

# ELICITING MORAL PREFERENCES UNDER IMAGE CONCERNS: THEORY AND EXPERIMENT

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## Abstract

We analyze how the impact of image motives on behavior varies with two key features of the choice mechanism: single versus multiple decisions, and certainty versus uncertainty of consequences. Using direct elicitation (DE) versus multiple-price-list (MPL) or equivalently Becker-DeGroot-Marschak (BDM) schemes as exemplars, we characterize how image-seeking inflates prosocial giving. The signaling bias (relative to true preferences) is shown to depend on the interaction between elicitation method and visibility level: it is greater under DE for low image concerns, and greater under MPL/BDM for high ones. We experimentally test the model's predictions and find the predicted crossing effect.

*JEL codes:* C91, D01, D62, D64, D78.

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# 1 Introduction

Individuals' desire to signal to others and maintain to themselves that they are generous, caring, or generally "morally good," is a powerful driver of behavior. People act more responsibly when knowing their choices will be observed and less so when given the opportunity to remain ignorant of potential harms they might cause.

The previous literature on image motives (see, e.g, Bursztyn and Jensen (2017) for an overview) has extensively documented this *level* effect on the prosociality of choices. We explore here a new channel, namely the *interaction* of image with different choice mechanisms. We focus on two key features of the latter: single versus multiple simultaneous decisions, and certainty versus uncertainty of the consequences. Both vary across charitable-contribution schemes, and they critically distinguish the two methods most commonly used to elicit preferences: direct elicitation (*DE*) and Becker-DeGroot-Marschak (*BDM*), for instance in its multiple-price list (*MPL*) format. The former features a single choice implemented with certainty, the latter multiple decisions (at different prices), of which one is randomly chosen and implemented.

Taking *DE* and *MPL* (or *BDM*) as exemplars of choice sets' interactions with signaling, we present a simple model and experiment in which agents incur a cost to do good, or forfeit a "bribe" for causing harm. The model identifies three effects that make the mechanisms differentially image sensitive and, when combined, generate a "crossing" pattern: when image concerns are low (but positive) *DE* will yield more contributions than *MPL*, and when they are high the ordering reverses. Relatedly, image-minded consequentialists will display Kantian-like behavior –choosing the morally right action "at any price"– much more readily under *MPL* than under *DE*.

To understand the effects at work, consider first a (*DE*-type) situation in which individuals may contribute to a cause (generate an externality  $e > 0$ ) at some opportunity cost  $c$ , in time or money. In the relevant population there are two types, represented by Alice and Bob, who intrinsically value the cause at  $v_H e$  and  $v_L e < v_H e$ . When social or self image concerns are present but not very strong, there is a range of prices  $c > v_L e$  for which Bob will contribute in order to look as good as Alice, whereas for  $c'$  closer to  $v_H e$  he will decline. In an *MPL/BDM* format, by contrast, the richer choice set and information thus generated make pooling more difficult, as Bob would have to state a willingness to pay of at least  $v_H e$ ; for relatively low image concerns this is too high for him, so he will decline to contribute at *any* list price  $c > v_L e$ . This *discouragement effect* underlies the result that *MPL/BDM* yields less giving than *DE* when image concerns are positive but relatively weak.

Working in the other direction are two effects arising from the contingent nature of *MPL/BDM* bids, which effectively lower the purchase price of image. First, the randomly drawn list price could exceed one's bid, making the latter partly *cheap talk*. This is related to random implementation, but more closely to the ability of participants in a public auc-

tion to “posture” with a high bid, while hoping that someone else will outbid them. Second is what we term the *cheap-act* effect: conditional on a bid  $c$  being binding ex-post, the average price paid is only  $E[\tilde{c}|\tilde{c} \leq c]$ . As image concerns intensify, Bob’s desire to pool and Alex’s desire to separate lead to increasingly high bids, so the cheap-talk effect weakens (implementation becomes more certain). In contrast, the cheap-act effect strengthens (for standard distributions the “discount”  $c - E[c|\tilde{c} \leq \tilde{c}]$  grows), causing *MPL* contributions to rise above those under *DE*.

We test the model’s predictions using an experiment in which about 700 participants face a choice between: (i) directing a 350€ donation to a charity in India that will use the money to treat five tuberculosis patients, resulting statistically in the expected saving of one human life; or (ii) taking money for themselves, where the amount is either a fixed 100€ under *DE*, or determined by the subjects’ cutoff on an *MPL* where prices range from 0 to 200€. These two elicitation conditions are crossed with low and high moral-image treatments. Specifically, in the *Low Image* conditions, subjects choices are double-blind (i.e., cannot be linked to their identity, not even during the payment procedure), so that no social image, only self image, is operating. In contrast, in the *High Image* conditions, subjects know prior to their decision(s) that their decisions will be observed and judged by other people.

Comparing the fractions of subjects choosing the “saving a life” contribution over taking 100€, we find a sizeable reversal between *DE* and *MPL* as image concerns go from weak to strong, as predicted by the theory. In the *Low Image* treatments, the fraction opting to save a life is 48% under *MPL* versus 59% under *DE*, while in the *High Image* condition it is 63% under *DE* versus 72% under *MPL*. On the cautionary side, statistical significance is only at the 6-7 percent level, so our simple experiment should be seen as proof-of-concept for the mechanisms brought to light by the model, opening them up to more systematic exploration. We also conduct a robustness experiment with 366 additional subjects where we keep all aspects of the decision environments unchanged, except that choices are now over a non-moral good (a university voucher), for which no image concerns arise. As expected, we find no significant difference between the two elicitation methods, showing that our results are specific to image-relevant decisions.

## 1.1 Related Literature

Previous research on social and self image has primarily focused on how they spur prosocial behaviors, and how this signaling incentive is affected by the presence of rewards (Bénabou and Tirole, 2006, 2011a,b; Ariely et al., 2009; Ashraf et al., 2014; Galeotti et al., 2021; Falk, 2021) or excuses (Dana et al., 2007; Exley, 2016; DellaVigna et al., 2012; Grossman and van der Weele, 2017; Bursztyn et al., 2018; Garcia et al., 2020). Our analysis highlights instead their interaction with the mechanism through which choices are made. Not only are schemes such as *DE* vs *MPL/BDM* differentially sensitive to image concerns, but their effectiveness at

measuring intrinsic preferences, or on the contrary spurring higher contributions, can even reverse as reputational motives intensify.

Another strand of work focuses on decision makers' probability of being pivotal (Feddersen et al., 2009; Grossman, 2015; Falk et al., 2020; Bartling et al., 2024), which relates to what we term the cheap-talk effect. We show how, in mechanisms such as *MPL*, the probability of having one's choice implemented varies systematically with the intensity of image concerns, as does the expected cost at which the choice will be implemented, and we analyze how both effects shape equilibrium behavior. This relates the paper to work on auctions with signaling, in which bidders seek to demonstrate goodness, wealth, or a strong aftermarket position (Goeree, 2003; Giovannoni and Makris, 2014; Bos and Pollrich, 2020; Bos and Truys, 2023). In our setting, an agents' distribution of potential outcomes depends only on his own choices, and this lower strategic complexity allows us to identify intuitive effects and testable predictions.

With respect to experimental methodology, we contribute to the study of alternative elicitation mechanisms. Substantial research has compared how *DE*, *BDM*, *MPL* or random implementation (Selten, 1967) affects behavior in one-shot, anonymous games such as dictator or public-goods (Brandts and Charness, 2011; Chen and Schonger, 2016).<sup>1</sup> There is also a large body of research on elicitation methods for risk, time and ambiguity preferences (Charness et al., 2013; Cox et al., 2015; Cohen et al., 2020; Baillon et al., 2022). To our knowledge, no such study has explored these methodological issues with reputationally sensitive decisions like those analyzed here.<sup>2</sup> For choices in the moral domain, self-image (at least) is almost inevitably at play, and can create differences between elicitation methods.<sup>3</sup>

Finally, the paper relates to the debate between consequentialist and deontological principles. The evidence on how people behave in practice is mixed: the literature on public-goods contributions and charitable giving finds that choices are generally sensitive to the implied consequences (Ledyard, 1995; Goeree et al., 2002), including the risk of having no impact (Brock et al., 2013), overhead costs (Gneezy et al., 2014) and the link to utility (Chakraborty and Henkel, 2024). At the same time, there is evidence of "warm glow" altruism, in which utility is derived from the act as such (Andreoni, 1989, 1990). Experiments that directly focus on consequentialist versus deontological or expressive choices (Van Leeuwen and Alger, 2023; Chen and Schonger, 2022; Falk et al., 2020; Bénabou et al.,

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<sup>1</sup>Concerning *DE* with deterministic versus random implementation (an intermediate case relative to *MPL*), the overview by Charness et al. (2016) reports generally ambiguous effects. As the model will make clear, it is only in the presence of sufficient signaling concerns that probabilistic implementation will matter. In contrast, risk attitudes play no role in the effects that we identify, which directly affect expected returns.

<sup>2</sup>Closest to this is Grossman and van der Weele (2017), with a result that relates to what we term the discouragement effect. When subjects in a "moral wiggle room" game (Dana et al., 2007) must state contingent choices for each of the two payoff structures that might occur, they are more willing to learn ex post which one obtained than when making this choice ex ante in the original game, because ignorance of a tradeoff can no longer serve as an excuse to preserve (self) image.

<sup>3</sup>In the non-moral domain, in contrast, the literature tends to find no difference between *DE* and *BDM* (Miller et al., 2011; Berry et al., 2020; Cole et al., 2020).

2024) also suggest a mix of preferences. Our paper shows that, when image concerns are important, a mechanism like *MPL* or *BDM* can easily lead consequentialist agents to adopt deontological-looking behaviors.

## 2 Model

We study how people’s (un)willingness to accept different tradeoffs between personal gain and harm to others varies across two “canonical” types of preference-elicitation mechanisms: direct elicitation and *BDM*/multiple-price list. We look for Perfect Bayesian Equilibria of the corresponding games, and in case of multiplicity: (i) apply the D1 criterion; (ii) when that is insufficient, select the Pareto-dominant equilibrium. All proofs are gathered in the Appendix.

### 2.1 Direct Elicitation

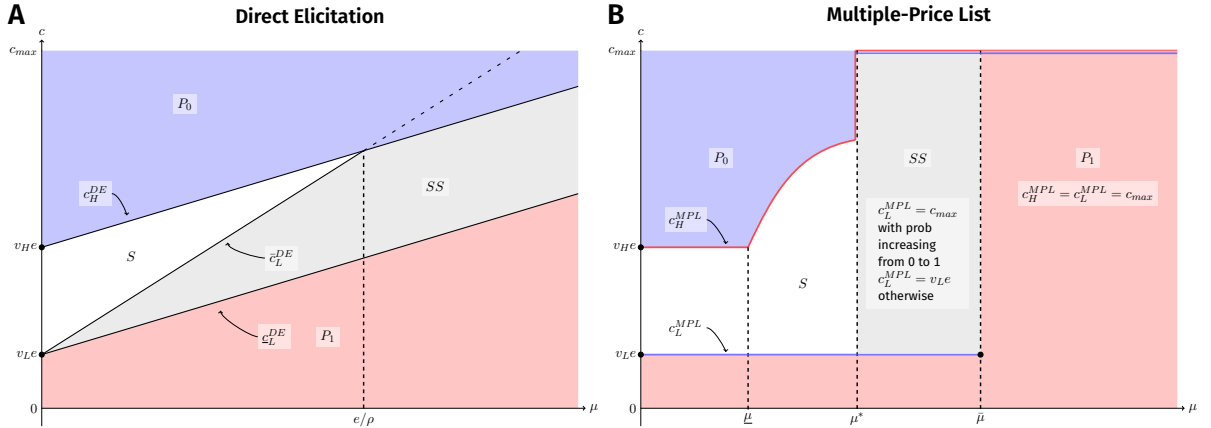
We first consider decisions under *DE*, introducing agents’ basic preferences in the process. Agents are risk-neutral, with a two-period horizon,  $t = 1, 2$ . At date 1, an individual faces a take-it-or-leave-it opportunity to engage in prosocial behavior ( $a = 1$ ) or act selfishly ( $a = 0$ ). Choosing  $a = 1$  involves a personal cost  $c > 0$  but generates a public good or externality  $e \geq 0$ . Agents differ in their intrinsic motivation to act morally: given  $e$ , it is either  $v_H e$  (high type) or  $v_L e$  (low type), with probabilities  $\rho$  and  $1 - \rho$ ,  $v_H > v_L \geq 0$ , and average  $\bar{v} = \rho v_H + (1 - \rho)v_L$ . Besides the externality, the second feature of action  $a = 1$  tying it to the moral domain is that it can be reputationally valuable, conferring a social or self-image benefit at date 2. In the social context, the agent knows his type but the audience (peer group, firms, potential partners) does not. In the self-signaling context, he has an immediate, “intuitive” sense of his deep preferences at the moment of action – for instance, how much empathy or spite he experiences – but later on the intensity of that feeling is imperfectly accessible (“forgotten”), and only the deed itself,  $a = 0$  or  $1$ , can be reliably recalled to assess his own moral identity.

