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## The (in)elasticity of moral ignorance

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# WZB

Wissenschaftszentrum Berlin  
für Sozialforschung



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## **The (in)elasticity of moral ignorance**

**Discussion Paper**

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Abstract

### ***The (in)elasticity of moral ignorance\****

We investigate the elasticity of moral ignorance with respect to monetary incentives and social norm information. We propose that individuals suffer from higher moral costs when rejecting a certain donation, and thus pay for moral ignorance. Consistent with our model, we find significant willingness to pay for ignorance, which we calibrate against morally neutral benchmark treatments. We show that the demand curve for moral ignorance exhibits a sharp kink, of about 50 percent, when moving from small negative to small positive monetary incentives. By contrast, while social norms strongly favor information acquisition, they have little impact on curbing moral ignorance.

*Keywords:* Information avoidance, morality, unethical behavior, social norms.

*JEL classification:* D83, D91, C91.

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# 1 Introduction

Ignorance renders it easier for individuals to engage in questionable ethical behavior. For example, consumers ignore production standards involving child labor or environmental damage, and even denigrate consumers who seek information in order to identify more ethical products (Zane et al., 2016). Many art collectors and museum managers ignore the origins of potentially stolen art work.<sup>1</sup> Managers avoid information about potentially unethical behavior taking place at their companies (e.g., Rayner, 2012).<sup>2</sup> Also, in simple moral dilemmas, individuals avoid costless information about the consequences on their choices for others, thereby inducing “moral wiggle room” to act selfishly (e.g., Rabin, 1995; Dana et al., 2007; van der Weele, 2014; Bartling et al., 2014; Grossman, 2014; Grossman and van der Weele, 2017; Freddi, 2017; Golman et al., 2017, for a review).

An important question is whether moral ignorance can be easily reduced with monetary incentives or non-monetary incentives, such as “moral nudges”. In this paper, we study the elasticity of the demand for moral ignorance with respect to monetary incentives and social norm information, in a new experimental paradigm, the “envelope game”. In this game, an individual chooses between an envelope that contains either a donation or nothing, and a certain, private payment. We measure demand for information, by allowing the individual to learn (or avoid learning) the envelope’s content before choosing between the envelope and the selfish option. Opening the envelope or leaving it closed is monetarily incentivized, with different prices across a range of decisions. For the first time, we calibrate average willingness to pay for moral ignorance against information demand in morally neutral comparison treatments (Self-treatments), where the envelope contains a potential payment for the individual instead.

In order to explain the demand for moral ignorance, we propose a parsimonious model in which rejecting the donation comes with a moral cost (DellaVigna et al., 2012; Andreoni et al. 2017). This moral cost may be absent (or much smaller) if the envelope is closed, i.e., if the donation is uncertain (Exley, 2015). Therefore, rather

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<sup>1</sup>For example, “The World Jewish Congress (WJC), a New York-based advocacy group, has criticized museums for waiting for artworks to be claimed by Holocaust victims instead of publicly announcing that they have suspect items” (Source: CNN.com, March 2, 2000).

<sup>2</sup>For example, Martin Winterkorn, former CEO of Volkswagen AG, argued that he would have stopped the emissions scandal if only he had known about it earlier. Yet investigations suggest that Winterkorn could have known already in 2007 (Source: USA Today, Jan. 19, 2017). In general, in large organizations, a manager’s ability to know about other individuals’ ethical behavior may be conveniently limited (Jackall, 1988; Dana, 2006).

selfish individuals prefer to remain ignorant about the envelope’s content.

This paper provides three main findings. First, we measure the price elasticity of demand for moral ignorance, with a range of prices making ignorance highly costly up to highly incentivized. On average, subjects pay in order to leave the envelope closed and thus stay morally ignorant, as predicted in the model. By contrast, when the moral relevance is absent, i.e., in the Self-treatments, most individuals pay for information acquisition instead. Moreover, we find that the demand curve for moral information exhibits a sharp kink when moving from small monetary costs to small monetary incentives to acquire information. Hence, moral ignorance can be reduced by more than 50 percent at a small monetary expense.

Second, we examine the impact of moral nudges in the form of social norm information. Such “moral reminders” are heavily discussed at the policy level as means to foster integrity, e.g., in the public sector (OECD, 2018). Existing research on social norms in economics and psychology has shown that information on norms can often increase prosocial behavior (e.g., Cialdini and Goldstein, 2004; Schultz et al., 2007; Frey and Meier, 2004; Shang and Croson, 2009; Bicchieri and Xiao, 2009). Our paper investigates, for the first time, whether social norm information is a powerful moral “nudge” to curb moral ignorance.

We elicit social, injunctive norms regarding information demand in the morally relevant envelope game (following Krupka and Weber, 2013). Avoiding information about the donation opportunity and acting selfishly is widely considered morally inappropriate, while obtaining information is widely considered morally appropriate. Providing this social norm information increases the likelihood of generous behavior, conditional on obtaining information. Yet, the impact on information demand is limited. This raises important questions about the welfare effects of social norm information (e.g., DellaVigna et al., 2012; Allcott and Kessler, 2019). Next to affecting the acquisition of information and donation decisions, social norm information may increase the moral costs of declining a certain donation in selfish subjects and thereby increase the incentives of these subjects to avoid information. If so, our findings suggest that interventions based on social norms may come with little overall impact and the potential downside that moral costs increase.

Third, we document that moral ignorance in the envelope game is predictive of ignorance in another, morally relevant decision. Thus far, little has been known about the external validity of experiments measuring information avoidance in moral dilemmas. Though consumers often buy products from industrial livestock production,

few agree with the living conditions of the animals involved (te Velde et al., 2002; ASPCA 2016; BMEL 2016) and often avoid information about it (Onwezen and van der Weele, 2016).<sup>3</sup> Therefore, approximately a week after our experiments, we invited the same individuals to participate in an unrelated study. In this experiment, we rewarded individuals for correctly answering questions regarding conventional dairy farming and offered the opportunity to watch an informative video beforehand. The results indicate that the external validity of the envelope game is high. To the best of our knowledge, our experiment is the first to provide suggestive evidence that preferring ignorance in morally relevant decisions may be an individual trait, that carries across moral contexts.

A rich literature documents that individuals often seek excuses to avoid charitable giving and other prosocial behaviors. They avoid the charitable ask (e.g., DellaVigna et al, 2012; Andreoni et al., 2017; Exley and Petrie, 2018), and use risk (Exley, 2015) or employ information about poor charity performance (Exley, 2017) as excuses not to donate. Moreover, anecdotal evidence suggests that individuals ignore information about charity performance and put forward scandals surrounding the high administrative costs and executive salaries of some charities as excuses not to give at all.<sup>4</sup> Hence, we chose to study information demand about a charitable opportunity.

Information avoidance has been widely studied within the moral wiggle room paradigm, in which an individual is unsure whether choosing the option yielding a higher monetary payment for herself hurts or helps another individual. Dana et al. (2007) were the first to show that individuals avoid costless information about the consequences of their choices and are more likely to act selfishly when doing so (see also, Larson and Capra, 2009; Matthey and Regner, 2011; Feiler, 2014). In the moral wiggle room paradigm, information avoidance is not considered morally inappropriate (Krupka and Weber, 2013). Our data demonstrate that even in a setting in which norms strongly favor information acquisition, the provision of social norm information has little impact on curbing moral ignorance. Moreover, previous studies have considered the impact of a small (Grossman and van der Weele, 2017) or a larger cost (Cain and Dana, 2012) on the demand for ignorance. Yet, to the

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<sup>3</sup>We follow Bandura (2016) in that avoiding unnecessary harm to humans, animals, and/or nature is of moral relevance.

<sup>4</sup>“Charities have brought skepticism on themselves in some cases by spending large percentages of donated funds on administrative costs and executive salaries. But this complaint is so commonly expressed now that it’s starting to sound like a dodge for not giving rather than a principled response to bad management at charities.” (Source: The Globe and Mail.com, December 5, 2017)



best of our knowledge, we are the first to elicit a systematic demand curve for moral ignorance.

Recent surveys by Golman et al., (2017) and Hertwig and Engel (2016) demonstrate that ignorance does not only occur in morally relevant situations, but in a variety of contexts, such as health (Oster et al., 2013; Ganguly and Tasoff, 2016), portfolio investment decisions (Karlsson et al., 2009; Sicherman et al., 2016), or work situations (Huck et al., 2018). Our findings contribute to this large and growing literature. We demonstrate that the moral relevance of the decision context is an important determinant of ignorance.

The remainder of the paper is organized as follows. We next describe the setting in which information demand is studied and provide a parsimonious theoretical framework. Section 3 describes the design of the two main experiments and the additional experiment to measure external validity. Section 4 provides the results of the experiments and Section 5 discusses their external validity. Section 6 concludes.

## **2 Avoiding Morally Relevant Information**

### **2.1 The Envelope Game**

We study information avoidance in the following game. An individual is assigned an envelope that contains a \$10 donation to the Malaria Consortium, a non-profit organization fighting Malaria in sub-Saharan Africa, with  $p = 0.5$ . Otherwise (thus also with  $p = 0.5$ ), the envelope is empty. The individual makes two decisions. First, she chooses whether to open the envelope or not. If she does not open the envelope, she chooses between receiving \$2.5 for herself and the uncertain envelope. If she opens the envelope, she first learns whether the envelope contains the \$10 donation or no donation. Then, she chooses between the envelope and receiving \$2.5 for herself.

### **2.2 Theoretical Background**

In the following, we solve the envelope game. We start with the case in which opening or leaving the envelope closed is costless, then turn to the case with payments for opening the envelope or payments for keeping it closed. We also provide predictions on how norm provision may influence the decision to open the envelope. We refer to choosing to take the private payment instead of the envelope as choosing the “selfish

option,” and choosing the envelope as “donating.”

We assume utility takes the form of  $u(x) = x^r$  with risk parameter  $r > 0$ . As we will see, the predictions will be independent of the risk parameter. Yet, they hinge on how much the agent values the donation of 10, i.e., on her monetary equivalent, which we denote by  $\alpha \cdot 10$ , with  $\alpha > 0$ . Information demand also depends on whether there is a moral cost associated with rejecting the certain donation of 10 or not. The standard economic approach would be to assume that this cost is zero. Then, leaving the envelope closed never dominates. However, existing theoretical and experimental work has shown that rejecting a certain donation can induce guilt or disutility from violating the social norm to donate (e.g., DellaVigna et al., 2012, Andreoni et al., 2017). We model this moral cost as a discount factor  $\beta$  of the 2.5 payment individuals can take for themselves. An individual who rejects the certain donation gets  $\beta \cdot 2.5$  with  $\beta < 1$ . In this model,  $\beta$  represents the additional cost of rejecting a donation when it is certain, relative to when it is uncertain. As we show, this cost can make it dominant for individuals to keep uncertainty about the donation.

