break a promise to donate.

From a policy perspective, we take our findings as a reminder that simple, behaviorally-informed strategies designed to promote desirable behaviors can have their limits. While such nudges can steer people to perform one specific action, they may not have a sustained impact beyond a specific moment, location, or context. Organizations looking to harness pledges should thus consider them in tandem with other strategies to increase conversion rates. One simple strategy can be to reduce the temporal or spatial gap between pledge and donation. When the pledge to donate and the actual donation have to remain separate in time or space, another strategy could involve reminding individuals of their pledge. Andreoni and Serra-Garcia (2017) show that sending ‘thank you’ cards before the decision to donate can be highly effective in reducing renegeing on the pledge.

Unlike simple canonical nudges such as defaults, the efficacy of pledges as a tool to change behavior likely depends on complex psychological and economic mechanisms. Far more research is needed to understand them.

²⁰Similarly, Exley and Naecker (2016) find that hard commitment devices for workshop attendance can be used to engage in social signaling. Although their test is likely underpowered, they also find that providing the commitment device has no effect on workshop attendance.

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Appendix

Figure A1: “Thank You” Card for Red Cross Sign-Up



(a) Front

(b) Back

Notes: Front reads: “Thank you for your participation. We signed you up for a donation with the [local blood donation service of the German Red Cross]. You can find out where and when to donate on the back of this card. We are looking forward to your donation”. Back reads “We expect you at one of our donation drives in Bonn over the next few weeks”.

Table A1: Summary Statistics for City Population and All Approached Subjects, by Participation Status (Means and Standard Errors in Parentheses)

	City of Bonn	Study sample	of which: participated	of which: aborted	of which: no consent	(3)=(4)=(5) p-value
	(1)	(2)	(3)	(4)	(5)	(6)
Age	41.8	n/a	34.4 (0.384)	56.0 (0.776)	n/a	
Age group	n/a	3.982 (0.046)	3.480 (0.050)	5.804 (0.093)	3.811 (0.076)	0.000
Male	0.483	0.519 (0.015)	0.489 (0.020)	0.521 (0.036)	0.587 (0.030)	0.028
Immigration background	0.288	0.254 (0.013)	0.130 (0.014)	0.253 (0.031)	0.542 (0.031)	0.003
Respondent came in group		0.329 (0.019)	0.300 (0.026)	0.412 (0.043)	0.337 (0.039)	0.000
N	327,919	1,072	614	194	264	

Source: Data for Bonn taken from Bonn City Government Statistical Office 2017 population statistics.
Notes: Respondent age groups: 1 “under 18” 2 “18 to 24” 3 “25 to 34” 4 “35 to 44” 5 “45 to 54” 6 “55 to 64” 7 “64 or older”. We report data for average age separately because could not reconstruct our survey age groups from the publicly available population data. P-value is for a one-way ANOVA on ranks (Kruskal-Wallis) test comparing columns (3), (4), and (5).

Table A2: Summary Statistics for Participating Subjects, by Treatment Assignment (Means and Standard Errors in Parentheses)

	Full sample	Charitable		Commercial		P-value
		Private	Public	Private	Public	
<i>a) Self-reported before treatment</i>						
Frequency of altruistic activity	3.059 (0.037)	3.086 (0.064)	3.019 (0.078)	3.067 (0.076)	3.056 (0.082)	0.922
Importance of donating blood	4.007 (0.043)	4.030 (0.076)	3.955 (0.083)	3.881 (0.095)	4.169 (0.093)	0.089
Perception of blood donors as altruists	4.153 (0.036)	4.157 (0.064)	4.242 (0.065)	4.074 (0.082)	4.121 (0.081)	0.551
Awareness of institutions:	0.855 (0.014)	0.833 (0.027)	0.892 (0.025)	0.815 (0.034)	0.887 (0.029)	0.155
Where would you go to donate: DRK	0.412 (0.020)	0.409 (0.035)	0.427 (0.040)	0.422 (0.043)	0.387 (0.044)	0.914
Awareness of institutions: Commercial	0.132 (0.014)	0.157 (0.026)	0.089 (0.023)	0.185 (0.034)	0.089 (0.026)	0.031
Where would you go to donate: Commercial	0.029 (0.007)	0.030 (0.012)	0.000 (0.000)	0.044 (0.018)	0.048 (0.019)	0.060
Awareness of institutions: University	0.705 (0.018)	0.667 (0.034)	0.752 (0.035)	0.741 (0.038)	0.669 (0.042)	0.202
Where would you go to donate: University	0.559 (0.020)	0.561 (0.035)	0.533 (0.040)	0.565 (0.043)	0.573 (0.045)	0.918
Respondent age	34.415 (0.480)	33.556 (0.827)	34.312 (0.966)	35.807 (1.034)	34.403 (1.075)	0.359
Respondent years lived in Bonn	5.666 (0.150)	5.657 (0.268)	5.675 (0.291)	5.689 (0.327)	5.645 (0.327)	0.992
<i>b) Uptake of pledges after treatment</i>						
Subject pledged to donate	0.238 (0.017)	0.232 (0.030)	0.299 (0.037)	0.200 (0.035)	0.210 (0.037)	0.179
<i>c) Measured by enumerator in post-survey questionnaire</i>						
Male	0.489 (0.020)	0.424 (0.035)	0.459 (0.040)	0.519 (0.043)	0.597 (0.044)	0.018
Respondent came in group	0.300 (0.026)	0.364 (0.049)	0.255 (0.051)	0.304 (0.056)	0.250 (0.047)	0.205
Respondent immigrant	0.130 (0.014)	0.131 (0.024)	0.127 (0.027)	0.126 (0.029)	0.137 (0.031)	0.993
Intensity of social image concern	3.438 (0.045)	3.212 (0.081)	3.618 (0.085)	3.489 (0.097)	3.516 (0.101)	0.004
Ability to complete survey	4.203 (0.029)	4.141 (0.052)	4.128 (0.049)	4.348 (0.061)	4.242 (0.071)	0.008
Observations	614	198	157	135	124	

Notes: Frequency of altruistic activity asked interviewed subjects how often they engage in altruistic activities, on a 5-point Likert scale where 1 is “never” and 5 is “very often”. Importance of donating blood asked interviewed subjects how important they consider donating blood, on a 5-point Likert scale where 1 is “not important” and 5 is “important”. Perception of blood donors as altruists asked interviewed subjects to what extent they think is true that a friend or family member is altruistic for donating blood, on a 5-point Likert scale where 1 is “not true” and 5 is “true”. Intensity of social image concern asked enumerators to record their perceived intensity of social image, on a 5-point Likert scale where 1 is “very weak” and 5 is “very strong”, based on how crowded and how quiet the waiting area was. P-value is for a one-way ANOVA on ranks (Kruskal-Wallis) test comparing the four groups.