Under either interpretation, an agent of type  $v = v_H, v_L$  has expected utility

$$(ve - c)a + \mu\hat{v}(a), \tag{1}$$

where: (i)  $\hat{v}(a)$  is the expected type conditional on the action  $a \in \{0, 1\}$  and the cost faced; (ii)  $\mu$  is the strength of self or social-image concerns, common to all agents, reflecting both the visibility of their actions and how much they care about appearing prosocial. This utility may be additively augmented by any externalities generated by others, but since that term is independent of the agent’s action we omit it here. Note that these preferences are consequentialist: an agent’s desire to behave prosocially trades off the impact he expects his

Figure 1: Equilibrium under Direct Elicitation (panel A) and Multiple-Price List (panel B)



Notes:  $P_0$ : pooling at  $a_H = a_L = 0$ ;  $S$ : separation,  $a_H = 1, a_L = 0$ ;  $SS$ : semi-separation,  $a_H = 1, a_L \in (0, 1)$ ;  $P_1$ : pooling at  $a_H = a_L = 1$ .

actions to have, the personal cost involved, and the reputational consequences.<sup>4</sup>

As common in signaling models, multiple equilibria may coexist: when

$$\max \{v_L e - c + \mu(v_H - v_L), v_H e - c + \mu(v_H - \bar{v})\} \leq 0 \leq v_H e - c + \mu(v_H - v_L),$$

there is both a pooling equilibrium at  $a = 0$  and a separating one in which the  $v_H$  type contributes, with a mixed-strategy one in-between (see the Appendix), all robust to D1. In case of multiplicity we choose the equilibrium that is best for both types, namely the no-contribution pooling equilibrium. Indeed, separation yields lower payoffs for both, since  $\mu v_L < \mu \bar{v}$  and  $v_H e - c + \mu v_H \leq \mu \bar{v}$ .

As illustrated in Panel A of Figure 1 (for  $\rho < 1/2$ ), equilibrium behavior is then characterized by three cost (or incentive) thresholds, increasing in the reputational concern  $\mu$ , that delineate regions of separation, semi-separation, and pooling:

$$v_H e - c_H^{DE}(\mu) + \mu(v_H - \bar{v}) \equiv 0, \quad (2)$$

$$v_L e - \bar{c}_L^{DE}(\mu) + \mu(v_H - v_L) \equiv 0, \quad (3)$$

$$v_L e - \underline{c}_L^{DE}(\mu) + \mu(\bar{v} - v_L) \equiv 0. \quad (4)$$

Denoting  $a_H^{DE}(c, \mu)$  and  $a_L^{DE}(c, \mu)$ , or  $a_H$  and  $a_L$  for short, the two types' probabilities of choosing  $a = 1$ , we show

**Proposition 1.** *The outcome of direct elicitation is as follows:*

1. For low costs,  $c < \min\{\underline{c}_L^{DE}, c_H^{DE}\}$ , everyone behaves morally,  $a_H = a_L = 1$ .

<sup>4</sup>The model also allows for genuinely deontological agents,  $v_H = +\infty$ , but a key point is that they are not needed to generate “observationally deontological” behavior in MPL-like experiments. , i.e., subjects rejecting all prices (for harming someone else) on some randomly implemented list with finite or even infinite support.

2. For intermediate costs,  $c \in (c_L^{DE}, c_H^{DE})$ , the high type behaves morally ( $a_H = 1$ ), but the low type's probability  $a_L(c)$  of doing so decreases with  $c$ , and then equals 0 for  $c \geq \min\{\bar{c}_L^{DE}, c_H^{DE}\}$ .
3. For high costs,  $c \geq c_H^{DE}$ , both types behave immorally,  $a_H = a_L = 0$ .

Relative to “pure” (intrinsic) moral preferences  $ve$ , decision thresholds are inflated due to reputational concerns; see (2)-(4). In particular, the range of costs  $[\bar{c}_L^{DE}, c_H^{DE}]$  where full separation occurs shrinks with  $\mu$ , becoming empty for  $\mu > e/\rho$ .

## 2.2 Multiple-Price List

Under *BDM*, the individual “names his price” by stating what maximum cost  $c \in [0, c_{\max}]$  he is willing to incur for taking action  $a = 1$ , where  $0 \leq v_L e < v_H e < c_{\max}$ . Equivalently,  $c$  represents his willingness to accept a “bribe” to make the immoral choice,  $a = 0$ . This elicitation is made incentive-compatible by drawing some  $\tilde{c} \in [0, c_{\max}]$  according to a pre-announced distribution  $G(\tilde{c})$ , and implementing  $a = 1$  at cost  $\tilde{c}$  only when  $\tilde{c} \leq c$ . With *MPL*, the price range is discretized and subjects state contingent choices at each level. Both schemes generate identical incentives, so we gather them under the label of *MPL*, since that is the format we implement experimentally.<sup>5</sup> In experiments, the distribution  $G$  is typically uniform, but here we allow any other case, including  $c_{\max} = +\infty$ .

The objective function of an agent with preference  $v \in \{v_L, v_H\}$  now takes the form:

$$\mathbb{E}_G [(ve - \tilde{c})\mathbb{1}_{\{\tilde{c} \leq c\}}] + \mu \mathbb{E}[v|c]. \quad (5)$$

Let  $L(c)$  denote the low type's loss (not inclusive of image) from selecting a cutoff  $c$  greater than than his true valuation  $v_L e$ :

$$L(c) \equiv \int_{v_L e}^c (\tilde{c} - v_L e) dG(\tilde{c}) = \underbrace{\mathbb{P}(\tilde{c} \in [v_L e, c])}_{\text{cheap-talk effect}} \underbrace{(\mathbb{E}(\tilde{c} | \tilde{c} \in [v_L e, c]) - v_L e)}_{\text{cheap-act effect}} \quad (6)$$

and assume  $L(c_{\max}) < \infty$ , for which it suffices that  $E_G[\tilde{c}] < \infty$ . We will say that a subject is *observationally deontological* if he turns down all prices on the proposed list (with distribution  $G$ ): given the available data, he behaves as someone who would not act immorally “at any price.”

We now solve for both types' willingness to accept (WTA) under the multiple-price list, denoted  $c_H^{MPL}$  and  $c_L^{MPL}$  respectively. Note first that, *absent* reputation concerns ( $\mu = 0$ ), *MPL* and *DE* are equivalent, and reveal true preferences:  $c_H^{DE} = c_H^{MPL} = v_H e$ ,  $c_L^{DE} = \bar{c}_L^{DE} = c_L^{MPL} = v_L e$ . For  $\mu > 0$ , comparing  $L(c)$  to the reputational stakes  $\mu(v_H - v_L)$  under separation and  $\mu(v_H - \bar{v})$  under pooling yields a unique (D1 refined) equilibrium: the two

<sup>5</sup>We implement *MPL* imposing a single switching point, which is strategically equivalent to *BDM*.



types' strategies are as illustrated in Panel B of Figure 1, and characterized again by critical thresholds between separating, semi-separating and pooling regions.

$$\underline{\mu} \equiv \frac{L(v_H e)}{v_H - v_L} < \mu^* \equiv \frac{L(c_{\max})}{v_H - v_L} < \frac{L(c_{\max})}{\rho(v_H - v_L)} \equiv \bar{\mu}. \quad (7)$$

**Proposition 2.** *The outcome of the MPL mechanism is as follows:*

1. When the (self) reputational concern  $\mu$  is low,  $\mu < \mu^*$ , the high type's WTA for behaving immorally is  $c_H^{MPL} = \max\{v_H e, L^{-1}(\mu(v_H - v_L))\}$ , while the low type finds it too costly to pool and accepts  $c_L^{MPL} = v_L e$ .

Initially, for  $\mu \leq \underline{\mu}$ , separation is costless for the high type, then as  $\mu$  rises he has to raise his reservation price to separate from the low type.

2. When  $\mu$  is intermediate,  $\mu \in [\mu^*, \bar{\mu}]$ , the high type can no longer separate and becomes observationally deontological,  $c_H^{MPL} = c_{\max}$ . The low type randomizes, with probability  $a_L(\mu)$  increasing in  $\mu$ , between that same "virtuousness" ( $c_L^{MPL} = c_{\max}$ ) and revealing himself (accepting  $c_L^{MPL} = v_L e$ ).
3. When  $\mu > \bar{\mu}$ , (self) image concerns are strong enough that both types' behavior is observationally deontological:  $c_H^{MPL} = c_L^{MPL} = c_{\max}$ .

### 2.3 Comparison of DE vs. MPL

Under both elicitation schemes, image concerns naturally raise contributions, as seen in Figure 1. More novel are the following questions:

1. Is one elicitation scheme *more image-sensitive* than the other?
2. Which one yields *more expected contributions*?

Formally, at a given cost  $c \in [0, c_{\max}]$ , what fraction of people  $\bar{a}^{DE}(c, \mu)$  accept forfeiting  $c$  to implement  $a = 1$  under DE, versus what fraction  $\bar{a}^{MPL}(c, \mu)$  state a willingness to pay of at least  $c$  under MPL? And how does  $\bar{a}^{DE}(c, \mu) - \bar{a}^{MPL}(c, \mu)$  depend on  $\mu$ ?

While the answers generally depend on the specific value of  $c$ , the cases of sufficiently low and high image concerns yield clear predictions. We will denote as  $\mu^{**}$  the solution to  $\underline{c}_L^{DE}(\mu) = c_{\max}$ , or

$$\mu^{**} \equiv \frac{c_{\max} - v_L e}{\bar{v} - v_L} > \frac{L(c_{\max})}{\bar{v} - v_L} = \bar{\mu}. \quad (8)$$

Putting together the results of Propositions 1 and 2, we have:

**Proposition 3.** *For each type  $\tau = H, L$ ,*

1. *Visibility raises contributions: for any  $c \in [0, c_{\max}]$ ,  $a_\tau^{DE}(c, \mu)$  and  $a_\tau^{MPL}(c, \mu)$  coincide at  $\mu = 0$ , then both increase (weakly) as  $\mu$  rises, reaching 1 for  $\mu$  large enough.*



2. Under low image concerns, DE yields more contributions: for all  $\mu \in (0, \underline{\mu})$ ,  $a_\tau^{DE}(c, \mu) \geq a_\tau^{MPL}(c, \mu)$ , with strict inequality for  $c \in (v_{Le}, \bar{c}_L^{DE}(\mu))$  and  $c \in (v_{He}, c_H^{DE}(\mu))$ , both nonempty.
3. Under high image concerns, MPL yields more contributions: for all  $\mu \geq \bar{\mu}$ ,  $a_\tau^{DE}(c, \mu) \leq a_\tau^{MPL}(c, \mu) = 1$ , with strict inequality for  $\tau = L$  and  $c \in (\underline{c}_L^{DE}(\mu), c_{\max})$ , which is nonempty whenever  $\mu \in (\bar{\mu}, \mu^{**})$ .
4. The average behavior over types,  $\bar{a}^m(c, \mu) \equiv \rho a_H^m(c, \mu) + (1 - \rho) a_L^m(c, \mu)$ ,  $m = DE, MPL$ , inherits these same properties.

The first result is standard, while the others stem from the interplay of three effects.