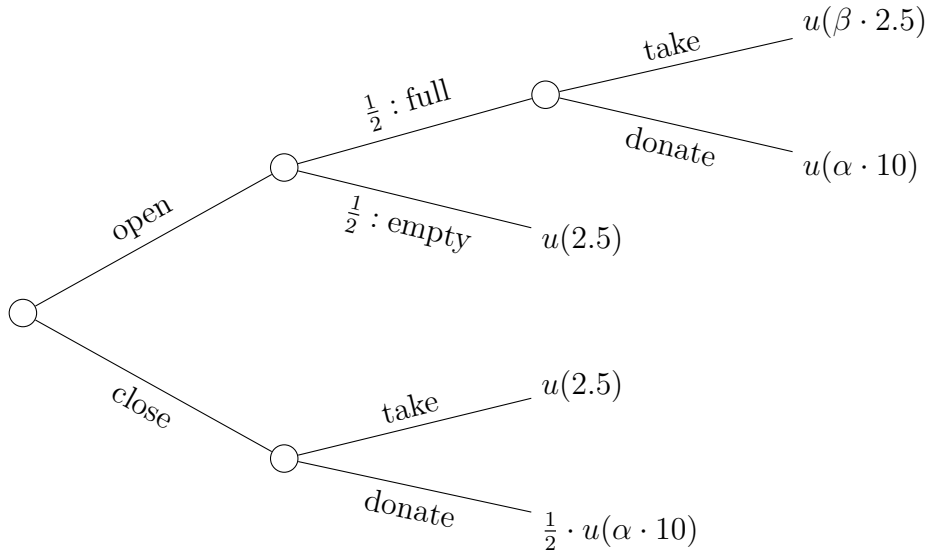


Figure 1: Game tree of the envelope game, when information is costless

We solve the game by backwards induction, using the game tree depicted in Figure 1. We begin with the decision to take or donate after an initial decision to open. In this case, it is strictly optimal to take the selfish amount if  $u(\beta \cdot 2.5) > u(\alpha \cdot 10)$ . This is equivalent to  $\alpha < \beta \cdot \frac{1}{4}$ , due to the monotonicity of  $u$ . At the other endnode, after an initial decision not to open, it is optimal to take the selfish monetary amount if

$u(2.5) > \frac{1}{2} \cdot u(\alpha \cdot 10)$ . By our assumption that  $u(x) = x^r$ ,  $r > 0$ , this is equivalent to  $\alpha < 2^{\frac{1}{r}} \cdot \frac{1}{4}$ . We can thus turn to the initial decision to open the envelope and its dependence on  $\alpha$ . The utility from opening is<sup>5</sup>

$$\frac{1}{2}u(2.5) + \frac{1}{2}u(\beta \cdot 2.5) \quad \text{if } \alpha < \beta \cdot \frac{1}{4}$$

and

$$\frac{1}{2}u(2.5) + \frac{1}{2}u(\alpha \cdot 10) \quad \text{if } \alpha \geq \beta \cdot \frac{1}{4}.$$

The utility from not opening is

$$u(2.5) \quad \text{if } \alpha < 2^{\frac{1}{r}} \cdot \frac{1}{4}$$

and

$$\frac{1}{2}u(\alpha \cdot 10) \quad \text{if } \alpha \geq 2^{\frac{1}{r}} \cdot \frac{1}{4}.$$

As  $\beta < 1 < 2^{\frac{1}{r}}$ , we thus distinguish three cases depending on the location of  $\alpha$ . If  $\alpha$  lies below both thresholds,  $\alpha < \frac{\beta}{4}$ , donating is suboptimal regardless of the decision in the first stage. In this case, the comparison

$$\frac{1}{2} \cdot u(2.5) + \frac{1}{2}u(\beta \cdot 2.5) < u(2.5) \tag{1}$$

implies leaving the envelope closed is optimal.<sup>6</sup> In the intermediate case when  $\beta \cdot \frac{1}{4} \leq \alpha < 2^{\frac{1}{r}} \cdot \frac{1}{4}$ , we have to compare the utility of  $\frac{1}{2} \cdot u(2.5) + \frac{1}{2} \cdot u(\alpha \cdot 10)$  from opening and  $u(2.5)$  from leaving the envelope closed. Opening is thus optimal for  $\alpha \geq \frac{1}{4}$ . In the third case  $\alpha \geq 2^{\frac{1}{r}} \cdot \frac{1}{4}$ , the relevant comparison is between  $\frac{1}{2} \cdot u(2.5) + \frac{1}{2} \cdot u(\alpha \cdot 10)$  and  $\frac{1}{2} \cdot u(\alpha \cdot 10)$ . In this case, opening the envelope is optimal.

In sum, opening the envelope is optimal for  $\alpha \geq \frac{1}{4}$ , while keeping it closed is optimal for  $\alpha < \frac{1}{4}$ . Hence, we obtain that an agent with a monetary equivalent for the donation that is not too high prefers to leave the envelope closed.

Let us now consider the case where there are monetary incentives  $m_o$  in case the agent opens and  $m_c$  in case the agent keeps the envelope closed, as shown in the

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<sup>5</sup>Here and in the following, we assume that an agent who is indifferent between taking the money and donating will donate. Similarly, the agent favors options with a higher donation probability in case of indifference.

<sup>6</sup>In the boundary case  $\beta = 1$ , the agent is instead indifferent between opening and not opening.

game tree in Figure 2. For simplicity, we focus on the case  $r = 1$ .<sup>7</sup> The behavior at the endnodes is not affected by the additional costs of opening or leaving the envelope closed. After opening and finding a full envelope, the agent donates if  $\alpha \geq \frac{\beta}{4}$ . If the envelope is kept closed, the agent donates if  $\alpha \leq \frac{1}{2}$ .

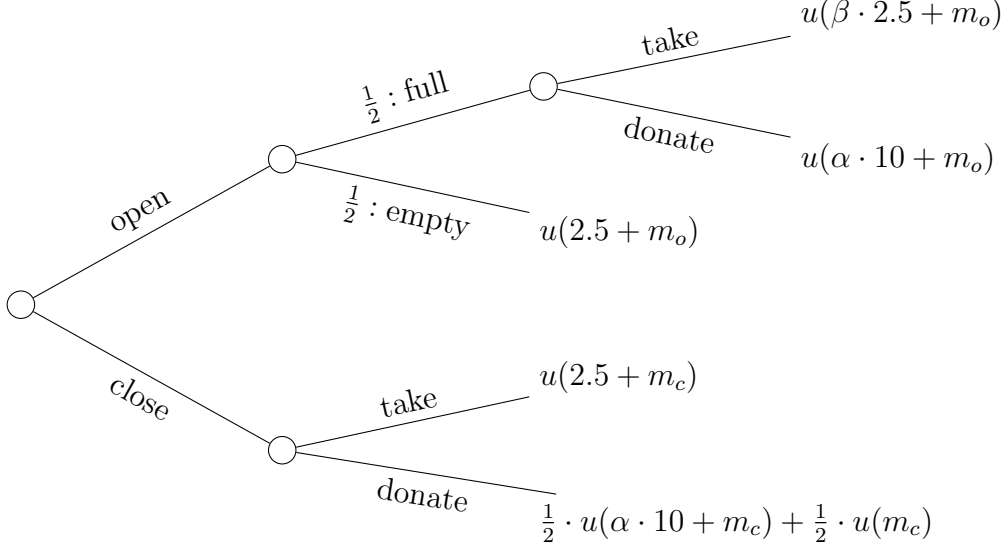


Figure 2: Game tree of the envelope game, when information acquisition or avoidance is monetarily incentivized

For the initial opening decision, we again distinguish three cases, depending on whether  $\alpha < \frac{\beta}{4}$ ,  $\alpha \in [\frac{\beta}{4}, \frac{1}{2})$ , or  $\alpha \geq \frac{1}{2}$ . First, for  $\alpha < \frac{\beta}{4}$ , the relevant comparison is now between a utility of  $\frac{1+\beta}{2}2.5 + m_o$  from opening and  $2.5 + m_c$  from keeping it closed. Opening is strictly dominant if the difference between  $m_o$  and  $m_c$  is positive and sufficiently large,

$$m_o - m_c > 5 \left( \frac{1}{4} - \frac{\beta}{4} \right).$$

Second, for  $\alpha \in [\frac{\beta}{4}, \frac{1}{2})$ , the comparison is between a utility of  $\frac{2.5+\alpha \cdot 10}{2} + m_o$  from opening and  $2.5 + m_c$  from keeping the envelope closed. Opening strictly dominates if

$$m_o - m_c > 5 \left( \frac{1}{4} - \alpha \right). \quad (2)$$

Otherwise, it is best to leave the envelope closed. Observe the right hand side of (2) switches signs at  $\alpha = \frac{1}{4}$ . Thus, if  $\alpha < \frac{1}{4}$ , a positive value of  $m_o - m_c$  is needed to motivate the agent to open the envelope. In contrast, for  $\alpha > \frac{1}{4}$ , the agent will still open the envelope when  $m_c$  is slightly larger than  $m_o$ .

<sup>7</sup>In Appendix A, we also address cases of risk aversion and of risk lovingness.

In the third case  $\alpha \geq \frac{1}{2}$ , i.e., for subjects with a very high valuation for the donation, we have to compare  $\frac{2.5+\alpha \cdot 10}{2} + m_o$  from opening and  $\frac{\alpha \cdot 10}{2} + m_c$  from keeping the envelope closed. Opening strictly dominates if

$$m_o - m_c > -\frac{5}{4},$$

i.e., unless  $m_c$  is quite high, it is best to open the envelope.

To summarize the three cases, if  $m_o - m_c \leq -\frac{5}{4}$ , it is optimal to keep the envelope closed regardless of  $\alpha$ . If  $m_o - m_c > 5 \left( \frac{1}{4} - \frac{\beta}{4} \right)$ , it is optimal to open the envelope regardless of  $\alpha$ . In the intermediate case

$$-\frac{5}{4} < m_o - m_c \leq 5 \left( \frac{1}{4} - \frac{\beta}{4} \right),$$

there exists a threshold value of  $\alpha_t \in \left( \frac{\beta}{4}, \frac{1}{2} \right)$  such that opening is optimal for  $\alpha \geq \alpha_t$  while keeping the envelope closed is optimal for  $\alpha < \alpha_t$ . The value of  $\alpha_t$  is given explicitly through

$$\alpha_t = \frac{1}{4} - \frac{m_o}{5} + \frac{m_c}{5}.$$

In the experiments,  $m_o - m_c$  ranges from -\$2 to \$2. Figure 3 depicts optimal information demand and donation behavior depending on monetary incentives and levels of altruism,  $\alpha$ , for three cases of moral costs. As we see, in most cases, it is the level of altruism  $\alpha$  that determines whether individuals open the envelope or leave it closed (see the transition from the green to the yellow area). If moral discounting via  $\beta$  is small, selfish individuals may open the envelope and bear the moral costs when taking the selfish option if monetary incentives for opening are pronounced (blue area). If monetary incentives to leave the envelope closed are sizable, altruists may leave the envelope closed and donate the closed envelope (red area). Hence, a central prediction is that moral ignorance will depend on how willing the individual is to donate: individuals who are less willing to donate will exhibit a stronger willingness to pay for ignorance.

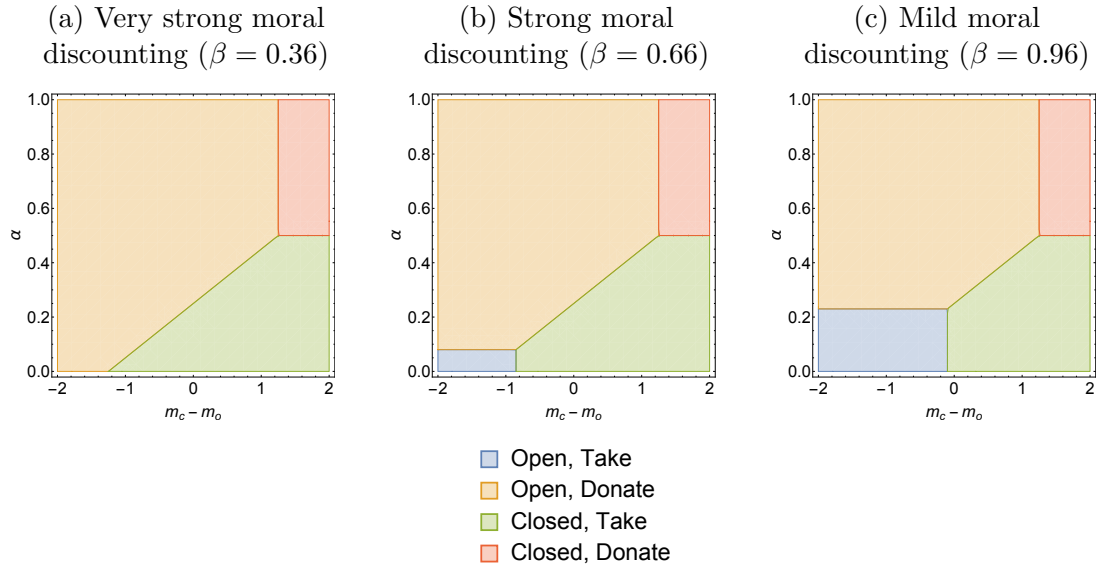


Figure 3: Optimal decisions for a risk neutral individual with (a) very strong moral discounting ( $\beta = 0.36$ ), (b) strong moral discounting ( $\beta = 0.66$ ), and (c) mild moral discounting ( $\beta = 0.96$ ), respectively.

In addition to the impact of monetary incentives, we study empirically the causal effects of providing information about social norms. We investigate two types of norms in the envelope game. We either inform agents that getting information is considered morally appropriate by a vast majority of agents, or we inform them that leaving the envelope closed and getting the selfish monetary amount is considered morally inappropriate. In terms of our model, this could lead to an increase in the monetary equivalent of the donation, i.e., to an increase in  $\alpha$ . Such an increase could lead to more demand for information in the envelope game (unless  $\alpha$  becomes very large), and thereby curb moral ignorance. However, there may be a partially opposing effect. The moral costs of rejecting a certain donation could increase from norm provision, i.e., the moral discounting via  $\beta$  could become more intense. A decrease in  $\beta$  would reduce the demand for information when incentives to obtain information are positive. In contrast, it would have no impact when individuals pay to open the envelope ( $m_o = 0$  and  $m_c > 0$ ). Therefore, overall, we expected that norm provision would have a positive impact on information seeking.

### 3 Experimental Design

In the following, we present the designs of two experiments examining the impact of monetary incentives (Experiment 1) and social norm information (Experiment 2)

on information avoidance. In total, we analyze the decisions of 1304 participants on Amazon Mechanical Turk (MTurk). The design of the two experiments is summarized in Table 1. The experiments were pre-registered. Throughout, we refer to analyses that were not pre-registered as explorations of the data.<sup>8</sup>

Table 1: Experimental Design

Experiment	Treatments	Description
1	Donation	Donation uncertainty: \$10 donation with $p = 0.5$ , \$0 otherwise
	Self-5	Payment uncertainty: \$5 payment with $p = 0.5$ , \$0 otherwise
	Self-10	Payment uncertainty: \$10 payment with $p = 0.5$ , \$0 otherwise
2	Norms	Elicitation of social norms regarding information demand
	NoNorm	Donation treatment without norm information
	Norm-Avoid	Donation treatment, information avoidance is morally inappropriate
	Norm-Seek	Donation treatment, seeking information is morally appropriate

### 3.1 Experiment 1

In this experiment we study the effect of incentives on preferences for information in the envelope game. In the main treatment, which we refer to as the Donation treatment, the envelope contained a \$10 donation with a 50% chance. Individuals had to choose between one of three options: take a \$2.5 payment, take the envelope or open the envelope first. Hence, there was no default choice (for an analysis of default effects, see, Grossman, 2014). We varied the payment for opening the envelope from -\$2 to \$2. Specifically, each individual made nine independent decisions, with the following range of payments for opening the envelope: \$2, \$1, \$0.50, \$0.10, \$0, -\$0.10, -\$0.50, -\$1 and -\$2.<sup>9</sup>

The main hypothesis in this experiment was that on average, individuals would strongly prefer and thus pay for ignorance. As we discussed theoretically above, ignorance is attractive if subjects prefer taking \$2.50 over making a \$10 donation. We expected this to be the case for most subjects. However, if subjects value the \$10 donation over taking \$2.50, they should prefer to open the envelope.

<sup>8</sup>Pre-registration was done on aspredicted.org.

<sup>9</sup>Individuals knew that whether the envelope contained the donation or not independently varied across all nine decisions. To simplify elicitation, decisions were made one at a time, on separate screens, and the order of the questions always followed the same descending pattern of payments for opening the envelope. The instructions are presented in Appendix B.

To benchmark average willingness to pay to avoid/seek morally relevant information against such willingness to pay in a morally neutral context, we ran two control treatments (Self treatments). In these, the uncertain donation was replaced by an uncertain payment for subjects themselves. We expected that in the Self treatments, subjects would pay in order to seek information. The goal was to match average willingness to pay for ignorance in the Donation treatment with an equivalent willingness to pay for information in the Self treatments.<sup>10</sup> The question we answer is, what dollar amount placed in the envelope in the Self treatments would result in a willingness to pay for information of the same magnitude as the average willingness to pay for ignorance in the Donation treatment?

We first ran the Self-5 treatment in parallel with the Donation treatment. We learnt that the willingness to pay for information in Self-5 was lower than the willingness to pay for moral ignorance in the Donation treatment. We decided to run a Self-10 treatment, such that the willingness to pay for information in this treatment would lie above the willingness to pay for moral ignorance. As in the Donation treatment, individuals chose between the envelope and a \$2.50 payment. They could open the envelope beforehand, with the same range of prices for opening as in the Donation treatment. In these treatments, there is no moral reason for subjects to pay money in order to leave the envelope closed.<sup>11</sup>

## 3.2 Experiment 2

In Experiment 2, run two months after Experiment 1, we study norms regarding information avoidance. A large number of studies have shown social norms affect individuals' behavior in an array of contexts (e.g., Cialdini and Goldstein, 2004; Schultz et al., 2007; d'Adda et al., 2018). In the context of donation behavior, descriptive norm information, which informs about others' behavior, increases charitable giving (McAuliffe et al. 2017, Shang and Croson 2009; Martin and Randal, 2008). Injunctive norm information, which describes how individuals should behave, can also increase prosocial behavior (e.g., Bicchieri and Xiao, 2009; Hallsworth et al., 2017).

Little is known about the perceived morality of information avoidance, and whether

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<sup>10</sup>We thank Charlie Sprenger for suggesting this setup of the calibration exercise.

<sup>11</sup>Standard theory would predict that subjects open the envelope unless opening becomes sufficiently costly. Yet, some individuals may nevertheless prefer to leave the envelope closed if they have a preference to maintain uncertainty, as has been found in financial decision-making (e.g. Karlsson et al., 2009). Of course, some individuals may also make mistakes.



providing information about its moral inappropriateness can reduce it. Philosophers have proposed the “Ignorance Thesis,” which states that if an individual chooses to remain ignorant in a moral decision, she is culpable for acts that derive from it (Zimmerman, 1997; Rosen, 2003; Guerrero, 2007). If individuals broadly agree with this view, we should find injunctive norms in favor of information demand. Krupka and Weber (2013) elicit norms in the standard moral wiggle room game in Dana et al. (2007), and find that ignorance is considered morally appropriate. In their setting, remaining ignorant and choosing the option with a higher payoff for the individual could still be rather generous. By contrast, in our setting remaining ignorant and choosing the selfish payment is not generous. We expected hence that in our context, a majority of subjects would consider remaining ignorant and taking the selfish option morally inappropriate.

We first ran the Norms treatment to elicit the perceived morality of information avoidance and donation decisions. Using the method proposed by Krupka and Weber (2013), we elicited the moral appropriateness of decisions in the Donation treatment in Experiment 1. Specifically, we elicited the moral appropriateness of seeking information, not seeking information and taking the \$2.50 payment, and not seeking information and choosing the envelope. We also elicited the moral appropriateness of donation decisions knowing that the envelope contained a donation. Subjects rated the options on a four-point Likert scale. The four categories were “very morally appropriate,” “somewhat morally appropriate,” “somewhat morally inappropriate,” and “very morally inappropriate.” Subjects’ ratings were elicited for each of the nine information decisions, i.e., for each cost of information (avoidance). As in Krupka and Weber (2013), subjects were incentivized to correctly estimate the rating that most subjects would provide. They earned \$5 if their rating in a randomly drawn decision coincided with the most frequently chosen answer of the other participants in that treatment, and zero otherwise.

After eliciting injunctive norms, we split responses into two categories, morally appropriate (if subjects indicate an action is somewhat or very appropriate) and inappropriate (if subjects indicate an action is somewhat or very inappropriate). On average more than 70% of individuals considered it inappropriate to take the \$2.50 payment without demanding information first and more than 70% considered it appropriate to demand information. As we will show, these beliefs did not vary strongly by the price of information. Hence, this allowed us to provide simple information based on our norms elicitation to a new set of subjects.

We randomly allocated a new set of participants to one of three treatments. The first treatment was a NoNorm treatment, which was the same as the Donation treatment in Experiment 1. The second was a Norm-Avoid treatment, in which individuals were informed that over 70% of individuals considered it morally inappropriate to take the \$2.50 payment, without seeking information first. The third treatment was a Norm-Seek treatment, in which individuals were told that over 70% of individuals considered seeking information to be morally appropriate.<sup>12</sup> We hence tested two simple messages regarding social norms, one positively and one negatively framed, that could decrease moral ignorance. Each message was shown once, just before individuals started making their information decisions.

Our main hypotheses were that providing information about the moral inappropriateness of avoiding information and choosing not to donate (Norm-Avoid), or the moral appropriateness of information seeking (Norm-Seek) would decrease moral ignorance compared to the NoNorm treatment, respectively. We also hypothesized that subject’s valuations for the donation would increase from norm provision. In fact, this is the mechanism in our model for why subjects should display more interest in getting information in the treatments with social norm information.<sup>13</sup>

### 3.3 Follow-Up: External Validity of Information Preferences

An important question when measuring information avoidance in an experimental task is whether such behavior is externally valid in a different incentivized setting. There is no evidence to our knowledge about the predictive validity of experimental measures of information avoidance in a different setting. To test the predictive power of the elicited informational preferences, we later measured information avoidance in a different, morally relevant task.

We invited participants of our studies to an unrelated work task between 7 and 10 days after they had participated in the experiments described above. The task consisted of answering questions about the living conditions of cows and their calves in conventional dairy production. We chose this topic because the willingness to improve living conditions of farm animals correlates with a higher moral and pro-

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<sup>12</sup>The exact message shown to participants was “over 70% of MTurkers who evaluated the actions in this part of the study consider it morally inappropriate (appropriate) to choose the option “Get \$2.5” without revealing what the envelope contains first (“Reveal what the envelope contains” first).”

<sup>13</sup>As pointed out in the theoretical framework section, there may be a (partially) opposing effect if norm provision also increases the moral costs of rejecting a certain donation. Yet, as the analysis shows, this could only foster a desire for ignorance if obtaining information is costly.

social inclination (Albrecht et al., 2017). Even though many consumers buy products from intense animal farming, many state that they do not agree with the living conditions of animals involved (te Velde et al., 2002). Therefore, if individuals want to continue their consumption of conventional dairy products, they may have an incentive to avoid information about cows' living conditions.

Participants earned a \$0.15 bonus if they correctly answered two questions about the treatment of cows and their calves in conventional farming. Before proceeding to the questions, they were offered the option to watch a 1-minute informational video. We study how frequently individuals choose to watch the video as a measure of information avoidance in another morally relevant and incentivized setting. The main question is whether individuals who choose to avoid information in the envelope game also choose to avoid watching the video.

## 3.4 Experimental Procedures

### 3.4.1 Other Determinants of Information Avoidance

In all experiments, subjects first played the envelope game. Thereafter, we elicited several control measures of individuals' preferences.

As we saw in the Theoretical Background section, a subject's valuation of the donation ( $\alpha$ ) is particularly relevant for her decision on whether to avoid information. To measure this valuation, subjects participated in two tasks that elicited their preferences for the opened as well as for the closed envelope. First, we elicited the monetary equivalent of a certain \$10 donation, by asking the individual to make eight binary choices between the donation and payments to her that increased from \$0.10 to \$10. Second, we elicited the monetary equivalent of a \$10 donation that occurred with a 50% chance. In this task, individuals made again eight binary choices, each between the potential donation and a payment that increased from \$0.01 to \$5.<sup>14</sup> For each individual, we calculated her monetary equivalent of a certain (uncertain) donation as the maximum value of the payment to her that she was willing to give up instead of the donation.

At the end, in a questionnaire, we elicited preferences for information (avoidance) according to the Monitors-Blunters Scale (Miller, 1987), moral preferences according to the Machiavellianism scale (Christie and Geis, 1970), as well as gender, age,

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<sup>14</sup>Subjects knew that the computer either drew one of these two tasks or the main part of the experiment for payment, and that exactly one of the decisions taken in these would accordingly become implemented.

education and frequency of work in Mturk. Existing research in psychology has developed scales to measure preferences for information avoidance and attachment to social norms. The Monitors-Blunters Scale (Miller, 1987) is a well-established scale that measures information-seeking behaviors under threat. Individuals who prefer information before a stressful event are considered monitors, while those who avoid information are considered blunters. A higher score on the scale implies more monitoring. We test whether subjects who express more desire for information in the Monitors-Blunters Scale are less likely to avoid information in the Donation treatment.

The Machiavellianism Score measures whether an individual considers herself attached or detached from moral and social norms (Christie and Geis, 1970). A subject classified as more machiavellian according to the Machiavellianism Scale may feel lower moral costs from rejecting a donation. Therefore, we test whether individuals classified as more machiavellian have a lower willingness to avoid information in the Donation treatment compared to other subjects.