*Weak image concerns: discouragement effect dominates.* When  $\mu > 0$  is low enough that separation under MPL is costless, we have  $c_H^{MPL}(\mu) = v_{He} < c_H^{DE}(\mu)$  and  $c_L^{MPL}(\mu) = v_{Le} < \underline{c}_L^{DE}(\mu)$ , hence the second result. Intuitively, MPL raises the cost to the low type of mimicking the high one to at least  $v_{He}$ , and for low reputational concerns (small  $\mu$ ) such a discrete cost is not worth it. Under DE, in contrast, matching the high types' decision to contribute at low prices  $c$  yields small but proportionate reputational gains. This intuition is reflected in the fact that the lower boundary of the separating region is linear in Panel A of Figure 1, whereas it is initially flat in Panel B.

*Strong image concerns: cheap-act effect dominates.* At high values of  $\mu$ , reputational concerns become paramount, and the cost of signaling is lower under MPL than under DE, since high values of  $c$  must only be paid with a probability less than 1: the effective cost of stating a cutoff  $c$  is only  $E[\tilde{c} | \tilde{c} \leq c] < c$ . It is even bounded by  $L(c_{\max}) + v_{Le} < \infty$ , which limits the extent to which the high type can separate, so that for  $\mu > \bar{\mu}$  full pooling occurs:  $c_H^{MPL} = c_L^{MPL} = c_{\max}$ , so  $a^{MPL}(c, \mu) = 1$ , whereas  $\bar{a}_L^{DE}(c, \mu) < 1$  as long as  $\mu < \mu^{**}$ . Most importantly:

**Property 1.** For any distribution satisfying the monotone hazard rate property ( $g/(1 - G)$  increasing), the “discount”  $c - E[\tilde{c} | \tilde{c} \leq c]$  is increasing in  $c$ . Therefore, as  $\mu$  rises and with it each type's cutoff, the cheap-act effect becomes stronger, which increases MPL contributions relative to DE.

*Intermediate image concerns.* Inside  $(\underline{\mu}, \bar{\mu})$ , a third “cheap-talk” effect is also important. Under MPL, an agent who states a cutoff  $c < c_{\max}$  has only a probability  $G(c) < 1$  of being called upon to actually “deliver”: if  $\tilde{c} > c$  is drawn, he neither incurs a cost *nor* generates the externality  $e$ . This makes it safer to state high cutoffs, thus adding to the *cheap-act* effect. The latter is not as strong in this range as for high values of  $\mu$ , and conversely the *cheap-talk* effect weakens as  $\mu$  rises, pushing  $G(c^{MPL})$  closer to 1. The net balance of the three effects is generally ambiguous in this intermediate range, and consequently so is the sign of  $a^{DE} - a^{MPL}$ .

*Implications.* Three main predictions emerge from the model. First, as usual, greater visibility increases contributions. Second, at low but positive levels of visibility, *DE* leads to more prosocial outcomes, as the *discouragement effect* dominates. Third, at high levels (but not so high as to push everyone to  $a = 1$  under *DE*), this ordering reverses: *MPL* induces more moral decisions, due to the now dominating *cheap-act* effect.

The inequalities in Proposition 3 can be weak or strong, depending on the region of the parameter space. This is a standard feature of models with discrete types and action spaces, which typically disappears when there is sufficient heterogeneity to span all cases. For this reason, when confronting the model with data, we will tighten the predicted inequalities to be strict ones.<sup>6</sup>

### 3 Experimental Design

We designed an experiment to test the model’s main predictions, in particular whether sensitivity to image concerns varies with the mode of elicitation and the strength of image concerns as described in Proposition 3. For this purpose, we need a design that confronts subjects with a significant moral decision, varying both the elicitation procedure and the importance of social image.

#### 3.1 Saving a Life

To generate situations in which one choice is unambiguously perceived as the more moral one, we adopt the *Saving a Life* paradigm from Falk and Graeber (2020). In the paradigm, subjects can either take money for themselves or implement a fixed, life-saving donation to a charity dedicated to the treatment of tuberculosis in India. According to the World Health Organization, tuberculosis is one of the ten leading causes of death worldwide, even though there are highly effective antibiotic treatments available. Together with the Indian non-profit organization *Operation ASHA*, we calculated a specific monetary amount sufficient to identify, treat, and cure a number of patients such that – in expectation – one patient will be saved from death by tuberculosis due to the donation. Combining public information on the charity’s operations with estimates from peer-reviewed studies on mortality due to tuberculosis and treatment effectiveness for the specific type of treatment and location considered (Straetemans et al., 2011; Tiemersma et al., 2011; Kolappan et al., 2008), we determined that level to be 350€: by allowing for the treatment of five patients, such a donation allows the (expected) saving of one human life. Without the donation, conversely, five patients are

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<sup>6</sup>Our tests will vary  $(\tau, \mu) \in \{DE, MPL\} \times \{\mu_L, \mu_H\}$  while maintaining the same realized cost  $c$ . By Proposition 3, the set of parameters such that  $0 < \mu_L < \underline{\mu} < \bar{\mu} < \mu_H < \mu^{**}$  and  $\bar{a}^{DE}(c, \mu_L) - \bar{a}^{MPL}(c, \mu_L) > 0 > \bar{a}^{DE}(c, \mu_H) - \bar{a}^{MPL}(c, \mu_H)$  is nonempty provided that  $c_L^{DE}(\bar{\mu}) < c_H^{DE}(\underline{\mu})$ , which reduces to  $L(c_{\max}) - (1 - \rho)L(v_H e) < (v_H - v_L) e$ . With a uniform  $G$ , for example, a sufficient condition for any  $\rho$  is that  $c_{\max}/e \in \left( v_H - (v_H^2 - v_L^2)^{1/2}, v_H + (v_H^2 - v_L^2)^{1/2} \right)$ .

not treated who would otherwise have been, implying that in expectation one will succumb to the disease.

This paradigm thus contrasts the option of saving a life (major positive externality  $e$ ) by triggering a donation of 350€ ( $a = 1$ ) versus that of taking money for oneself at a opportunity cost  $c$  ( $a = 0$ ), inducing a clear tradeoff between morality and self-interest. This is reinforced by the donation being cost-effective: the amount is well above all monetary payments possible for the subjects themselves, as described later, and the money is directly used to treat patients, without any administrative or transaction cost.

Furthermore, the potentially extreme consequences of the donation decision also increase the likelihood that subjects will take the choice task and its signaling/reputational implications seriously. To further ensure that subjects make choices with sufficient deliberation, we provided them with comprehensive explanations about the disease, the treatment, the veracity of the experiment, and so on. In particular, the experimental instructions explain in detail the consequences of the donation and, conversely, what the absence of the donation entails (for details, see the Instructions in Appendix Section B). As our experimental results will show (Section 4.2), subjects do take this information and the decision seriously. If they were not convinced of the credibility or effectiveness of the donation, they would simply take the money for themselves, no matter how little was offered. However, as indicated by choices in the *MPL* treatments, subjects show a clear sensitivity to the monetary amount offered, and even at 200€ under anonymity, there are still a substantial fraction of subjects who do not take the money. For related findings, see Falk and Graeber (2020).

## 3.2 Treatments

To test the model’s predictions, we use a  $2 \times 2$  between-subjects design, varying the elicitation method (DE vs. *MPL*) as well as the visibility and moral salience of choices (*Low Image* vs. *High Image*) at the payment stage.

Under direct elicitation (DE), subjects faced the binary choice between receiving  $c = 100\text{€}$  ( $\approx \$110$ ) as payment, or saving a human life in expectation. As part of the experimental design, we predetermined this single value of  $c = 100\text{€}$  as a compromise between two practical concerns: (i)  $c$  must be high enough to generate choices of both types; (ii) in contrast to *MPL*, each implemented decision has a sure cost to the experimental budget of either  $c$  or the full 350€ donation, which quickly adds up.

For the *MPL* conditions, we used a price-list design: starting with  $c = 0\text{€}$  and proceeding in 10€ increments up to  $c = 200\text{€}$ , subjects could indicate in each of the 21 contingent choices whether they wanted to save a life or take  $c$  for themselves. Each price was then equally likely to be drawn for implementation (uniform  $G$ ).<sup>7</sup> Figures A.1 and A.2 in the

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<sup>7</sup>To avoid inconsistent answers, we enforced a single-switching rule: if a subject chose to save a life for a given monetary value, the computer filled in the same choice for all lower values. However, participants could

Online Appendix A display the corresponding decision screens.

Turning to visibility, recall that the two key forces underlying Proposition 3, namely the *discouragement* and the *cheap-act* effects, both require a non-zero level of image concerns. To ensure a minimal level of image concern in both treatments, we notified subjects at the start that: (i) they were anonymously paired with another participant in the same session; (ii) they would see, at the end of the experiment, their own and their partner's choices displayed alongside on their screens, as would their partner. Apart from observing the partner's choices, subjects received no information about them, so that no other aspect of the dyad would influence decisions.

Social-image image can still arise, however, in experiments where the final payment procedure is not anonymous. In such cases, the experimenter can at least partly infer choices from the amounts paid, and link them to subjects' identity when interacting with them; due to the binary nature of the decisions in our experiment, choices are in fact perfectly revealed through the payments. To keep image concerns minimal in the *Low Image* treatment ( $\mu = \mu_L$ ), we made the payment procedure double-blind, so that not even the experimenter could link subjects' decisions to their identity. Following Barmettler et al. (2012), at the start of each session one subject was randomly designated to carry out all payments: they did not participate in the regular experiment, and thus had no knowledge about the choices. At the end, payments were stuffed into envelopes and the selected subject handed them out, in an adjacent room, to those who had actively participated.

The *High Image* treatment ( $\mu = \mu_H$ ), in contrast, was designed to induce strong image concerns. Prior to making their decisions, subjects were informed that upon receiving payment: (i) their choice would be observed and compared to that of their matched partner by a committee consisting of three persons, sitting in the room where payments would take place; (ii) both partners' choices would be projected onto a wall, and they would have to read both aloud, using two predetermined sentences. To fix their beliefs and provide a justification for the existence of the committee, we explained to subjects that the committee was there to rate the prosociality of their decisions.

### 3.3 Procedure

In total, 697 subjects (405 female, mean age = 24.01, SD = 6.21) participated in 36 sessions at the BonnEconLab of the University of Bonn: 178 in the *MPL-Low Image* treatment, 178 in *MPL-High Image*, 165 in *DE-Low Image*, and 176 in *DE-High Image*. Subjects were recruited using Hroot (Bock et al., 2014), and the experiment was conducted using oTree (Chen et al., 2016). Sessions lasted about 60 minutes, with a show-up fee of 12€. For each session, one matched pair of subjects was randomly drawn, and their choices implemented. Thus, in

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always revise their decisions after the autocompletion, and had to confirm their final choices before moving on.

the DE treatments, each of the two either received 100€, or triggered a life-saving 350€ donation. In the *MPL* treatments, one price from the list was randomly drawn (uniformly), and the pre-stated choices of both partners for this price were implemented. Therefore, each one either triggered the donation or received up to 200€. <sup>8</sup>

At the beginning of each session, subjects received a brief verbal introduction to the experiment. In the *Low Image* treatments, the procedure ensuring anonymity was explained and demonstrated. In the *High Image* treatments, the committee setup was shown. Subsequently, all subjects received detailed information about tuberculosis, its effects, and treatment. The instructions also referred them to a website where they were invited to confirm the validity of the information. We then introduced the charity and its working procedure, and explained our calculations regarding the life-saving effect of the 350€ donation. Subjects then learned about their choice options and, after answering a couple of comprehension questions, made their decisions. Finally, they completed a short questionnaire and were paid in a separate room, with payment procedures depending on treatment status, as explained above. For further details on the procedure and instructions, see Online Appendix B.

## 4 Hypotheses and Results

Our outcome variable is the fraction  $\bar{a}^m(c, \mu)$  of subjects who choose to save a life over receiving  $c$ , given an elicitation method  $m \in \{DE, MPL\}$  and a level of visibility  $\mu \in \{\mu_L, \mu_H\}$ . For brevity, we will refer to  $\bar{a}^m(c, \mu)$  as “total contributions”.