In the Self treatments, we also elicited a control measure of subjects' risk preferences. After subjects had completed the envelope game, we elicited their risk preferences and used the same questionnaire described above. Since in this treatment there was no mention of a donation opportunity, we did not measure subjects' valuation of the \$10 donation to fight malaria. We provide detailed information on these measures and descriptive statistics in Appendix C.

### 3.4.2 Sample

There were 593 subjects in Experiment 1, dropping inconsistent subjects as pre-registered. Of these, 294 participated in the main Donation treatment, 147 in Self-5 and 152 in Self-10. In Experiment 2, we first conducted the Norms treatment, with 102 participants. We thereafter conducted the treatments NoNorm, Norm-Avoid and Norm-Seek at the same time and randomly assigned subjects to one of these three treatments. There are 200, 201 and 208 subjects in each treatment, respectively. These sample sizes were chosen to be able to detect a \$0.15 change in willingness to pay for information in the presence of social norm information (with an 80% power). Throughout, we exclude individuals who answered inconsistently as pre-registered.

Since Experiment 2 was conducted two months after Experiment 1, we again elicited the behavior of individuals in the Donation treatment, labeled NoNorm

treatment here, to control for any differences in the sample.<sup>15</sup> We find that, in contrast to Experiment 1, the share of female participants in Experiment 2 was significantly higher, 53.0%, compared to 45.2% in Experiment 1 ( $t$ -test,  $p$ -value  $< 0.01$ ).<sup>16</sup> In line with previous literature on gender effects in altruistic behavior (e.g., Andreoni and Vesterlund, 2001), we observe a higher monetary equivalent of the certain \$10 donation in this experiment, \$2.9, compared to \$1.9 in Experiment 1 ( $t$ -test,  $p$ -value  $< 0.01$ ). We also observe a weaker preference to avoid information in the NoNorm treatment than in the Donation treatment in Experiment 1 ( $t$ -test,  $p$ -value  $< 0.01$ ), consistent with our prediction (and finding) that a higher willingness to donate is associated with a lower willingness to pay for information avoidance. The analysis of Experiment 2 hence focuses on the treatment effect of providing information about social norms within this experiment.

On average, 86.3% of participants in the experiments completed the follow-up task in which we measured information avoidance about cows' living conditions to externally validate the morally relevant envelope game.<sup>17</sup> Since the relationship between information avoidance in the envelope game and the follow-up task is qualitatively similar in the Donation treatment in Experiment 1 and in Experiment 2, we focus our analysis on Experiment 2, where we can also examine whether social norms information had a long-run effect on information avoidance.

## 4 Results

### 4.1 Experiment 1: Moral Ignorance and Incentives

Figure 4 displays the share of individuals who demand information, that is, open the envelope, for each price of information, by treatment. The bottom black line depicts information demand in the Donation treatment. We observe that 31% of individuals demand information when the cost of information is zero. This implies

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<sup>15</sup>We conducted a first smaller version of Experiment 2 that suggested that results would be incomparable to the former Donation treatment run two months earlier. We hence conducted a larger study thereafter, and focus on this data. Including the smaller study does not change the conclusions.

<sup>16</sup>Age, educational attainment and MTurk experience of participants did not differ ( $t$ -tests,  $p$ -value  $> 0.05$ ).

<sup>17</sup>The return rate is 83.7% in the Donation treatment in Experiment 1, 91% in the Donation (-NoNorm) in Experiment 2, and 87.6% and 84% in the Norm-Avoid and Norm-Seek treatments, respectively. Within Experiment 2, the difference in return rates between the Norm-Seek and NoNorm treatments is significant ( $p$ -value = 0.036).

that the majority, i.e., 69% of individuals, avoid information when it is costless. Among these information avoiders, 65% are willing to pay at least 10 cents, and 57% are willing to pay more than 50 cents for moral ignorance. Further, 44% of them are willing to pay at least \$1, and 22% are willing to pay \$2 for ignorance. This illustrates that, on one hand, introducing a small monetary cost reduces moral ignorance significantly, by 35 percent. On the other hand, for a substantial proportion of subjects, preferences for moral ignorance are strong. On average, across all subjects in the Donation treatment, individuals pay 40 cent in order to stay morally ignorant. This is significantly different from \$0 ( $t$ -test,  $p < 0.01$ ), and suggests moral costs of rejecting the certain donation exist.

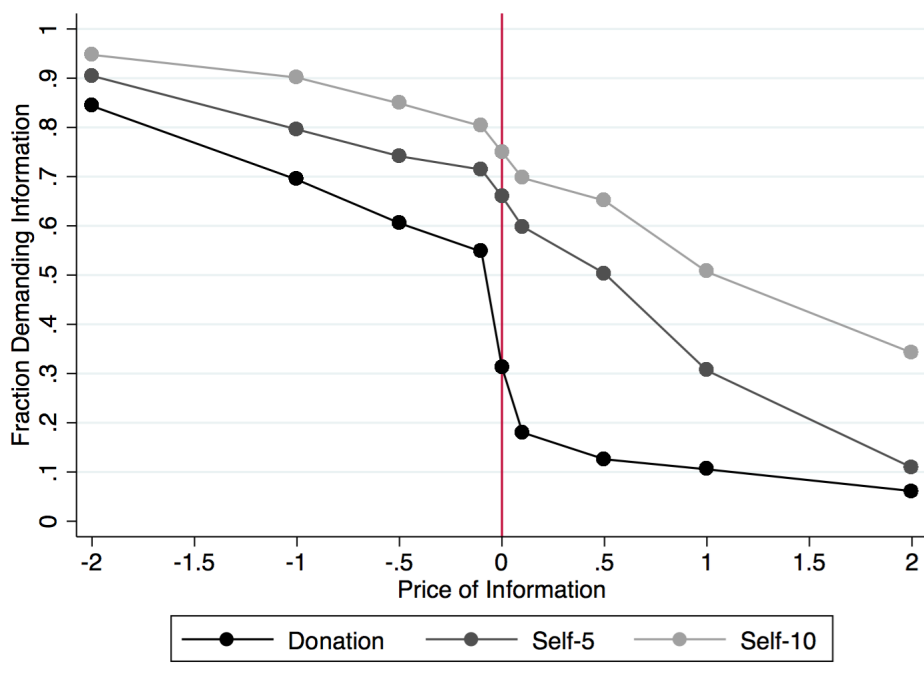


Figure 4: Information Avoidance, by treatment

In the Self treatments, in contrast, we observe that individuals are on average willing to pay for information acquisition. The average willingness to pay for information in the Self-10 treatment is \$0.83, and \$0.29 in the Self-5 treatment. In both cases, this is significantly different from zero ( $t$ -test,  $p < 0.01$ ). The willingness to obtain information in the Self-10 is higher than in the Self-5 treatment ( $p < 0.01$ ), in line with standard comparative statics of information preferences.

The Self-5 and Self-10 provide a benchmark for information demand in a morally neutral companion context, relative to the morally relevant context in the Donation

treatment. Assuming linearity, we find willingness to pay to avoid information in the Donation treatment is equivalent to willingness to pay to obtain information when the envelope contains ca. \$6 for the individual with 50% chance, i.e., a Self-6 treatment. A figure illustrating this equivalence is provided in Appendix D.

Given that there is some ignorance in our Self treatments, our results indicate that roughly half of ignorance at a cost of \$0 is specific to the moral relevance of the situation (68.7% in Donation, compared to 34% and 25% in the Self-5 and Self-10 treatments).

#### 4.1.1 Structural Estimation of Preferences for Ignorance

One may wonder whether some subjects made mistakes. For example, some subjects pay to avoid information in the Self treatments. Therefore, we conduct exploratory analyses that allow for noise in subjects' behavior.

Using a nested logit model (see, e.g., Cameron and Trivedi, 2005, Ch. 15) for the Donation treatment, we estimate average altruism ( $\alpha$ ) and moral costs ( $\beta$ ), as well as the CRRA parameter ( $r$ ), as detailed in Appendix E. The results are shown in column (1) of Table 2. We find that the estimated  $\alpha$  is 0.21 (sd=0.01) and the estimated  $\beta$  is 0.90 (sd=0.02), which is significantly smaller than 1 ( $p < 0.01$ ), consistent with significant moral costs. The estimated CRRA parameter is 1.02 (sd=0.02).

We also estimate the CRRA parameter in the Self treatments. Since there is practically no variation in decisions once the envelope is open (less than 2% of individuals choose a dominated option), we estimate a simple multinomial logit model. The results of this estimation are shown in columns (2) and (3) of Table 2. The estimated CRRA coefficient is 0.78 (sd=0.03) for the Self-10 treatment, and 0.97 (sd=0.03) for the Self-5 treatment. Hence, the CRRA estimate in Self-5 is not significantly different from that in the Donation treatment ( $t$ -test,  $p=0.2221$ ), and in line with the benchmarking exercise above.<sup>18</sup>

#### 4.1.2 Behavior Conditional on Information Choices

In the Donation treatment, individuals who choose ignorance pick the selfish payment in a large majority of cases (88.4%, on average). Individuals who choose to

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<sup>18</sup>Also, the CRRA estimates obtained based on decisions in the envelope game in the Self-5 and Self-10 treatments are very similar to those obtained when estimating CRRA coefficients from the control measures after the envelope game, which are 0.77 (sd=0.02) in the Self-10 treatment and 1.02 (sd=0.02) in the Self-5 treatment.

Table 2: Estimation of Preferences for Ignorance

	(1) Donation	(2) Self-5	(3) Self-10
Altruism parameter $\hat{\alpha}$	0.2101 (0.0112)		
Moral cost parameter $\hat{\beta}$	0.8982 (0.0256)		
Risk aversion parameter (CRRA) $\hat{r}$	1.0289 (0.0258)	0.9716 (0.0335)	0.7771 (0.0291)
Loglikelihood	-3297.09	-1109.09	-1153.51
Observations	2,646	1,323	1,368
Nr of subjects	294	147	152

*Notes:* This table presents structural estimation results for information demand in Experiment 1. The estimation in column (1) is based on a nested logit model, which includes an additional parameter  $\rho$ , which is a function of the correlation between the error terms of decisions in the first stage (whether to open or not the envelope) and that of decisions in the second stage (donation, conditional on opening). The estimated  $\rho$  (and standard deviation) is 0.52 (0.07). Given the lack of variation in decisions after opening the envelope in the Self-treatments, the estimates presented are based on a multinomial logit model. Robust standard errors, clustered at the individual level, are shown in parentheses.

obtain information have a larger interest in giving. The share of individuals who donate when they learn there is a \$10 donation in the envelope increases from 49% to 100%, as the price of information increases. This is consistent with selection. In line with the theoretical framework, subjects with a higher valuation for the donation are more willing to pay for information acquisition, and then opt for the donation if the envelope contains it.<sup>19</sup>

In the Self treatments, individuals who do not demand information choose the \$2.5 payment in 84.2% of the cases in Self-5 and 63.7% of the cases in Self-10. Conditional on demanding information, individuals choose the envelope when it is full 99.2% and 99.0% of the time, in Self-5 and Self-10, respectively. When it is empty, they choose the outside payment 98.0% and 99.4% of the time, respectively.

The patterns of information demand in the Donation treatment indicate that, not only is there significant information avoidance, but also the relationship between

<sup>19</sup>Detailed information on the distribution of information choices by price of information, as well as behavior conditional on obtaining information, is provided in Appendix D.



prices and information demand changes when informational choices are morally relevant. We observe a significant kink in the demand curve around \$0. This kink is consistent with suggestive evidence in Grossman and van der Weele (2017), who find that information demand drops to zero when there is a 0.10 Euro incentive to avoid information, in an explorative session with 10 subjects in the moral wiggle room paradigm of Dana et al. (2007). In Appendix D, we provide a detailed regression analysis of the elasticity of information demand in each treatment, depending on the price of information. The kink around \$0 is significantly weaker in the Self treatments than in the Donation.

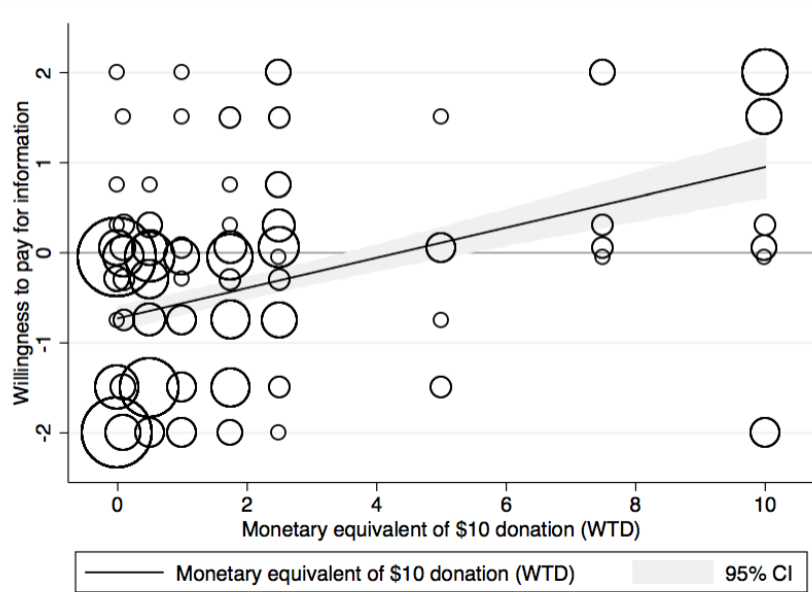
## 4.2 Moral Ignorance and Willingness to Donate

A key prediction of our theoretical framework is that the individual’s willingness to donate determines his demand for information. We use the monetary equivalent of the \$10 donation elicited in the experiment to test this prediction. First, we find there is a significantly negative relationship between an individual’s monetary equivalent of the \$10 donation (willingness to donate, or WTD) and her willingness to pay for information, as shown in Figure 5a. The Spearman correlation coefficient is -0.39 ( $p < 0.01$ ). This is consistent with the model.

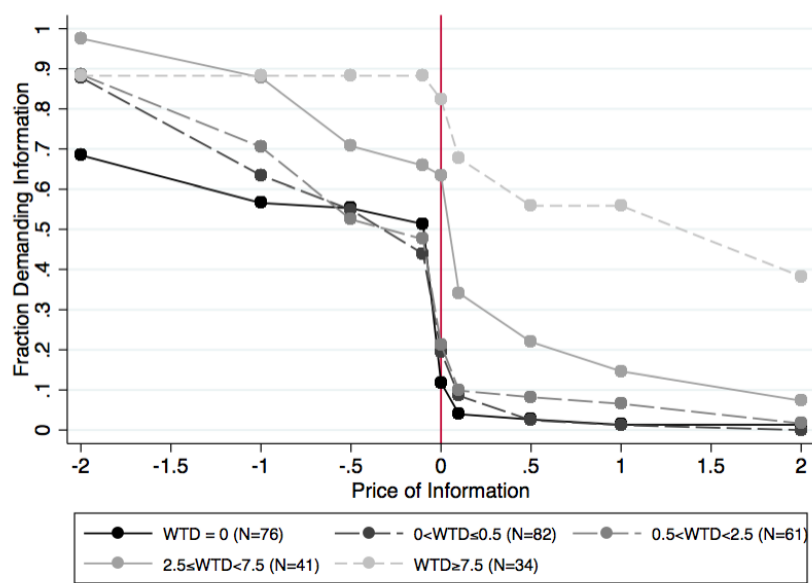
We also classify our population into five subgroups, depending on their monetary valuation of the donation, to explore their demand for information. Figure 5b shows the information demand curve for each subgroup. The darker curves indicate lower monetary valuations for the donation, while the lighter curves indicate higher valuations.

In line with the theoretical framework, subjects who value the \$10 donation less than the selfish option ( $WTD < 2.5$ ) exhibit a kink to the left of \$0. This is the case for 219 subjects out of 294, i.e. for the vast majority. If the price of information is \$0 or higher, these individuals predominantly choose not to obtain information, as predicted in the model.

Seventy-five of out 294 individuals value the \$10 donation more than the selfish option ( $WTD \geq 2.5$ ). They exhibit a kink to the right of \$0. On average, 72% of these individuals with  $WTD \geq 2.5$  obtain information when it is free, but this fraction drops by 23 percentage points when information costs \$0.10. Since these individuals value the donation between \$2.5 and \$10, we first examine whether their behavior is similar to that of individuals in the Self-10 and Self-5 treatments, as predicted by the model. Subjects with a WTD of 10 should behave as in Self-10, and subjects



(a) Willingness to Pay for Information and Donation Valuation



(b) Demand for Information by Donation Valuation

Figure 5: Information Preferences and Donation Preferences

with a WTD of 5 should act like subjects in Self-5. Comparing those subjects who display a WTD of 10 ( $N=26$ ) in the Donation treatment and subjects in the Self-10 treatment, we do not find a difference in willingness to pay for information, which is \$0.83 in both cases ( $p=0.9773$ ). Comparing subjects with a WTD of 5 to the Self-5 does not lead to any significant differences either, yet the number of subjects with

a WTD of 5 in the Donation treatment is small ( $N=8$ ). In Appendix D, we discuss the behavior of this group of individuals with a WTD above \$2.5 and the kink to the right of \$0 in further detail.

In addition to the individual's valuation of the \$10 donation, several individual characteristics may explain an individual's willingness to pay for information. In Table 3 we examine the determinants of information preferences in the Donation treatment. One important preference is the individual's value of a \$10 donation that occurs only with 50% chance. To measure how much the individual's value drops when uncertainty cannot be removed, we compare the monetary equivalent of a \$10 donation with certainty and the one with 50% chance. If the equivalent with uncertainty is less than half of the equivalent with certainty, we classify the individual as risk averse (with respect to the donation). We do not observe that the change in the donation valuation when it is uncertain, relative to when it is certain, is related to information demand. Additional characteristics that could explain information decisions are the score on the Monitors-Blunters Scale and the Machiavellianism scale, as well as gender, age, education and frequency of work on Mturk. We find that the Monitors-Blunters Scale is associated with information avoidance, but we do not find evidence that the Machiavellianism scale or individual socio-demographic characteristics explain information choices.

### 4.3 Social Norms Regarding Moral Ignorance

Experiment 1 focused on the impact of monetary incentives on moral ignorance, comparing it to morally neutral information demand. In Experiment 2 we investigate a non-monetary incentive, or "moral nudge," by providing information about social norms regarding moral ignorance. First, we elicited social norms regarding moral ignorance. Figure 6 displays the fraction of individuals who considers getting the \$2.5 payment morally appropriate, as well as the fraction who considers demanding information by opening the envelope morally appropriate. An action is defined as morally appropriate if an individual considers it somewhat or very morally

Table 3: Determinants of information demand in the Donation treatment

	(1)	(2)	(3)
	Willingnes to pay for information		
Monetary equivalent of \$10 donation	0.1625*** (0.0208)	0.1653*** (0.0208)	0.1640*** (0.0213)
Risk averse	0.1168 (0.1485)	0.0992 (0.1482)	0.0942 (0.1496)
Monitors-Blunters Scale Score		0.0273** (0.0135)	0.0277** (0.0138)
Mach IV Score		0.0416 (0.1179)	0.0291 (0.1227)
Female			-0.0623 (0.1206)
Age			0.0005 (0.0056)
High school degree or higher			-0.0744 (0.1188)
Works every day on Mturk			0.0479 (0.2232)
Constant	-0.7416*** (0.0715)	-0.9966*** (0.3518)	-0.9651** (0.4721)
Observations	294	294	294
R-squared	0.2014	0.2130	0.2147

*Notes:* This table examines the determinants of willingness to pay for information in the Donation treatment. The dependent variable takes values from -2 to 2, depending on when the individual chooses to switch from obtaining information to not obtaining information. The monetary equivalent of \$10 donation is the individual's valuation of the donation. Risk averse is a dummy variable that takes value 1 if the individual values a donation opportunity with 50% chance less than half of her monetary equivalent of a certain donation. Standard errors shown in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

appropriate.<sup>20,21</sup>

On average, less than a third of subjects considers avoiding information and choos-

<sup>20</sup>Alternatively, we could measure moral appropriateness ratings by giving a rating as very morally inappropriate a value of -1, a rating as somewhat morally inappropriate a value of -1/3, a rating as somewhat morally appropriate a value of 1/3 and a rating as very morally appropriate a value of 1 (see also, Krupka and Weber, 2013). The results are qualitatively similar. Furthermore, we also elicited the moral appropriateness of choosing the envelope without knowing whether it contains a donation for certain. A large majority of subjects consider such action morally appropriate. Detailed results for all actions are presented in Appendix D.

<sup>21</sup>In the Norms treatment, we also elicited the moral appropriateness of donating versus acting selfishly. When faced with a certain \$10 donation, 78% of individuals consider it morally inappropriate not to donate \$10 (and forgo \$2.5). When faced with a 50% chance of a \$10 donation, 66.7% consider it morally inappropriate not to donate. These results are broadly in line with existing research evaluating social norms around sharing decisions (e.g., Krupka and Weber, 2013).

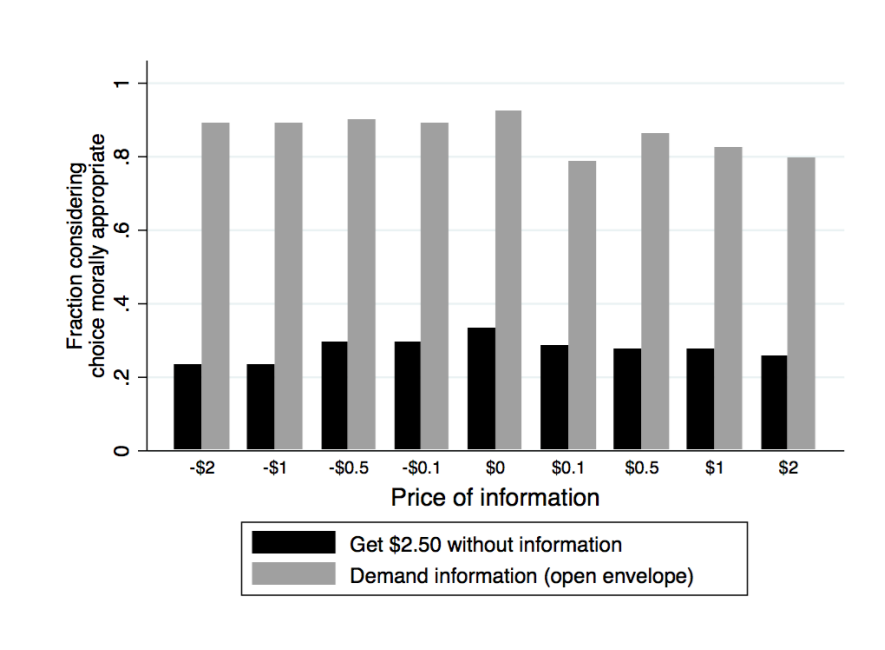


Figure 6: Social Norms regarding Information Avoidance

ing the \$2.50 payment very or somewhat morally appropriate. By contrast, over 70% of individuals consider seeking information very or somewhat morally appropriate. Overall, the moral inappropriateness of each action in the envelope game shows relatively little sensitivity to price. Yet, when information is costly, the moral norm to obtain information is significantly weakened, which may explain why individuals demand less information in that case. Table 4 presents the results of a linear probability model on the evaluation of each action as morally appropriate. The regression models include an indicator variable for costly information, i.e., when prices are strictly positive, to allow for a kink at \$0. The regressions also include an interaction term between the indicator for costly information and the price of information, to allow for a different effect of price on moral appropriateness, depending on whether information is costly or not. Moral appropriateness of demanding information does not vary significantly with the price of information, but it exhibits a kink around a price of \$0. If information is costly, demanding information is 8 percentage points less likely to be considered morally appropriate.<sup>22</sup>

<sup>22</sup>This result provides a potential explanation for the kink in information demand when price increases from \$0 to \$0.10, documented in Experiment 1.