### 4.1 Hypotheses

Based on Proposition 3, we state:

**Hypothesis 1.** *For both DE and MPL, total contributions are higher under High Image than under Low Image:  $\bar{a}^{DE}(c, \mu_H) > \bar{a}^{DE}(c, \mu_L)$ ,  $\bar{a}^{MPL}(c, \mu_H) > \bar{a}^{MPL}(c, \mu_L)$ .*

**Hypothesis 2.** *Under Low Image, total contributions are higher under DE than under MPL:  $\bar{a}^{DE}(c, \mu_L) > \bar{a}^{MPL}(c, \mu_L)$ .*

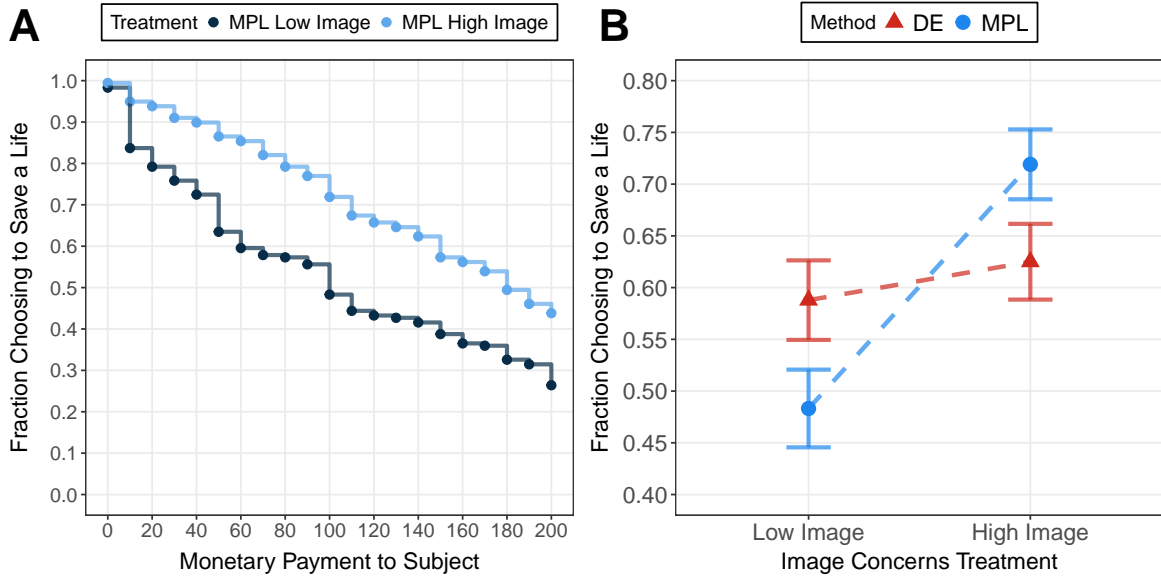
**Hypothesis 3.** *Under High Image, total contributions are higher under MPL than under DE:  $\bar{a}^{DE}(c, \mu_H) < \bar{a}^{MPL}(c, \mu_H)$ .*

Hypothesis 1 captures the standard effect of signaling concerns. The novel ones are Hypotheses 2 and 3, reflecting the dominance of the *discouragement effect* at  $\mu_L$  and the *cheap-act effect* at  $\mu_H$ . Together, they constitute the model’s distinctive crossing prediction, which we will test at  $c = 100\text{€}$ , as explained earlier.

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<sup>8</sup>This random implementation adds another layer of the cheap-talk effect, but one that affects *DE* and *MPL* in exactly the same way (formally equivalent to dividing  $\mu$  by the probability of implementation), and thus leaves all comparisons between the two unaffected. We further discuss this feature and its potential effects on choices in Section 4.3.

Figure 2: Main Experimental Results



Notes: Panel A displays the fractions of subjects that choose to save a life for each offered price in the MPL Low Image and MPL High Image treatments. Panel B shows the interaction effect of elicitation method and image concerns, by displaying the fractions of subjects that choose to save a life with MPL and DE, under either the Low Image or the High Image treatment. Error bars indicate the standard error of the mean.

## 4.2 Results

**Hypothesis 1.** Under both elicitation methods, increased visibility led to a rise in total contributions, but the magnitude was markedly different. Under *DE*, 58.8% of subjects chose to save a life in *Low Image* and 62.5% in *High Image* – a relatively small and insignificant increase ( $p = 0.51$ , Fisher’s exact test).<sup>9</sup> Under *MPL*, increased visibility had a much larger effect. At almost all payment levels, the fraction of subjects choosing to save a life is at least 15 pp. higher under *MPL-High Image* than under *MPL-Low Image*, resulting in significantly different distributions ( $p < 0.001$ , Kolmogorov–Smirnov test); see Panel A of Figure 2. At 100 €, contributions are 23.6 pp. and significantly higher under *High Image* than under *Low Image* ( $p < 0.001$ ).

**Hypotheses 2 and 3.** Panel B of Figure 2 shows that the fractions  $\bar{a}^m(100, \mu)$  choosing to save a life over 100€ clearly differ by elicitation method, with the ranking reversing between  $\mu_L$  and high  $\mu_H$ . Under *Low Image*, we observe  $\bar{a}^{MPL}(\mu_L) < \bar{a}^{DE}(\mu_L)$ , as predicted by Hypothesis 2, and consistent with the dominance of the *discouragement effect*. The difference is large, with the fraction saving a life rising from 48.3% to 58.8% between *MPL* and *DE*, though significance is slightly below the conventional level ( $p = 0.065$ , Fisher’s exact test). Conversely, under *High Image* we observe  $\bar{a}^{MPL}(\mu_H) > \bar{a}^{DE}(\mu_H)$ , in line with the *cheap-act effect* dominating, as predicted by Hypothesis 3. The difference is again about 10 percentage points, but now in the opposite direction, rising from 62.5% under *DE* to 71.9% under *MPL*,

<sup>9</sup>We follow the convention of reporting two-sided tests, even though we are testing the directed (inequality) hypotheses emanating from the model. Unless otherwise noted, we use Fisher’s exact test.



albeit again with significance slightly short of 5% ( $p = 0.070$ ).

Table 1, Panel A regresses the probability of choosing to save a life (instead of taking 100€) on a dummy for the type of elicitation (1 for *MPL*), which yields a positive coefficient for *Low Image* in Column (1), and a negative one for *High Image* in Column (3).<sup>10</sup> Columns (2) and (4) show that these effects remain largely unaffected by controls for age, gender, high-school graduation grade, highest educational degree obtained so far, self-reported monthly income, and a measure of religiousness (Likert scale).

Hypotheses 2-3 represent the strictest possible test of the model – a particular ordering of four variables – which may explain the marginal significance of these results. A more standard test concerns their joint implication of a *differential image sensitivity*: as image rises from  $\mu_L$  to  $\mu_H$ , the increase in contributions should be more pronounced for *MPL* than for *DE*. Panel B of Table 1 thus presents an OLS regression interacting *High Image* with *MPL*, using *DE-Low Image* as baseline; the interaction is positive and significant at the 1-percent level.

Overall, the results lend support to the key predictions of the model emanating from Proposition 3, albeit with significance being sometimes marginal. As such, our simple experiment can be taken as a proof of concept for the novel mechanisms brought to light by the model, thereby opening them up to further exploration.

### 4.3 Robustness Experiment

One may worry that features of the elicitation methods unrelated to image concerns influence our results. Note first that such features would have to generate not just different *DE* versus *MPL* contributions, but also a flipping of that gap as image rises from low to high, which seems unlikely. Thus, features of elicitation methods can at most confound one of our comparisons, not the crossing effect itself. The previous literature has identified three factors that could potentially confound the comparison between the two elicitation methods.

First, in our experiment, only a subset of subjects had their decision implemented for real. In the *MPL* treatments, another randomization takes place, which is absent in *DE*: if selected for payout, one decision of the price list is randomly selected. If subjects violate the independence axiom and view these two randomization processes not separately but rather as a meta-lottery, this could potentially affect the comparison. This issue is also present in the many experiments that study decisions over lotteries and pay only one lottery out for real. In this context, it is usually assumed that subjects evaluate the different random processes in isolation, an assumption that has been repeatedly validated empirically<sup>11</sup>. It is natural to assume that subjects also perceive the two processes in isolation in our experiment, since they were introduced and explained at two different points in the instructions.

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<sup>10</sup>The results remain qualitatively unchanged with Probit or Logit regressions.

<sup>11</sup>See e.g., Starmer and Sugden (1991), Cubitt et al. (1998), and Hey and Lee (2005).



The second factor is the so-called compromise effect (Andersen et al., 2006; Birnbaum, 1992; Simonson, 1989). When presenting a price list, the focus lies perceptually on the center. This in turn could change the attractiveness of the options appearing in the middle of the price list, biasing answers away from the subject's true valuations. To control for this effect, we carefully selected the DE value to correspond to the value precisely in the middle of the price list in the MPL treatments. As such, it seems unlikely that differences in perceptions could explain discrepancies between the elicitation methods.

Third, subjects' comprehension could be different between elicitation methods, potentially leading to differences in elicited behavior. For instance, it is well-known that subjects behave differently under differently complicated auctions even if these are strategically equivalent (Kagel et al., 1987; Li et al., 2017). For this reason, instead of the Becker-DeGroot-Marschak method, which shares features of a second-price sealed-bid auction, we use a price list, which is easier to understand (Andersen et al., 2006). Here, research has shown that comprehension is high, even in field settings (e.g., Burchardi et al., 2021). Their results support the notion that MPL is not substantially less understood by subjects compared to DE.

To summarize, we would not expect differences between DE and MPL in our experiment once image concerns are absent. In order to document this empirically, we conducted a robustness experiment, which is explained next.

**Design.** For the robustness experiment, we used a good that is unrelated to prosocial and moral considerations, so that image concerns are plausibly absent. For this non-moral good, we chose a 35 € voucher for the University of Bonn's online shop. With the voucher, subjects can buy sweatshirts, T-shirts, and accessories related to the university. The voucher cannot be returned and is only valid for purchases in the shop. There were two between-subject treatments: *DE No-Image* and *MPL No-Image*. In the former, subjects could choose between 10 € and the voucher, while in the latter they faced a price list from 0€ to 20€ in 1€ increments. Note that this closely mimics the decisions in the main experiment. The only difference is that all values are divided by 10. As in the main experiment, subjects were paired with another subject and were given each other's decisions at the end of the experiment.

Accordingly, instructions for the decisions were identical, with the sole difference being that descriptions related to the saving a life paradigm were replaced with descriptions of the voucher. Consequently, any factors influencing the comparison between *DE* and *MPL* in the main experiment should also manifest in the robustness experiment.

**Procedure.** Subjects were recruited from the same subject pool as the main experiment, with the restriction that they had not previously participated in the main experiment. The experiment was conducted as a virtual lab experiment since in-person lab sessions were not possible due to the ongoing Covid-19 pandemic. That is, the experiment started and ended

at a pre-specified date and time, and the experimenter was available during the experiment in case of problems.

In total, 366 subjects (227 female, mean age 26.88, SD 7.87) took part, 188 in the *MPL No-Image*, and 178 in the *DE No-Image* treatment, respectively. The experiment lasted on average 13 minutes, for which the subjects received a show-up fee of 3€. Subjects were grouped in virtual sessions consisting of roughly 24 subjects, and one pair was randomly selected for payout out of each virtual session. Exactly as in the main experiment, for these two subjects, either their DE decision was implemented or a randomly chosen decision from the MPL.

**Results.** Assessing subjects' general valuation of the voucher, we observe considerable variation in switching behavior in the *MPL No-Image* treatment. In total, 76% had an interior switching value, meaning they preferred the voucher in the initial decision but switched to preferring the monetary value at some point. This is very similar to behavior in the *MPL-Low Image* treatment, where 72% of subjects had an interior switching point. Comparing the choice at 10 € in *MPL No-Image* with *DE No-Image*, we find that 29.8% choose the voucher in *MPL* and 25.3% in *DE*. This difference is small in magnitude and not statistically significant ( $p = 0.35$ ; two-sided Fisher's exact test). It is also in the opposite direction of what we find in the main experiment for the *Low Image* case, which is the natural comparison. Comparing effect sizes (Cohen's  $d$ ), the difference between *MPL Low Image* and *DE Low Image* has an effect size of  $d = 0.21$ , while the effect size is  $d = -0.10$  for the difference between *MPL No-Image* and *DE No-Image*. Accordingly, not only is the effect in the opposite direction, but also has a small effect size. Panel C of Table 1 replicates this null result in an OLS-regression, with column (2) using the same variables as control variables as in the main experiment, compare Table 1, columns (2) and (4). Thus, we do not observe any meaningful differences between the two elicitation methods in our setting once image concerns are removed.