Table 4: Moral Appropriateness

	(1)	(2)	(3)
<i>Action:</i>	Get \$2.5	Morally Appropriate Demand Information	All
Price (of Information)	0.0450** (0.0181)	0.0087 (0.0140)	0.0087 (0.0140)
Costly Information	-0.0257 (0.0241)	-0.0827** (0.0346)	-0.0827** (0.0346)
Costly Information X Price	-0.0595** (0.0297)	-0.0170 (0.0243)	-0.0170 (0.0243)
Get \$2.5			-0.5955*** (0.0492)
Price X Get \$2.5			0.0362 (0.0219)
Costly Information X Get \$2.5			0.0570 (0.0458)
Costly Information X Price X Get \$2.5			-0.0425 (0.0366)
Constant	0.3108*** (0.0440)	0.9063*** (0.0233)	0.9063*** (0.0233)
Observations	918	918	1,836
R-squared	0.0033	0.0150	0.3564
Nr. of subjects	102	102	102

*Notes:* This table examines the impact of price on the likelihood that getting \$2.5 (private payment) and demanding information is considered very or somewhat morally appropriate, using linear probability models. The dependent variable takes value 1 if the individual considers getting \$2.5 (private payment) or demanding information very morally appropriate or somewhat morally appropriate. Robust clustered standard errors shown in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

#### 4.4 The Impact of Information about Social Norms

Our second experiment addresses the question: Does the provision of the collected information on social norms reduce moral ignorance? Figure 7 depicts the demand curve for information when individuals receive social norm information and when they do not. Avoidance in the NoNorm treatment is shown with the black solid line. Avoidance in Norm-Avoid is depicted by the grey dashed line and in Norm-Seek by the grey solid line.

As observed in Experiment 1, information avoidance again displays a significant kink around \$0 (of 32 percentage points) in the NoNorm treatment. This kink is similar when information about social norms is provided. The data thus confirm that a shift from small monetary costs to small monetary rewards for seeking information can decrease moral ignorance in a pronounced and robust way.

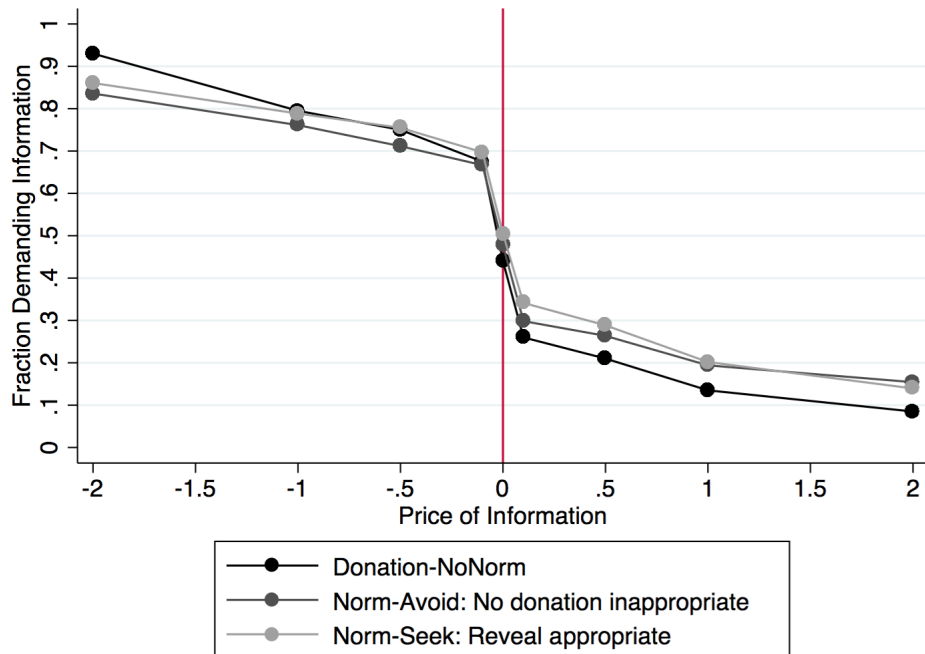


Figure 7: Information Avoidance in Experiment 2, by treatment

On average, we do not observe a significant effect of social norm information on moral ignorance. Table 5 presents the results from estimating the effect of norm information on the likelihood to avoid information. We observe that ignorance decreases directionally by 1 to 4 percentage points, a change that is not significantly different from zero. Yet, we observe a positive effect of norm information on willingness to donate.

In line with the model, the data suggest that norm information operates in two ways. First, norm provision increases the willingness to donate (WTD), and thereby leads to more demand for information in the envelope game. Specifically, the data show that the monetary equivalent of the donation increases by \$0.71 ( $t$ -test,  $p$ -value=0.06) and \$0.68 ( $t$ -test,  $p$ -value=0.08) in the Norm-Avoid and Norm-Seek treatments, respectively, compared to the NoNorm treatment.<sup>23</sup> In terms of our model, we thus observe an increase in the individual's WTD (i.e., an increase in  $\alpha$ ). However, there may be a second, partially opposing effect. If moral costs of rejecting a certain donation increase from norm provision as well, i.e., if the moral

<sup>23</sup>In line with this result, we find that conditional on demanding information, individuals who learn that the envelope contains a \$10 donation donate 67% of the time in the NoNorm treatment, 77% in the Norm-Avoid treatment, and 74% in the Norm-Seek treatment. The increase is marginally significant ( $p=0.051$  and  $p=0.063$ , respectively).

Table 5: Information Demand in Response to Social Norm Information

<i>Treatment</i>	(1)	(2)	(3)	(4)
	NoNorm	Norm-Avoid	Norm-Seek	All
Price (of Information)	-0.1922*** (0.0151)	-0.1384*** (0.0142)	-0.1351*** (0.0136)	-0.1922*** (0.0151)
Costly Information	-0.3247*** (0.0300)	-0.2941*** (0.0295)	-0.2853*** (0.0286)	-0.3247*** (0.0299)
Costly Information X Price	0.1006*** (0.0247)	0.0616*** (0.0221)	0.0288 (0.0234)	0.1006*** (0.0247)
Norm-Avoid				0.0113 (0.0447)
Norm-Seek				0.0442 (0.0437)
Price X Norm-Avoid				0.0538*** (0.0207)
Price X Norm-Seek				0.0570*** (0.0203)
Costly Information X Norm-Avoid				0.0306 (0.0420)
Costly Information X Norm-Seek				0.0394 (0.0414)
Costly Information X Price X Norm-Avoid				-0.0390 (0.0331)
Costly Information X Price X Norm-Seek				-0.0718** (0.0340)
Constant	0.5796*** (0.0315)	0.5909*** (0.0318)	0.6238*** (0.0304)	0.5796*** (0.0315)
Observations	1,800	1,809	1,872	5,481
R-squared	0.3460	0.2399	0.2579	0.2814
Nr of subjects	200	201	208	609

*Notes:* This table examines the impact of price on information demand in the NoNorm, Norm-Avoid and Norm-Seek treatments, using linear probability models. The dependent variable takes value 1 if the individual demands information (opens envelope). Robust clustered standard errors shown in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

discounting via  $\beta$  becomes more drastic, effects could be partially offset. This would reduce the demand for information in rather selfish individuals (who pay to avoid information).

Therefore, we explore the effects of norm provision depending on whether information is costly or not. These results are consistent with the prediction that moral costs increase in selfish subjects. The results are displayed in column (4) of Table 5. Price sensitivity decreases significantly, by ca. 5 percentage points, when avoiding information is costly, in both Norms treatments. Thus, a higher share of



selfish individuals foregoes sizable monetary payments in order to remain ignorant. In contrast, when obtaining information is costly, subjects become less price sensitive through norm provision (significantly so in the Norm-Seek treatment). For this range of prices, there is a directional upward shift in the demand curve, as altruistic individuals demand information more often.

Consistent with these findings, when we structurally estimate our theoretical model in exploratory analyses, we find that individuals' average altruism  $\hat{\alpha}$  increases from 0.21 in the absence of norm information to 0.24 and 0.22 in the Norm-Avoid and Norm-Seek treatments ( $p = 0.05$  and  $0.61$ , respectively), as shown in Table 6. The estimated moral cost of rejecting a certain donation,  $\hat{\beta}$ , is 0.84 without norm information in Experiment 2, and it decreases directionally to 0.82 and 0.79 in the Norm-Avoid and Norm-Seek treatments ( $p$ -value= $0.59$  and  $0.26$ , respectively).

Table 6: Estimation of Preferences for Ignorance with Norms Information

	(1) NoNorm	(2) Norm-Avoid	(3) Norm-Seek
Altruism parameter $\hat{\alpha}$	0.2156 (0.0076)	0.2355 (0.0068)	0.2213 (0.0082)
Moral cost parameter $\hat{\beta}$	0.8379 (0.0253)	0.8165 (0.0311)	0.7924 (0.0325)
Risk aversion parameter (CRRA) $\hat{\rho}$	0.9869 (0.0312)	0.9188 (0.0317)	0.9510 (0.0331)
Loglikelihood	-2461.32	-2546.35	-2630.77
Observations	1,800	1,809	1,872
Nr of subjects	200	201	208

*Notes:* This table presents structural estimation results for information and donation decisions in the Experiment 2. The estimation is based on a nested logit model, which includes an additional parameter  $\rho$ , which is a function of the correlation between the error terms of decisions in the first stage (whether to open or not the envelope) and that of decisions in the second stage (donation, conditional on opening). The estimated  $\rho$  (and standard deviation) is 0.68 (0.06) in the NoNorm treatment, 0.57 (0.07) in the Norm-Avoid and 0.69 (0.08) in the Norm-Seek treatment in Experiment 2. Robust standard errors, clustered at the individual level, are shown in parentheses.

Taken together, we find that norm provision increases willingness to donate, but does not increase information demand on average. It directionally increases information demand among rather altruistic subjects. These effects suggest that norm information not only increases individuals' valuation of the donation, but also the moral cost of rejecting a donation, leading to partially offsetting effects of social norm interventions in comparatively selfish subjects.

## 5 External Validity of Information Preferences in the Envelope Game

The results thus far reveal that information demand about a moral dilemma, such as that studied in the envelope game, is highly elastic to price, but rather inelastic to social norm information. An important question is whether information demand in the envelope game is predictive of information demand in other moral dilemmas. If so, there may be individual heterogeneity in the willingness to obtain information about moral dilemmas, and thus a persistent trait across situations.

We developed a follow-up task on information demand about animal welfare in dairy production, which ran 7 to 10 days after individuals participated in the morally relevant envelope game. We found that a majority of participants (65%) choose to watch the informational video about cows' living conditions. The main question is whether the choice to watch this video is related to subjects' willingness to pay to avoid information in the envelope game.

Table 7 shows the relationship between willingness to pay to avoid information in the envelope game and the choice to watch the informational video. As can be seen, individuals with a stronger willingness to pay to avoid information in our experimental task are also less likely to watch the video about cows' living conditions. This provides evidence in support of the external validity of informational choices in our main experiment.<sup>24</sup>

The rate of avoidance varies with social norm information. In the NoNorm treatment, the share of individuals who watch the video is 76.9%. It is 68.8% in the Norm-Avoid treatment, and 74.3% in the NormReveal treatment. As shown in column (2) of Table 4, the Norm-Avoid treatment led to an increase in avoidance of the video. While the effect is comparatively small and is exploratory, this suggests that social norm interventions should carefully measure short-run as well as long-run impacts, to fully capture potential spillovers onto other behaviors.

## 6 Conclusion

This paper investigates the elasticity of preferences for and against morally relevant information. We propose a parsimonious model in which individuals suffer

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<sup>24</sup>Qualitatively similar results are obtained if we study the relationship between the share of correct answers to the questions about the video and information avoidance in the donation setting.

Table 7: External validity of informational preferences

	Likelihood of watching video about cows' living conditions	
	(1)	(2)
Willingness to pay to avoid information	-0.0582*** (0.0157)	-0.0582* (0.0314)
Norm-Avoid Treatment		-0.0792* (0.0460)
Norm-Seek Treatment		-0.0367 (0.0470)
Norm-Seek X Willingness to pay to avoid information		0.0094 (0.0403)
Norm-Seek X Willingness to pay to avoid information		-0.0126 (0.0424)
Observations	533	533

*Notes:* This table reports marginal effects from probit regressions on the likelihood of watching the informational video about cows' living conditions. The variable willingness to pay to avoid information is measured by the price of information avoidance at the point at which the individual switches from demanding information to avoiding information. Norm-Avoid and Norm-Seek treatment are treatment dummies for the corresponding treatment in Experiment 2. Robust clustered standard errors shown in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

moral costs from rejecting a certain moral outcome, which can explain why rather selfish individuals prefer moral ignorance. Using morally neutral benchmarks, we relate average willingness to pay for moral ignorance to average willingness to pay for information acquisition in morally neutral comparison treatments. This calibration underlines the drastic difference between morally relevant and morally neutral contexts when it comes to preferences for information (avoidance).