## 5 Conclusion

Our model and experiment show that image concerns affect the measurement of moral preferences in ways that *interact with the elicitation method*. Regardless of whether one is interested in image-inclusive preferences (for positive predictions) or in purely intrinsic ones (for normative judgements), behavior will differ between direct and price-list mechanisms. These results argue for caution in interpreting standard estimates of moral preferences from experiments and contingent-valuation surveys,<sup>12</sup> but also provide potential guidance for maximizing public-goods contributions and image manipulations.<sup>13</sup>

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<sup>12</sup>A related point is made by Chen and Schonger (2022) for other forms of preferences involving moral "duties".

<sup>13</sup>Individual WTP's, which include the value of social and self-image, are the right measures to predict, explain or alter behavior. To inform policy, however, they can substantially overstate the true social value of the public good. Thus, in our model, reputation is a positional good, the image gains and losses of contributors

In particular, even purely utilitarian individuals may act, when facing *BDM*- or *MPL*-like situations, as if deontologically motivated: refusing all proposed prices in exchange for what is perceived as having a dignity. With necessarily finite budgets, a definitive test of how many “real Kantians” there are is ultimately impossible, but our experiment provides both an upper bound and some grounds for skepticism about public positions on the subject. The former is given by the 26.4% of subjects who choose to save a life over the maximum offer of 200€ in the Low Image *MPL* condition. The latter stems from the fact that this proportion nearly doubles to 43.82% with a mild visibility manipulation. These results can also help to account for the common resistance to estimating and using a “statistical value of life.” Despite the fact that we implicitly engage in trading off costs and statistical lives all the time, explicit reference to putting a price tag on life typically produces conspicuously displayed righteous indignation (e.g., Sandel, 2012).

On the empirical side, an interesting avenue for further research would be to estimate the distributions of intrinsic preferences and image concerns in a population, from those of *MPL* bids for the desired outcome (as in the work on auctions) and for making one’s choices visible (as in Butera et al., 2022).

## 6 Appendix

**Proof of Proposition 1.** From (2)-(4), it follows that:

( $P_0$ ) :  $a_H = a_L = 0$ , sustained by out-of equilibrium belief (OEB)  $\hat{v} = v_H$  following  $a = 1$  (by the D1 criterion), is an equilibrium if and only if  $c \geq \bar{c}_H^{DE}$ . When

$$\bar{c}_L^{DE} = v_L e + \mu(v_H - v_L) \leq c \leq v_H e + \mu(v_H - v_L) \equiv \bar{c}_H^{DE},$$

it coexists with a separating equilibrium  $S$  in which  $a_H = 1 = 1 - a_L$ , plus a mixed-strategy one in-between. As shown earlier, however,  $P_0$  is Pareto dominant, and therefore selected.

( $P_1$ ) :  $a_H = a_L = 1$ , sustained by OEB  $\hat{v} = v_L$  following  $a = 0$  (by D1), is an equilibrium if and only if  $c \leq \underline{c}_L^{DE}$ .

( $S$ ) :  $a_H = 1 - a_L = 1$  is an equilibrium if and only if  $\bar{c}_L^{DE} \leq c \leq \bar{c}_H^{DE}$ .

( $SS_1$ ) :  $0 < a_L < 1 = a_H$ , with belief  $\hat{v} \in (v_L, \bar{v})$  following  $a = 1$ , is an equilibrium if and only if  $\underline{c}_L^{DE} < c < \bar{c}_L^{DE}$ . The low type’s mixed strategy  $a_L(c) \in (0, 1)$  is then given by combining the indifference condition  $v_L e - c + \mu(\hat{v}(a_L) - v_L) = 0$  and the Bayesian posterior  $\hat{v}(c) = [\rho v_H + (1 - \rho)a_L v_L] / [\rho v + (1 - \rho)a_L]$  :

$$v_L e - c + \frac{\mu \rho (v_H - v_L)}{\rho + (1 - \rho)a_L(c)} \equiv 0, \quad (9)$$

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and non-contributors exactly offsetting each other. In general, the image game can have negative, zero, or positive sum, depending on the curvature of the reputation functional; Butera et al. (2022) find evidence for negative sum, which reinforces the previous point.

so  $a_L(c)$  decreases with  $c$ , while the reputation  $\hat{v}(c)$  following  $a = 1$  increases.

$(SS_0) : 0 = a_L < a_H < 1$ , with beliefs  $\hat{v} \in (\bar{v}, v_H)$  following  $a = 0$ , is an equilibrium if and only if  $c_H^{DE} < c < \bar{c}_H^{DE}$ . It always coexists with  $P_0$ , and is always dominated by it.

These results jointly imply that:

(a) If  $\underline{c}_L^{DE} < \bar{c}_L^{DE} < c_H^{DE}$ , the unique equilibrium is  $P_1$  for  $c < \underline{c}_L^{DE}$ ;  $SS_1$  for  $c \in [\underline{c}_L^{DE}, \bar{c}_L^{DE}]$ ; and  $S$  for  $c \in [\bar{c}_L^{DE}, c_H^{DE}]$ . For  $c \geq c_H^{DE}$ , the dominant equilibrium is  $P_0$ .

(b) If  $\underline{c}_L^{DE} < c_H^{DE} < \bar{c}_L^{DE}$ , the unique equilibrium is  $P_1$  for  $c < \underline{c}_L^{DE}$ , and  $SS_1$  for  $c \in [\underline{c}_L^{DE}, c_H^{DE}]$ . For  $c > c_H^{DE}$ , the dominant equilibrium is  $P_0$ .

(b) If  $c_H^{DE} < \underline{c}_L^{DE} < \bar{c}_L^{DE}$ , the unique equilibrium is  $P_1$  for  $c < c_H^{DE}$ , and for  $c \geq c_H^{DE}$  the dominant equilibrium is  $P_0$ . ■

**Proof of Proposition 2.** The proof of existence is standard. For example, for a separating equilibrium to obtain, it must be: that (i) type  $v_L$  obtains his symmetric-information allocation (otherwise, he would be better off selecting  $c_L^{MPL} = v_L e$ ), and (ii) he does not want to mimic type  $v_H$ :  $\mu(v_H - v_L) \leq L(c_H^{MPL})$  and  $c_H^{MP} < c_{max}$ . It is easily verified that the proposed strategies satisfy these conditions, and similarly for the semi-separating and pooling equilibria.

The equilibrium is not unique absent refinement, however. For example, there is a pooling equilibrium at  $c^{MPL} = v_H e < c_{max}$  when  $\mu(\bar{v} - v_L) \geq L(v_H e)$ , sustained by OBE  $\hat{v} = v_L$  following any declared price  $c \neq v_L e$ . Note, however, that sorting implies monotonicity, so there is at most one price, denoted  $c^*$ , that can be chosen with positive probability by both types; any other price claimed by type  $v_H$  (respectively,  $v_L$ ) exceeds  $c^*$  (respectively, lies below it)  $c^*$ . Denote  $\hat{v}(c)$  the mean belief following a price  $c$ , and consider a deviation to  $c' = c^* + \varepsilon$ , for  $\varepsilon > 0$  arbitrarily small, together with the set of belief responses that raise both types' utilities relative to equilibrium

$$\begin{aligned}\hat{V}_L &\equiv \{\hat{v}(c^* + \varepsilon) \mid \mu[\hat{v}(c^* + \varepsilon) - \hat{v}(c^*)] > L_L(c^* + \varepsilon) - L_L(c^* + \varepsilon)\}, \\ \hat{V}_H &\equiv \{\hat{v}(c^* + \varepsilon) \mid \mu[\hat{v}(c^* + \varepsilon) - \hat{v}(c^*)] > L_H(c^* + \varepsilon) - L_H(c^* + \varepsilon)\}.\end{aligned}$$

Clearly  $V_L \subset V_H$ , so by D1 the deviation must induce a probability-one belief on  $v_H$ ; thus, the only possible pooling price is  $c = c_{max}$ . Consequently, the equilibrium must take one of the three forms described in the proposition, and because it is obtained on disjoint sets of parameters, it is unique under D1. ■

Table 1: Regression analyses of the effect of the elicitation method on prosocial behavior

<b>Panel A:</b>				
Dependent variable:	Choice to Save a Life (vs. 100€)			
	<i>Low Image</i>		<i>High Image</i>	
	(1)	(2)	(3)	(4)
<i>MPL</i>	-0.105*	-0.103*	0.094*	0.091*
	(0.054)	(0.053)	(0.050)	(0.050)
Constant ( <i>DE</i> )	0.588***	0.626***	0.625***	0.622***
	(0.038)	(0.049)	(0.037)	(0.046)
Controls		X		X
Observations	343	343	354	354
<b>Panel B:</b>				
Dependent variable:	Choice to Save a Life (vs. 100€)			
	(1)	(2)		
<i>MPL</i>	-0.105*	-0.097*		
	(0.054)	(0.053)		
<i>High Image</i>	0.037	0.052		
	(0.053)	(0.052)		
<i>MPL X High Image</i>	0.199***	0.190***		
	(0.073)	(0.072)		
Constant ( <i>DE Low Image</i> )	0.588***	0.595***		
	(0.038)	(0.044)		
Controls		X		
Observations	697	697		
<b>Panel C:</b>				
Dependent variable:	Choice of Voucher (vs. 10€)			
	(1)	(2)		
<i>MPL No-Image</i>	0.045	0.051		
	(0.047)	(0.047)		
Constant	0.253***	0.227***		
	(0.033)	(0.047)		
Controls		X		
Observations	366	366		

Notes: The table shows OLS regression coefficients. The dependent variable in Panel A is an indicator variable equal to one if the subject chose a donation that saves a human life and zero if the subject chose 100€ for themselves. “MPL” is an indicator variable equal to one if the subject was part of the *MPL* treatment and zero if the subject was part of the *DE* treatment. Columns (1) and (2) display the results for the *Low Image* treatment, and columns (3) and (4) for the *High Image* treatment. The dependent and independent variables in Panel B are the same as in Panel A, with the addition of the variable “High Image”, which is an indicator variable equal to one if the subject was part of the *High Image* treatment and zero if the subject was part of the *Low Image* treatment. The dependent variable in Panel C is an indicator variable equal to one if the subject chose a voucher to a university online shop and zero if the subject chose 10€ for themselves. “MPL No-Image” is an indicator variable equal to one if the subject was part of the *MPL No-Image* treatment and zero if the subject was part of the *DE No-Image* treatment. Robust standard errors in parentheses. Controls include age, gender, income, religiousness, educational level, and high school grade.

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# ONLINE APPENDIX

## A Decision Screens

Figure A.1: Decision Screen DE

**Your Decision**

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[Please click here to be reminded of the precise meaning of 'saving a life'](#)

Option A			Option B
	A	B	
I save a human life	<input type="radio"/>	<input type="radio"/>	I choose 100 € as payment for myself

[Confirm decision](#)

Figure A.2: Decision Screen MPL

### Your Decisions

Please click here to be reminded of the precise meaning of 'saving a life'

Option A			Option B
	A	B	
I save a human life	<input type="radio"/> 1	<input type="radio"/>	I choose 0 € as payment for myself
I save a human life	<input type="radio"/> 2	<input type="radio"/>	I choose 10 € as payment for myself
I save a human life	<input type="radio"/> 3	<input type="radio"/>	I choose 20 € as payment for myself
I save a human life	<input type="radio"/> 4	<input type="radio"/>	I choose 30 € as payment for myself
I save a human life	<input type="radio"/> 5	<input type="radio"/>	I choose 40 € as payment for myself
I save a human life	<input type="radio"/> 6	<input type="radio"/>	I choose 50 € as payment for myself
I save a human life	<input type="radio"/> 7	<input type="radio"/>	I choose 60 € as payment for myself
I save a human life	<input type="radio"/> 8	<input type="radio"/>	I choose 70 € as payment for myself
I save a human life	<input type="radio"/> 9	<input type="radio"/>	I choose 80 € as payment for myself
I save a human life	<input type="radio"/> 10	<input type="radio"/>	I choose 90 € as payment for myself
I save a human life	<input type="radio"/> 11	<input type="radio"/>	I choose 100 € as payment for myself
I save a human life	<input type="radio"/> 12	<input type="radio"/>	I choose 110 € as payment for myself
I save a human life	<input type="radio"/> 13	<input type="radio"/>	I choose 120 € as payment for myself
I save a human life	<input type="radio"/> 14	<input type="radio"/>	I choose 130 € as payment for myself
I save a human life	<input type="radio"/> 15	<input type="radio"/>	I choose 140 € as payment for myself
I save a human life	<input type="radio"/> 16	<input type="radio"/>	I choose 150 € as payment for myself
I save a human life	<input type="radio"/> 17	<input type="radio"/>	I choose 160 € as payment for myself
I save a human life	<input type="radio"/> 18	<input type="radio"/>	I choose 170 € as payment for myself
I save a human life	<input type="radio"/> 19	<input type="radio"/>	I choose 180 € as payment for myself
I save a human life	<input type="radio"/> 20	<input type="radio"/>	I choose 190 € as payment for myself
I save a human life	<input type="radio"/> 21	<input type="radio"/>	I choose 200 € as payment for myself

Confirm decisions

## **B Instructions**

### **B.1 Announcement by the Experimenter**

The following text was read aloud by the experimenter after all subjects were placed in their cubicles, establishing common knowledge among all subjects of a session. The content depended on the image treatment.

#### **B.1.1 Treatment *Low Image***

Welcome to today's study. In today's study, you will make decisions on a computer. These decisions will take place under complete anonymity. To ensure this, we will now apply the following procedure: You should all have two notes with your cubicle number in front of you. We will soon collect one of the two notes and randomly draw one out of all collected. The person in the drawn cubicle is responsible for the payment in today's study. At the end of the study, we prepare sealed envelopes with your payments. Those envelopes are then passed to the soon to be randomly drawn person, who will hand them out to each of you sequentially in the adjacent room. The envelopes are designed so that you cannot see the contents from the outside, i.e., not on weight or similar clues. Hence at no time can there be a connection drawn between your payment and your decisions. Please hold now one of the notes with your cubicle number onto out of your cubicle. (Responsible person is drawn and placed in the adjacent room) The study will begin shortly. If you have at any time have questions, just hold your hand out of the cubicle.

#### **B.1.2 Treatment *High Image***

Welcome to today's study. In today's study, you will make decisions on your computer. Your decisions will subsequently be evaluated by a committee consisting of three students from the University of Bonn. For this, after you have made your decisions, you will go to the adjacent room, where your decisions will be projected on a wall with a projector. You will then briefly communicate your decisions to the committee, and the committee will evaluate them. Afterward, you will receive the result of the evaluation. Detailed information about your decisions, the committee, and the evaluation will be given to you at the appropriate time on your computer. The study will begin shortly. If you have at any time have questions, just hold your hand out of the cubicle.

#### **B.1.3 Further Procedure**

After the text was read aloud, in the *Low Image* conditions the experimenter then collected one note from each subject indicating their respective cabin number. All notes were thrown into a bag, and one was drawn in front of all participants to make clear that the person

responsible for the payment procedure was a randomly determined participant. In the *High Image* conditions, subjects were shown the adjacent room and the setup with the committee, which consisted of student research assistants. The members of the committee did not interact with the subjects in any way.

## **B.2 Introduction**

All further instructions were displayed on the subjects screens. The following introduction was the same for all treatments.

### **B.2.1 Welcome to the study**

Welcome, and thank you for your interest in today's study!

For your participation, you will receive a fixed payment of 12€ given to you at the end. In this study, you will make decisions on the computer. Depending on how you choose, you can earn additional money.

During the entire study, communication between participants is prohibited. Please turn off your phone so that other participants are not disturbed. Please only use the designated functions on the computer and make the entries with the mouse and keyboard. If you, at some point, have questions, please make a hand signal. Your question will be answered at your seat.

On the next screens, you will receive specific information about participation in this study. To proceed, click "Next".

### **B.2.2 Your Partner**

As part of this experiment, a partner has been assigned to you. This partner is a participant in today's experiment, just like you. He or she was randomly assigned to you and will receive the same instructions as you.

In today's experiment, you and your partner will both receive the exact same information and subsequently face the exact same decisions. These decisions have certain consequences, which will be described in detail later.

At the end of today's experiment, one pair is randomly drawn from all participants in today's experiment. Only the decisions of this pair will be implemented, as described in the instructions. Please note: The random draw of a pair is completely independent of the participants' decisions. Each pair has the same probability of being drawn. Since your decision can be actually implemented for real, you should think carefully about how you will decide in the experiment.

Figure B.1: Typical appearance of a tuberculosis patient.



### **B.2.3 Information about Tuberculosis**

What follows is important information that is relevant to the decisions you will later be asked to make. It concerns the illness tuberculosis and its possible treatment. Please read through all the information carefully.

#### **What is Tuberculosis?**

Tuberculosis – also called Phthisis or White Death – is an infectious disease, which is caused by bacteria. Roughly one-third of all humans are infected with the pathogen of Tuberculosis. Active Tuberculosis breaks out among 5 to 10% of all those infected. Tuberculosis is primarily airborne. This is also why quick treatment is necessary.

Tuberculosis patients often suffer from very unspecific symptoms like fatigue, the feeling of weakness, lack of appetite, and weight loss. At an advanced stage of lung tuberculosis, the patient coughs up blood, leading to the so-called rush of blood. Without treatment, a person with Tuberculosis dies with a probability of 43%.

#### **How prevalent is Tuberculosis?**

In the year 2014, 6 million people have been recorded as falling ill with active Tuberculosis. Almost 1.5 million people die of Tuberculosis each year. This means more deaths due to Tuberculosis than due to HIV, malaria, or any other infectious disease.

#### **Is tuberculosis curable?**

According to the World Health Organization (WHO), the United Nations agency for international public health, “tuberculosis is preventable and curable”. Treatment takes place by taking antibiotics several times a week over a period of 6 months. It is important to take the medication consistently. Since 2000, an estimated 53 million lives have been saved through effective diagnosis and treatment of tuberculosis.

The success rate of treatment for a new infection is usually over 85%.

The preceding figures and information have been provided by the WHO and are freely available. [Click here for more details.](#)



Figure B.2: A worker from Operation ASHA delivers medication to a tuberculosis patient.



### **Operation ASHA**

*Operation ASHA* is a charity organization specialized since 2005 on treating Tuberculosis in disadvantaged communities. The work of *Operation ASHA* is based on the insight that the biggest obstacle for the treatment of Tuberculosis is the interruption of the necessary 6-month-long regular intake of medication.

For a successful treatment, the patient has to come to a medical facility twice a week – more than 60 times in total – to take the medication. Interruption or termination of the treatment is fatal because this strongly enhances the development of a drug-resistant form of Tuberculosis. This form of Tuberculosis is much more difficult to treat and almost always leads to death.

### **The Concept of *Operation ASHA***

To overcome this problem, *Operation ASHA* developed a concept that guarantees regular treatment through immediate spatial proximity to the patient. A possible non-adherence is additionally prevented by visiting the patient at home.

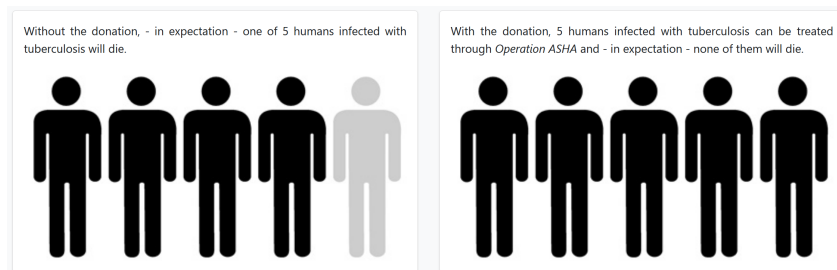
By now, *Operation ASHA* runs more than 360 treatment centers, almost all of which are located in the poorer regions of India. More than 60,000 sick persons have been identified and treated that way.

*Operation ASHA* is an internationally recognized organization, and its success has been covered by the New York Times, BBC, and Deutsche Welle, for example. The MIT and the University College London have already conducted research projects about the fight against Tuberculosis in cooperation with *Operation ASHA*. The treatment method employed by *Operation ASHA* is described by the World Health Organization (WHO) as “highly efficient and cost-effective”.

### **The Impact of a Donation to *Operation ASHA***

It is now possible to save people from death by Tuberculosis by donating to *Operation ASHA*.

Figure B.3: Relationship between the donation and the saving of a life



To save a person's life means here to successfully cure a person with Tuberculosis, who otherwise would die because of the Tuberculosis. A donation of 350€ ensures that at least one human life can be expected to be saved. The information used to calculate the donation amount is obtained from public statements from the World Health Organization (WHO), peer-reviewed research studies, Indian Government statistics, and published figures from *Operation ASHA*.

In the calculation, information was conservatively interpreted, or a pessimistic number was used so that the donation amount of 350€ is in the case of doubt higher than the actual costs to save a human life. In addition, in the calculation of the treatment success rate of *Operation ASHA*, the mortality rate for alternative treatment by the state tuberculosis program in India and the different detection rates for new cases of Tuberculosis are included.

In the context of this study, an agreement made with *Operation ASHA* will ensure that 100% of the donation will be used exclusively for the diagnosis and treatment of tuberculosis patients. This means that every Euro of the donation amount goes directly to saving human lives, and no other costs will be covered. Based on a very high number of cases, the contribution of a donation of 350€ can be simplified visualized as follows:

With a donation of 350€ 5 additional patients infected with Tuberculosis can be treated through *Operation ASHA*.

If these 5 persons are not treated through *Operation ASHA*, it is expected that one patient will die.

If, through the donation of 350€ all 5 patients are treated, it is expected that no patient will die.

Based on this experience, this means that through a donation of 350€ the life of a human will be saved. The relationship between a donation of 350€ and the saving of a human is illustrated in the following graphic: [Figure B.3 here]

### Summary

Tuberculosis is a worldwide common bacterial infectious disease. The success rate of medical treatment of a new disease is very high. Nevertheless, close to 1.5 million people die every year from Tuberculosis. The biggest obstacle to the curing of Tuberculosis is the potential stopping of continuous treatment with antibiotics. The concept of *Operation ASHA* is therefore based on the immediate proximity to the patient as well as the control and record-

ing of the regular intake of medication. Through a donation of 350€ to *Operation ASHA*, a life will be saved.

### **How is the donation connected to the saving of a life?**

The donation of 350€ already accounts for the fact that someone inflicted with the illness could have survived without treatment by *Operation ASHA*; i.e., instead of through *Operation ASHA*, they could have received treatment through other actors (such as the public health system). The amount is, therefore, sufficient for the diagnosis and complete treatment of multiple sufferers.

### **What does it mean to “save a life”?**

To save a life means here the successful curing of a person suffering from Tuberculosis, who otherwise would die because of Tuberculosis. In particular, this means that the amount of the donation is sufficient to identify and cure so many tuberculosis patients that there is at least one person among them who otherwise could be anticipated to have died of Tuberculosis.

### **Note**

Click on “Next” once you have finished carefully reading through the information.

You can only click on the button “Next” once you have spent at least 5 minutes on the tabs of this page.

## **B.3 Treatment *DE Low Image***

### **B.3.1 Your Decision**

You will soon have the possibility to choose between two options: option A and option B. Both options are as follows:

#### **Option A**

Option A: I save a human life. By choosing option A, you save a human life. Specifically, by choosing option A, you instigate a donation of 350,00€ that will ensure that at least one person is saved from death by Tuberculosis, just as described before. If you choose option A, you will not receive an additional payment.

#### **Option B**

Option B: I choose X€ as payment for myself. By choosing option B, you will receive an additional payment at the end of the experiment. In addition, the absence of your donation will cause the death of a human life.

#### **Additional Payment**

Before today’s experiment, various amounts between 0€ and 200€ were taken into account for the amount of money you will receive when choosing option B, from which 100€ was selected. Your partner sees exactly the same options as you and makes a decision just like you. So your partner also decides between option A (saving a human life) and option B (keeping 100€ to himself).

#### **Summary**

You will decide on the next page of the screen by choosing between option A and option B. By choosing option A, you save a human life. By choosing option B, you receive an additional payment of 100€. On the next page, you will receive details about the payment procedure.

### **B.3.2 Further Procedure**

After you confirmed your decision on the decision screen, a screenshot will be taken from this decision screen. From the decision screen of your partner, a screenshot will be taken in the same way. Thereafter, some additional questions will follow. After you have answered these questions, you will get the screenshot with the decision of your partner displayed, and your partner will get the screenshot with your decision. You will not receive any further information about your partner, and your partner will not receive any further information about you.