In the moral context, the demand curve for information reveals that removing any (small) monetary costs of information and introducing small monetary incentives for information seeking can reduce moral ignorance roughly by 50 percent. Hence, moral ignorance can be significantly reduced at a small cost. By contrast, larger monetary incentives have comparatively little impact on reducing moral ignorance, and come at a much larger cost.

In policy circles, costless interventions such as moral “nudges” are often discussed as interventions to reduce unethical behavior. Our findings with two different framings of social norms suggest norm interventions likely perform differently when applied to encouraging information demand, compared to encouraging ethical behavior. Moral nudges in the form of social norm information can indeed increase

valuations of the moral outcome. Yet, their impact on curbing moral ignorance is limited. Possibly, norm information increases the moral costs from rejecting moral outcomes and thereby fosters ignorance in rather selfish subjects.

Our findings provide new insights on the sources and limits of self-serving behavior, such as that enabled by moral ignorance. In our model individuals differentially suffer when rejecting a certain donation, relative to an uncertain one. An open question is, what the source of such moral costs is. Self-image concerns, limited attention, or minimal excuses may come into mind as potential mechanisms. First, self-image concerns (e.g., Bénabou and Tirole, 2011) often play a role in morally relevant contexts. However, due to the repeated nature of decisions in our setting, it is unlikely that a desire to preserve one's self-image as generous explains the ignorance we document.

Second, attention costs could be relevant if considering what one would decide in the moral dilemma we present is costly. Yet in the envelope paradigm, a large majority of individuals open the envelope when incentives to open are high. The data does not reveal any increased interest in opening the envelope in subsequent decisions. This suggests attention costs cannot explain the moral ignorance in our context. Third, recent research reveals that moral ignorance and, more generally, excuses to behave self-servingly, are found even if there seems to be only minimal plausibility (Exley and Kessler, 2018; Gneezy et al., 2017, Engel and Szech 2018). A minimal excuse can potentially serve as a justification for selfish behavior, because individuals can use it to explain their behavior to others, or expect others to use such excuses as well. In each information decision we elicit, there was a 50% chance the envelope was empty, which could potentially provide individuals with a sufficiently good excuse for their ignorance. Yet, we find an important limit to such an excuse-driven behavior. As we document, introducing small monetary costs of ignorance may be an effective way to reduce such moral ignorance, at least for a substantial portion of people.

# Online Appendix

## A Theoretical Framework: Cases of Risk Aversion and Risk Lovingness

Individuals may have different risk attitudes. Intuitively, risk aversion makes the closed envelope less attractive such that even under high monetary incentives, only very altruistic subjects prefer the closed envelope. The following figure demonstrates the case of  $u(x) = \sqrt{x}$  for different levels of moral discounting,  $\beta$ . If the moral discounting is pronounced, even most selfish individuals prefer to leave the envelope closed in order to avoid moral costs from rejecting the donation.

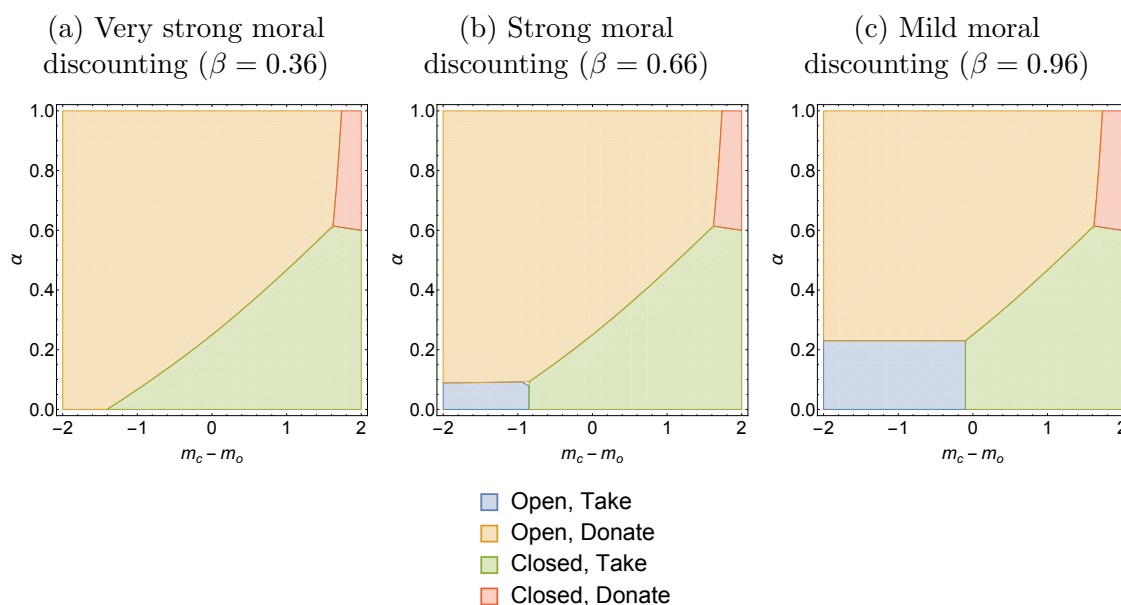


Figure A.1: Risk aversion:  $u(x) = \sqrt{x}$ ;  $\beta = 0.36, 0.66, 0.96$ , respectively

In contrast, the closed envelope can become quite appealing for altruists if they are risk loving. The following figure illustrates that case.

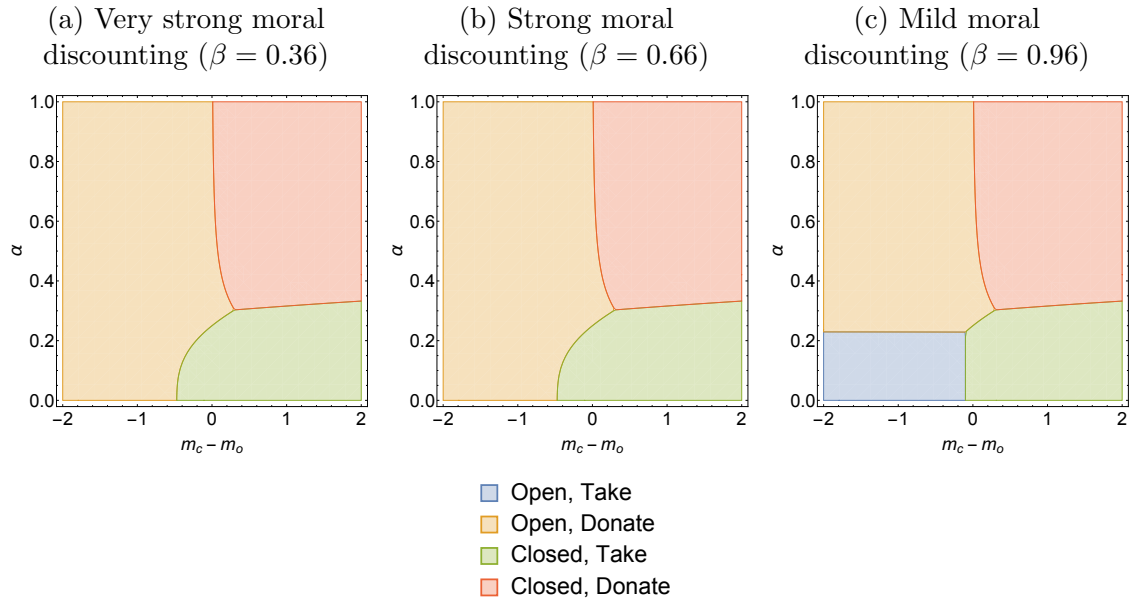


Figure A.2: Risk loving:  $u(x) = x^4$ ;  $\beta = 0.36, 0.66, 0.96$ , respectively

## B Instructions

*Below we present the instructions for the Donation treatment in Experiment 1. The Self-5 and Self-10 treatments had the same instructions except that the \$10 donation was replaced by a \$5 or \$10 payment for the individual. In Experiment 2 we added information on social norms at the end of the instructions, as indicated in brackets below.*

In this study, you make decisions involving money for you and a donation to the Malaria Consortium in your name.

Your donation takes place via **an envelope**.

**The envelope either contains: a \$10 donation on your behalf with 50% chance, or no donation with 50% chance**

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In this part, you **do not know what the envelope contains**. You decide whether to get \$2.50, get the envelope, or reveal what the envelope contains first.

You will make 9 decisions. In each decision you have **three options**:

- (a) **Get \$2.50:** then, you get \$2.50.
- (b) **Get the envelope:** then, you donate what the envelope contains, which you do not know.
- (c) **Reveal what the envelope contains first:** then, you are shown whether the envelope contains **a \$10 donation on your behalf or no donation**. After being informed of the envelope's content, you decide either to get \$2.50 or get the envelope.

In each decision, you may receive **an additional amount for choosing option (c) 'Reveal what the envelope contains first', or you may receive an additional amount for NOT choosing option (c)**, that is not 'revealing what the envelope contains first', and choosing options (a) or (b).

Across the 9 decisions, this additional amount you receive varies, from \$2 for revealing what the envelope contains to \$0, and from \$0 to \$2 for NOT revealing what the envelope contains.

You will not know which is the 'decision that counts' until the end of the study. Because the computer is making a random draw, any of the choices could be the 'decision that counts.' Therefore, you should think carefully about the choice you make in each question.

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**Remember, the envelope either contains:**

- a \$10 donation** on your behalf with 50% chance, or
- no donation with 50% chance.**

In what follows you will be shown an example and will be asked to answer several questions, before making your decisions.

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**EXAMPLE**

As an example, let us consider question 5. In this question, you receive **\$0 for revealing what the envelope contains, and \$0 for not revealing what the envelope contains.** The question is shown below.

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5. **If you get \$0 for revealing and \$0 for not revealing what the envelope contains first, what do you choose?**

- (a) Get \$2.50
- (b) Get the envelope
- (c) Reveal what the envelope contains

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If you choose '(a) get \$2.50', **you get \$2.50.**

If you choose '(b) get the envelope', **you donate \$10 with 50% chance or donate \$0 with 50% chance.**

If you choose '(c) reveal what the envelope contains', you learn what is inside the envelope. Two cases can then happen:



1. **The envelope contains a \$10 donation on your behalf.** Then you choose between:

**Get \$2.50** or

**Donate \$10.**

2. **The envelope contains no donation.** Then you choose between:

**Get \$2.50** or

**Donate \$0.**

**Thus, choosing (c) brings you to another choice. This choice is either between a monetary amount for you and a donation on your behalf or between a monetary amount for you and no donation in your name.**

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## **CONTROL QUESTIONS**

As an exercise, let us consider question 1.

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**The envelope either contains a \$10 donation with 50% chance or no donation with 50% chance.**

In question 1, you **receive \$2 for revealing what the envelope contains.** You choose from these options:

- (a) Get \$2.50.
- (b) Get the envelope.
- (c) Reveal what the envelope contains (plus \$2 for revealing what the envelope contains).

---

Suppose you choose (a). What happens?

- I get \$0
- I get \$2.50

Suppose you choose (b). What happens?

I get \$4.50

I donate what is in the envelope.

Suppose you choose (c). What happens?

I learn what is inside the envelope and then decide between the envelope and \$2.50. I either decide between a \$10 donation on my behalf or \$2.50 for me, or I decide between a \$0 donation or \$2.50 for me. I also get \$2 for choosing to reveal what is in the envelope.

I do not learn what is inside the envelope and get \$0.

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Now you will make your decisions for this part.

In each question, the chance that the envelope contains a \$10 donation is 50%. So, the envelope's content varies for each question according to chance.

One of your decisions may be the 'decision that counts'. So please decide carefully!