After you received the screenshot, please remain seated until you are called with your cabin number. Then you can go into the adjacent room to pick up your compensation for today's experiment. You will be called one by one so that there is no contact with other participants of the experiment.

#### **Who will be in the adjacent room?**

In the adjacent room, you will find the participant who was randomly selected from all participants at the start of the study.

#### **How do you receive your payment?**

This participant will give you a sealed envelope with your payment. The selected participant has already received the envelope sealed. Since this participant is only responsible for the payment, this participant has not completed the study and therefore has no knowledge of the decisions to be made. Therefore, this participant does not know what you chose, how you decided, or how much money you received, exactly as explained at the beginning of the study. By handing in your note with your cabin number, you will receive the envelope intended for you.

#### **Data protection**

The subsequent analysis of all data is carried out anonymously so that your decision can never be linked to your person. Your anonymity is therefore always guaranteed, and the information about your decision is only used for anonymized data analysis.

#### **Please note:**

This is not a thought experiment: All information given in these instructions is true. In particular, all actions are performed exactly as they are described. This fundamentally applies to all studies of the Bonn Laboratory for Experimental Economic Research, as well as to this study.

If you still have separate questions, you may send them to [experimente@briq-institute.org](mailto:experimente@briq-institute.org) after the study.

## **B.4 Treatment *DE High Image***

### **B.4.1 Your Decision**

You will soon have the possibility to choose between two options: option A and option B. Both options are as follows:

#### **Option A**

Option A: I save a human life. By choosing option A, you save a human life. Specifically, by choosing option A, you instigate a donation of 350,00€ that will ensure that at least one person is saved from death by Tuberculosis, just as described before. If you choose option A, you will not receive an additional payment.

#### **Option B**

Option B: I choose  $X$ € as payment for myself. By choosing option B, you will receive an additional payment at the end of the experiment. In addition, the absence of your donation will cause the death of a human life.

#### **Additional Payment**

Before today's experiment, various amounts between 0€ and 200€ were taken into account for the amount of money you will receive when choosing option B, from which 100€ was selected. Your partner sees exactly the same options as you and makes a decision just like you. So your partner also decides between option A (saving a human life) and option B (keeping 100€ to himself).

#### **Summary**

You will decide on the next page of the screen by choosing between option A and option B. By choosing option A, you save a human life. By choosing option B, you receive an additional payment of 100€. On the next page, you will receive details about the payment procedure.

### **B.4.2 Further Procedure**

After you confirmed your decision on the decision screen, a screenshot will be taken from this decision screen. From the decision screen of your partner, a screenshot will be taken in the same way. Thereafter, some additional questions will follow. After you have answered these questions, you will get the screenshot with the decision of your partner displayed, and your partner will get the screenshot with your decision. You will not receive any further information about your partner, and your partner will not receive any further information about you.

After you received the screenshot, please remain seated until you are called with your cabin number. Then you can go into the adjacent room to pick up your compensation for today's experiment. You will be called one by one so that there is no contact with other participants of the experiment.

**Who will be in the adjacent room?**

In the adjacent room, you will find a person who will make the payment. As mentioned before, there will also be a committee consisting of three other persons in the adjacent room. These three persons are students of the University of Bonn and were specially selected for this task.

### **What is the task of the committee?**

The task of these three persons is to assess the decision you and your partner have taken. Specifically, the assessment is about how moral your behavior and the behavior of your partner is. Apart from the assessment, the three persons will not interact with you (or with your partner) in any way, and the rating will not influence at all the consequences of your decisions or your payment.

### **What information does the committee receive?**

In order for the committee to make the assessment, the two screenshots of the decision of you and your partner are projected side by side onto the room's wall using a projector, visibly for all persons in the adjacent room. You are identified by (and only by) your cabin number. For better identification, based on your decision and that of your partner, you must also say the following two sentences aloud. The first sentence refers to your decision, the second sentence to your partner's decision.

Sentence 1 in case you chose option A: "I have decided not to take 100€ as payment for myself and instead decided to save a human life." Sentence 1 in case you chose option B: "I have decided to take 100€ as payment for myself instead of saving a human life."

Sentence 2 in case your partner has chosen option A: "My partner has decided not to take 100€ as payment for himself and instead decided to save a human life." Sentence 2 in case your partner has chosen option B: "My partner has decided to take 100€ as payment for himself instead of saving a human life."

In summary, you have to say two sentences, and the following information will be visible to everyone in the room:

- The decision you and your partner faced.
- Which option you and your partner have chosen. This means it is displayed whether you chose to save a human life or the additional payment of 100€ and whether your partner chose to save a human life or the additional payment of 100€.

### **How does the assessment work?**

The committee will assess your decision using a scale. For this, each one of the three persons of the committee selects one of the following five values:

1 - very immoral 2 - rather immoral 3 - neutral 4 - rather moral 5 - very moral.

The three persons of the committee will submit an assessment for your decision as well as the decision of your partner.

### **How do you receive your payment?**

After the committee has assessed the decisions, the committee will give you the assessments of both your decision and the decision of your partner, and the person responsible for the payments will give you your payment. In the event that you have decided to donate, you will receive a donation confirmation.

### **Data protection**

The subsequent analysis of all data is carried out anonymously so that your decision can never be linked to your person. Your anonymity is therefore always guaranteed, and the information about your decision is only used for anonymized data analysis.

### **Please note:**

This is not a thought experiment: All information given in these instructions is true. In particular, all actions are performed exactly as they are described. This fundamentally applies to all studies of the Bonn Laboratory for Experimental Economic Research, as well as to this study.

If you still have separate questions, you may send them to [experimente@briq-institute.org](mailto:experimente@briq-institute.org) after the study.

## **B.5 Treatment *MPL Low Image***

### **B.5.1 Your Decision**

You will soon have the possibility to choose in 21 decision scenarios between two options: option A and option B. Both options are as follows:

#### **Option A**

Option A: I save a human life. By choosing option A, you save a human life. Specifically, by choosing option A, you instigate a donation of 350,00€ that will ensure that at least one person is saved from death by Tuberculosis, just as described before. If you choose option A, you will not receive an additional payment.

#### **Option B**

Option B: I choose X€ as payment for myself. By choosing option B, you will receive an additional payment at the end of the experiment. In addition, the absence of your donation will cause the death of a human life.

#### **Additional Payment**

The additional payment that you receive from choosing option B varies in each of the 21 decision scenarios. In the first scenario, the payment is 0€ and then increases incrementally in each scenario thereafter by 10€ up to a payment of 200€. Therefore, the decision scenarios look as follows:

#### **Automatic Completion Help**

So that you do not need to click as much, we have activated an automatic completion help that automatically fills out the fields for you. As soon as you choose an amount from option B, we assume that you would choose all respectively higher payments from option B. Likewise,

when you choose option A in a row, we assume that you would choose option A over all respectively lower payments from option B.

Please note: You can always change your decisions until you clicked on “Confirm Decisions”. Therefore, only click on that button when you are certain how you want to decide.

### **Payment**

After you have selected one of the two options for each of the 21 decision scenarios, one of them will be randomly selected for real implementation. This means that the consequences of this decision will be implemented exactly as stated. Each of the 21 scenarios has the same probability of being selected. Therefore, since each of your decisions is potentially relevant, it is in your interest to decide in every scenario as if that decision is being implemented for real.

Your partner sees exactly the same 21 decision scenarios as you and, like you, makes a decision for every scenario. Furthermore, for you and your partner, the same decision scenario will be randomly selected. Thus, both your decision and the decision of your partner for this scenario will be implemented.

The following examples elaborate on this. Assume that decision scenario 2 is randomly selected, and you chose option A, while your partner chose option B. Then you save a human life and your partner will receive 10€. If, on the contrary, both of you choose option B, then both of you will receive 10€. If both of you choose option A, then two human lives will be saved. Assuming that decision scenario 21 is randomly selected, and you chose option B, while your partner chose option A. Then, you will receive 200€ and your partner saves a human life. If, however, both of you chose option B, then both of you will receive 200€. If both of you chose option A, then two human lives will be saved.

### **Summary**

On the page after next, you will make a decision for 21 scenarios, and in each decision, you can choose between option A and option B. By choosing option A, you save a human life, whereas by choosing option B, you receive an additional payment. After you have reached all of your decisions, one of the 21 scenarios will be chosen randomly for you and your assigned partner. Thereafter, the consequences of the chosen decision are realized, i.e., in the case that you chose option A under this scenario, a donation will be made towards the saving of a human life and in the case that you chose option B, you receive the respective amount from the selected scenario. The same applies to your partner. On the next page, you will receive details about the payment procedure.

### **B.5.2 Further Procedure**

After you confirmed your decisions on the decision screen, a screenshot will be taken from this decision screen. From the decision screen of your partner, a screenshot will be taken in the same way. Thereafter, some additional questions will follow. After you have answered



these questions, you will get the screenshot with the decisions of your partner displayed, and your partner will get the screenshot with your decisions. You will not receive any further information about your partner, and your partner will not receive any further information about you.

After you received the screenshot, please remain seated until you are called with your cabin number. Then you can go into the adjacent room to pick up your compensation for today's experiment. You will be called one by one so that there is no contact with other participants of the experiment.

**Who will be in the adjacent room?**

In the adjacent room, you will find the participant who was randomly selected from all participants at the start of the study.

**How do you receive your payment?**

This participant will give you a sealed envelope with your payment. The selected participant has already received the envelope sealed. Since this participant is only responsible for the payment, this participant has not completed the study and therefore has no knowledge of the decisions to be made. Therefore, this participant does not know what you chose, how you decided, or how much money you received, exactly as explained at the beginning of the study. By handing in your note with your cabin number, you will receive the envelope intended for you.

**Data protection**

The subsequent analysis of all data is carried out anonymously so that your decisions can never be linked to your person. Your anonymity is therefore always guaranteed, and the information about your decisions is only used for anonymized data analysis.

**Please note:**

This is not a thought experiment: All information given in these instructions is true. In particular, all actions are performed exactly as they are described. This fundamentally applies to all studies of the Bonn Laboratory for Experimental Economic Research, as well as to this study.

If you still have separate questions, you may send them to [experimente@briq-institute.org](mailto:experimente@briq-institute.org) after the study.

## **B.6 Treatment *MPL High Image***

### **B.6.1 Your Decision**

You will soon have the possibility to choose in 21 decision scenarios between two options: option A and option B. Both options are as follows:

**Option A**

Option A: I save a human life. By choosing option A, you save a human life. Specifically, by choosing option A, you instigate a donation of 350,00€ that will ensure that at least one

person is saved from death by Tuberculosis, just as described before. If you choose option A, you will not receive an additional payment.

### **Option B**

Option B: I choose  $X\text{€}$  as payment for myself. By choosing option B, you will receive an additional payment at the end of the experiment. In addition, the absence of your donation will cause the death of a human life.

### **Additional Payment**

The additional payment that you receive from choosing option B varies in each of the 21 decision scenarios. In the first scenario, the payment is  $0\text{€}$  and then increases incrementally in each scenario thereafter by  $10\text{€}$  up to a payment of  $200\text{€}$ . Therefore, the decision scenarios look as follows:

### **Automatic Completion Help**

So that you do not need to click as much, we have activated an automatic completion help that automatically fills out the fields for you. As soon as you choose an amount from option B, we assume that you would choose all respectively higher payments from option B. Likewise, when you choose option A in a row, we assume that you would choose option A over all respectively lower payments from option B.

Please note: You can always change your decisions until you clicked on “Confirm Decisions”. Therefore, only click on that button when you are certain how you want to decide.

### **Payment**

After you have selected one of the two options for each of the 21 decision scenarios, one of them will be randomly selected for real implementation. This means that the consequences of this decision will be implemented exactly as stated. Each of the 21 scenarios has the same probability of being selected. Therefore, since each of your decisions is potentially relevant, it is in your interest to decide in every scenario as if that decision is being implemented for real.

Your partner sees exactly the same 21 decision scenarios as you and, like you, makes a decision for every scenario. Furthermore, for you and your partner, the same decision scenario will be randomly selected. Thus, both your decision and the decision of your partner for this scenario will be implemented.

The following examples elaborate on this. Assume that decision scenario 2 is randomly selected, and you chose option A, while your partner chose option B. Then you save a human life and your partner will receive  $10\text{€}$ . If, on the contrary, both of you choose option B, then both of you will receive  $10\text{€}$ . If both of you choose option A, then two human lives will be saved. Assuming that decision scenario 21 is randomly selected, and you chose option B, while your partner chose option A. Then, you will receive  $200\text{€}$  and your partner saves a human life. If, however, both of you chose option B, then both of you will receive  $200\text{€}$ . If both of you chose option A, then two human lives will be saved.

### **Summary**

On the page after next, you will make a decision for 21 scenarios, and in each decision, you can choose between option A and option B. By choosing option A, you save a human life, whereas by choosing option B, you receive an additional payment. After you have reached all of your decisions, one of the 21 scenarios will be chosen randomly for you and your assigned partner. Thereafter, the consequences of the chosen decision are realized, i.e., in the case that you chose option A under this scenario, a donation will be made towards the saving of a human life and in the case that you chose option B, you receive the respective amount from the selected scenario. The same applies to your partner. On the next page, you will receive details about the payment procedure.

### **B.6.2 Further Procedure**

After you confirmed your decisions on the decision screen, a screenshot will be taken from this decision screen. From the decision screen of your partner, a screenshot will be taken in the same way. Thereafter, some additional questions will follow. After you have answered these questions, you will get the screenshot with the decisions of your partner displayed, and your partner will get the screenshot with your decisions. You will not receive any further information about your partner, and your partner will not receive any further information about you.

After you received the screenshot, please remain seated until you are called with your cabin number. Then you can go into the adjacent room to pick up your compensation for today's experiment. You will be called one by one so that there is no contact with other participants of the experiment.

#### **Who will be in the adjacent room?**

In the adjacent room, you will find a person who will make the payment. As mentioned before, there will also be a committee consisting of three other persons in the adjacent room. These three persons are students of the University of Bonn and were specially selected for this task.

#### **What is the task of the committee?**

The task of these three persons is to assess the decisions you and your partner have taken. Specifically, the assessment is about how moral your behavior and the behavior of your partner is. Apart from the assessment, the three persons will not interact with you (or with your partner) in any way, and the rating will not influence at all the consequences of your decisions or your payment.

#### **What information does the committee receive?**

In order for the committee to make the assessment, the two screenshots of the decisions of you and your partner are projected side by side onto the room's wall using a projector, visibly for all persons in the adjacent room. You are identified by (and only by) your cabin number. For better identification, based on your decisions and the decisions of your partner, you must

also say the following two sentences aloud. The first sentence refers to your decisions, the second sentence to your partner's decisions.

Sentence 1: "I have decided from a payment of X€ onwards to take the payment for myself instead of saving human life."

Sentence 2: "My partner has decided from a payment of X€ onwards to take the payment for himself instead of saving human life."

The payment X denotes the amount of money for which you switched from option A to option B for the first time. If you have not decided to take the money in any decision-making situation, i.e., have not switched, you have to say the following as the first sentence:

Sentence 1: "I have decided for no amount to take the payment for myself instead of saving human life."

Similarly, if your partner has not decided to take the money in any decision-making situation, you must say the following second sentence:

Sentence 2: "My partner has decided for no amount to take the payment for himself instead of saving human life."

In summary, you have to say two sentences, and the following information will be visible to everyone in the room:

- The complete list of all 21 decision scenarios described before.
- How you and your partner have chosen in each of these scenarios. This means that for each payment amount, one can see whether you have decided to save a human life or the additional payment and whether your partner has decided to save a human life or the additional payment.

### **How does the assessment work?**

The committee will assess your decisions using a scale. For this, each one of the three persons of the committee selects one of the following five values:

1 - very immoral 2 - rather immoral 3 - neutral 4 - rather moral 5 - very moral.

The three persons of the committee will submit an assessment for your decisions as well as the decisions of your partner.

### **How do you receive your payment?**

After the committee has assessed the decisions, the committee will give you the assessments of both your decisions and the decisions of your partner, and the person responsible for the payments will give you your payment. In the event that you have decided to donate, you will receive a donation confirmation.

### **Data protection**

The subsequent analysis of all data is carried out anonymously so that your decisions can never be linked to your person. Your anonymity is therefore always guaranteed, and the information about your decisions is only used for anonymized data analysis.

**Please note:**

This is not a thought experiment: All information given in these instructions is true. In particular, all actions are performed exactly as they are described. This fundamentally applies to all studies of the Bonn Laboratory for Experimental Economic Research, as well as to this study.

If you still have separate questions, you may send them to [experimente@briq-institute.org](mailto:experimente@briq-institute.org) after the study.

## B.7 Robustness Experiment

### B.8 Introduction

All instructions were displayed on the subjects' screens. The following introduction was the same for both treatments of the robustness experiment.

#### B.8.1 Welcome to the study

Welcome, and thank you for your interest in today's study!

Please note that you can take part in this study only once. Furthermore, you may only participate if you have registered for this study in our participation database ([experimente.bonneconlab.uni-bonn.de](http://experimente.bonneconlab.uni-bonn.de)).

For your full participation, you will receive a fixed payment of 3€. In this study, you will make decisions on the computer. Depending on how you choose, you can earn additional money. After the study, you will receive all payments, i.e. both the remuneration for your participation and any additional payments based on your decisions, by bank transfer.

On the next screens, you will receive specific information about participation in this study. To proceed, click "Next".

#### B.8.2 Your Partner

As part of this experiment, a partner has been assigned to you. This partner is a participant in today's experiment, just like you. He or she was randomly assigned to you and will receive the same instructions as you.

In today's experiment, you and your partner will both receive the exact same information and subsequently face the exact same decisions. These decisions have certain consequences, which will be described in detail later.

#### Payment

At the end of today's experiment, one pair will be randomly drawn from every 24 participants in the experiment. Only the decisions of this pair will be implemented, as described in the instructions. Please note: The random draw of a pair is completely independent of the participants' decisions. Each pair has the same probability of being drawn. Since your

decision can be actually implemented for real, you should think carefully about how you will decide in the experiment.

### **B.8.3 Information**

What follows is some information that is relevant to the decisions you will later be asked to make. It concerns the official shop of the University of Bonn.

The Campus Store Uni-Bonn is the official shop of the University of Bonn. Here you can purchase various products such as T-shirts, sweatshirts or mugs with the logo and design of the Uni-Bonn.

The Uni-shop is located at the information point in the main building. There is also an online shop, which can be reached via the website: <https://www.campusstore-unibonn.de>. The online shop dispatches all goods within 2-3 working days.

#### **Voucher**

The next decisions will concern a voucher for the Uni-shop, namely a voucher worth 35€. The voucher can only be redeemed in the online shop and cannot be converted into money.

## **B.9 Treatment *DE No-Image***

### **B.9.1 Your Decision**

You will soon have the possibility to choose between two options: option A and option B. Both options are as follows:

#### **Option A**

Option A: I choose the voucher. By choosing option A, you will receive the voucher for the Uni-shop. Specifically, option A allows you to receive a voucher worth 35€, which you can redeem in the Uni-shop (and only there). If you choose option A, you will not receive an additional payment.

#### **Option B**

Option B: I choose 10€ as payment for myself. By choosing option B, you will receive an additional payment of 10€ at the end of the experiment, but you will not receive the voucher.

#### **Additional Payment**

Before today's experiment, various amounts between 0€ and 20€ were taken into account for the amount of money you will receive when choosing option B, from which 10€ was selected. Your partner sees exactly the same options as you and makes a decision just like you. So your partner also decides between option A (voucher) and option B (keeping 10€ to himself/herself).

#### **Summary**

You will decide on the next page of the screen by choosing between option A and option B. By choosing option A, you receive a voucher. By choosing option B, you receive an additional

payment of 10€. On the next page, you will find details about the payment procedure.

### **B.9.2 Further Procedure**

After you confirmed your decision on the decision screen, a screenshot will be taken from this decision screen. From the decision screen of your partner, a screenshot will be taken in the same way. At the end of today's experiment, you will get the screenshot with the decision of your partner displayed, and your partner will get the screenshot with your decision. You will not receive any further information about your partner, and your partner will not receive any further information about you.

#### **Data protection**

The subsequent analysis of all data is carried out anonymously so that your decision can never be linked to your person. Your anonymity is therefore always guaranteed, and the information about your decision is only used for anonymized data analysis.

#### **Please note:**

This is not a thought experiment: All information given in these instructions is true. In particular, all actions are performed exactly as they are described. This fundamentally applies to all studies of the Bonn Laboratory for Experimental Economic Research, as well as to this study.

If you still have separate questions, you may send them to [experiment@briq-institute.org](mailto:experiment@briq-institute.org) after the study.

## **B.10 Treatment *MPL No-Image***

### **B.10.1 Your Decisions**

You will soon have the possibility to choose in 21 decision scenarios between two options: option A and option B. Both options are as follows:

#### **Option A**

Option A: I choose the voucher. By choosing option A, you will receive the voucher for the Uni-shop. Specifically, option A allows you to receive a voucher worth 35€, which you can redeem in the Uni-shop (and only there). If you choose option A, you will not receive an additional payment.

#### **Option B**

Option B: I choose  $X$ € as payment for myself. By choosing option B, you will receive an additional payment at the end of the experiment, but you will not receive the voucher.

#### **Additional Payment**

The additional payment that you receive from choosing option B varies in each of the 21 decision scenarios. In the first scenario, the payment is 0€ and then increases incrementally

in each scenario thereafter by 1€, up to a payment of 20€. Therefore, the decision scenarios look as follows:

### **Automatic Completion Help**

So that you do not need to click as much, we have activated an automatic completion help that automatically fills out the fields for you. As soon as you choose an amount from option B, we assume that you would choose all respectively higher payments from option B. Likewise, when you choose option A in a row, we assume that you would choose option A over all respectively lower payments from option B.

Please note: You can always change your decisions until you clicked on “Confirm Decisions”. Therefore, click on that button only when you are certain how you want to decide.

### **Payment**

After you have selected one of the two options for each of the 21 decision scenarios, one of them will be randomly selected for real implementation. This means that the consequences of this decision will be implemented exactly as stated. Each of the 21 scenarios has the same probability of being selected. Therefore, since each of your decisions is potentially relevant, it is in your interest to decide in every scenario as if that decision is being implemented for real.

Your partner sees exactly the same 21 decision scenarios as you and, like you, makes a decision for every scenario. Furthermore, for you and your partner, the same decision scenario will be randomly selected. Thus, both your decision and the decision of your partner for this scenario will be implemented.

The following examples elaborate on this. Assume that decision scenario 2 is randomly selected, and you chose option A, while your partner chose option B. Then you will receive the voucher and your partner will receive 1€. If, on the contrary, both of you chose option B, then both of you will receive 1€. If both of you chose option A, then you and your partner will each receive the voucher. Assuming that decision scenario 21 is randomly selected, and you chose option B while your partner chose option A, then you will receive 20€, and your partner will receive the voucher. If, however, both of you chose option B, then both of you will receive 20€. If both of you chose option A, then you and your partner will each receive the voucher, etc.

### **Summary**

On the page after next, you will make a decision for 21 scenarios, and in each decision, you can choose between option A and option B. By choosing option A, you receive a voucher, whereas by choosing option B, you receive an additional payment. After you have reached all of your decisions, one of the 21 scenarios will be chosen randomly for you and your assigned partner. Thereafter, the consequences of the chosen decision are realized, i.e., in the case that you chose option A under this scenario, you will be given the voucher and in the case that you chose option B, you will receive the respective amount from the selected scenario. The same applies to your partner. On the next page, you will receive details about



the payment procedure.

### **B.10.2 Further Procedure**

After you confirmed your decision on the decision screen, a screenshot will be taken from this decision screen. From the decision screen of your partner, a screenshot will be taken in the same way. At the end of today's experiment, you will get the screenshot with the decision of your partner displayed, and your partner will get the screenshot with your decision. You will not receive any further information about your partner, and your partner will not receive any further information about you.

#### **Data protection**

The subsequent analysis of all data is carried out anonymously so that your decisions can never be linked to your person. Your anonymity is therefore always guaranteed, and the information about your decisions is only used for anonymized data analysis.

#### **Please note:**

This is not a thought experiment: All information given in these instructions is true. In particular, all actions are performed exactly as they are described. This fundamentally applies to all studies of the Bonn Laboratory for Experimental Economic Research, as well as to this study.

If you still have separate questions, you may send them to [experiment@briq-institute.org](mailto:experiment@briq-institute.org) after the study.