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[Treatment Norm-SeekInfo: **NOTE: More than 70% of MTurkers who evaluated the actions in this part consider it MORALLY APPROPRIATE to choose the option 'Reveal what the envelope contains' first.**]

[Treatment Norm-AvoidInfo: **NOTE: More than 70% of MTurkers who evaluated the actions in this part consider it MORALLY INAPPROPRIATE to choose the option 'Get \$2.5' without revealing what the envelope contains first.**]

## C Elicitation of Control Measures

After the main part of the experiment, we elicited the monetary equivalent of a certain \$10 donation, by asking the individual to make eight binary choices between the donation and payments to her that increased from \$0.10 to \$10. Each choice between a private payment and the donation was presented in a separate screen, and across screens the value of the private payment increased. Thereafter, we elicited the monetary equivalent of a \$10 donation that occurs with a 50% chance. Individuals made again eight binary choices, each between the potential donation and a payment that increased from \$0.01 to \$5. These choices were elicited in the Donation treatment in Experiment 1 and all treatments in Experiment 2.

For each individual, we calculate her monetary equivalent of a certain (uncertain) donation as the maximum value of the payment to her that she was willing to give up instead of the donation. As shown in Table B.1., on average, individuals' monetary equivalent of a certain \$10 donation was 1.91 ( $sd = 2.94$ ), while it was 0.69 ( $sd = 0.89$ ) for a 50% chance of a \$10 donation in Experiment 1.

Table C.1: Control Measures and Sample Characteristics

		Experiment 1			Experiment 2		
		Donation	Self-5	Self-10	NoNorm	Norm-Avoid	Norm-Seek
Monetary equivalent of:							
(1) \$10 Donation	Mean	1.91	-	-	2.92	3.60	3.56
	SD	2.94			3.48	3.78	3.92
(2) \$10 Donation/Self payment, with $p = 0.5$	Mean	0.69	1.40	2.59	0.78	0.81	0.72
	SD	0.82	0.76	1.83	0.88	0.97	0.89
Subject characteristics							
Female	Mean	45.9%	42.9%	46.7%	55.0%	51.2%	52.9%
Age	Mean	36.5	37.6	35.3	36.3	35.6	38.0
High school graduate	Mean	40.5%	30.6%	44.1%	36.0%	31.8%	33.2%
On Mturk 7 days a week	Mean	92.5%	91.8%	90.8%	89.0%	86.1%	91.8%

In the Self 5 and Self 10 treatments of Experiment 1, we elicited the certainty equivalent of a \$5 and \$10 payment that occurred with 50% chance. We asked the individual to make eight binary choices between the uncertain payment and

payments to her that increase from \$0.50 to \$5 in the Self 5 treatment, and \$1 and \$10 in the Self 10 treatment. On average, the certainty equivalent of a 50% chance of \$5 was 1.40, and that of a 50% chance of \$10 was 2.59.

The second part of Table B.1. displays the characteristics of subjects who participated in Experiment 1 and 2, including gender, age, high school graduates and intensity of work at Amazon Mechanical Turk.

## **D Additional Results**

### **D.1 Distribution of information choices in Experiment 1**

Table D.1 below presents the distribution of choices in Experiment 1. For each price of avoidance we show the percentage of individuals who (a) avoid and choose \$2.50 (“Choose \$2.50”) (b) avoid and donate (“Choose envelope”) (c) Seek information (“Open envelope”)

Table D.1: Distribution of choices in Experiment 1

Price of information		Treatment		
		Donation	Self-5	Self-10
-\$2	Choose \$2.5	14.6%	7.5%	2.6%
	Choose envelope	1.0%	2.0%	2.6%
	Open envelope	84.4%	90.5%	94.7%
- \$1	Choose \$2.5	28.6%	18.4%	6.6%
	Choose envelope	2.0%	2.0%	3.3%
	Open envelope	69.4%	79.6%	90.1%
- \$0.50	Choose \$2.5	36.7%	21.8%	10.5%
	Choose envelope	2.7%	4.1%	4.6%
	Open envelope	60.5%	74.1%	84.9%
- \$0.10	Choose \$2.5	42.5%	23.1%	13.8%
	Choose envelope	2.7%	5.4%	5.9%
	Open envelope	54.8%	71.4%	80.3%
\$0	Choose \$2.5	62.6%	25.9%	15.1%
	Choose envelope	6.1%	8.2%	9.9%
	Open envelope	31.3%	66.0%	75.0%
\$0.10	Choose \$2.5	72.8%	34.0%	19.1%
	Choose envelope	9.2%	6.1%	11.2%
	Open envelope	18.0%	59.9%	69.7%
\$0.50	Choose \$2.5	77.2%	42.2%	21.7%
	Choose envelope	10.2%	7.5%	13.2%
	Open envelope	12.6%	50.3%	65.1%
\$1	Choose \$2.5	76.5%	59.9%	30.9%
	Choose envelope	12.9%	9.5%	18.4%
	Open envelope	10.5%	30.6%	50.7%
\$2	Choose \$2.5	76.5%	76.2%	42.1%
	Choose envelope	17.3%	12.9%	23.7%
	Open envelope	6.1%	10.9%	34.2%

## D.2 Illustration of calibration in Experiment 1

Figure D.1 illustrates the equivalence between the Donation treatments and the Self-5 and Self-10 treatments, as discussed in the main text. The black connected line shows the willingness to pay for information in the Self treatments. The red line shows the willingness to pay for information in the Self treatments. The red line indicates the willingness to pay for ignorance in the Donation treatment.

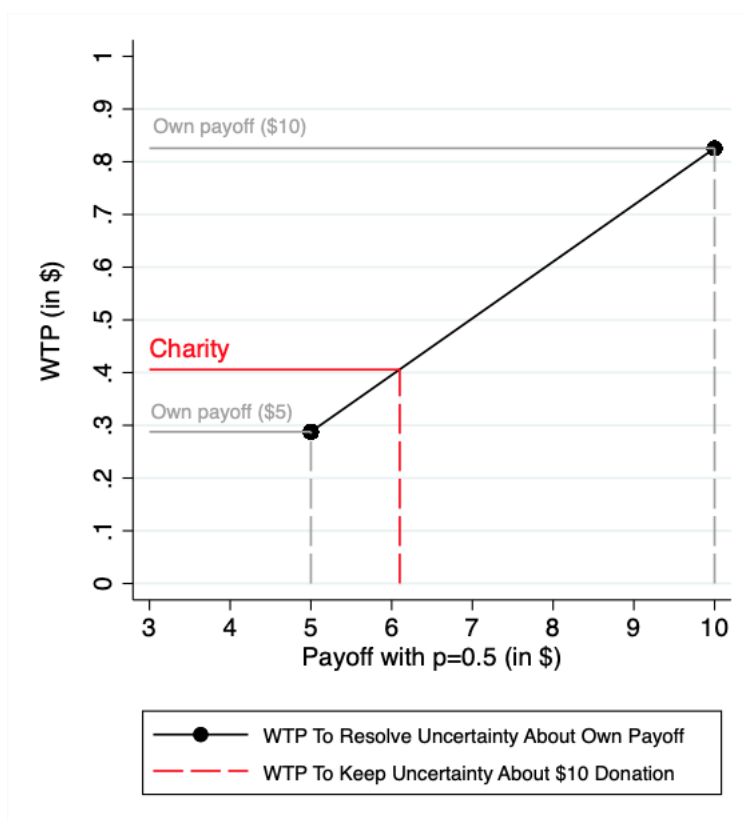


Figure D.1: Benchmarking Ignorance in Donation Treatment to Information Demand in Self Treatments

## D.3 Behavior conditional on information demand

Individuals who choose to seek information learn whether the envelope actually contains a donation. If subjects learn that the envelope is empty, they choose the \$2.50 payment to themselves in 93.5% of the cases. If subjects learn that the envelope contains a \$10 donation, between 49% and 100% choose the donation, as shown in Table D.2. Consistent with selection of those who value the donation opportunity highly into seeking information, the share of those who donate increases as the cost of information avoidance decreases.

Table D.2: Behavior conditional on choosing to seek information

Price of information	(a)		(b)	
	Envelope contains \$10 Donation	N	Envelope contains nothing	N
	% choose envelope		% choose envelope	
-\$2	49.2%	126	5.7%	122
-\$1	50.5%	101	1.9%	103
- \$0.50	52.1%	94	4.8%	84
-\$0.10	51.3%	78	2.4%	83
\$0	74.5%	47	6.7%	45
\$0.10	87.1%	31	4.5%	22
\$0.50	96.0%	25	16.7%	12
\$1	93.3%	15	6.3%	16
\$2	100.0%	7	9.1%	11

*Notes:* This table shows the percentage of individuals choosing the envelope in two cases: (a) when the envelope contains a \$10 donation, and (b) when it is empty. In each case we also show the number of observations.

## D.4 Price sensitivity differences in Experiment 1

We conduct an exploratory analysis of the differences in price sensitivity between the Donation and the Self treatments in Table D.3. This table presents the results of linear probability models on the decision to demand information, as a function of the price of information. To account for the kink in the demand curve around 0, the regression includes an indicator variable for costly information, i.e., when prices are strictly positive. To allow for the relationship between price and information demand to vary when information is costly relative to when it is costless, the regression also includes an interaction term between the indicator for costly information and the price of information.

The results shown in columns (1)-(3) of Table D.3 display the relationship between price and information demand in the Donation treatment, the Self-5 and the Self-10, respectively. Column (4) shows that the effect of price is different in the Donation treatment, compared to the Self treatments, in three ways. First, in the Donation treatment, we observe a pronounced kink, of 27 percentage points, around \$0. This is significantly different from the Self treatments, in which there is more demand for information and a smaller kink of 6 percentage points. Second, when individuals are paid to acquire information, price sensitivity is stronger in the Donation treatment than in the Self treatments. This is explained by the fact that most subjects always demand information in the Self treatments, while many subjects exhibit a preference to avoid information in the Donation treatment. Third, price sensitivity is weaker in

Table D.3: Demand for Information Across Domains

<i>Treatment:</i>	(1)	(2)	(3)	(4)
	Donation	Self-5	Self-10	All
Price (of Information)	-0.2159*** (0.0130)	-0.1124*** (0.0170)	-0.0902*** (0.0154)	-0.2159*** (0.0130)
Costly Information	-0.2751*** (0.0234)	-0.0670** (0.0271)	-0.0613** (0.0242)	-0.2751*** (0.0234)
Costly Information X Price	0.1581*** (0.0185)	-0.1499*** (0.0347)	-0.1036*** (0.0305)	0.1581*** (0.0185)
Self-5				0.2371*** (0.0469)
Self-10				0.3398*** (0.0417)
Price X Self-5				0.1035*** (0.0213)
Price X Self-10				0.1257*** (0.0202)
Costly Information X Self-5				0.2081*** (0.0358)
Costly Information X Self-10				0.2138*** (0.0337)
Costly Information X Price X Self-5				-0.3081*** (0.0392)
Costly Information X Price X Self-10				-0.2617*** (0.0356)
Constant	0.4452*** (0.0266)	0.6823*** (0.0387)	0.7851*** (0.0322)	0.4452*** (0.0266)
Observations	2,646	1,323	1,368	5,337
R-squared	0.3117	0.2301	0.1641	0.3166
Nr. of subjects	294	147	152	593

*Notes:* This table examines the impact of price on information demand in the Donation, Self-10 and Self-5 treatments, using linear probability models. The dependent variable takes value 1 if the individual demands information (opens envelope). Robust clustered standard errors shown in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

the Donation treatment than in the Self treatments when individuals have to pay for information. Since only few subjects have a preference to pay at all for information in the Donation treatment, it may not be surprising to see a smaller elasticity here.

## D.5 Detailed analysis of kink in demand for moral ignorance

When we examine the behavior of subjects with a WTD between 2.5 and 7.5 shown in Figure 5b, we see a significant kink in information demand to the right of \$0,



which is not observed in the Self-5 treatment.

This kink could be due to two reasons. The first is risk preferences in the donation domain. If individuals are sufficiently altruistic and risk seeking, when information becomes costly, they could prefer to donate the closed envelope. Through the lens of the model, this should only happen for larger costs of information. In the data, though, among individuals who do not demand information as soon as it becomes costly, only about a third of the subjects (31.4%) decide to donate the closed envelope.<sup>25</sup>

The second reason for the kink to the right of \$0 may be a change in social norms. Though not captured in our model, one could imagine costs of information, even if tiny, provide some excuse for staying ignorant. In the next section, we collect data on the moral norms regarding information avoidance. These norms turn out to be rather inelastic to the price of information. Nevertheless, information demand is considered somewhat less important when information becomes costly. This norm change may contribute to the kink around \$0 in subjects who have a high valuation for the certain donation. A much more detailed analysis would be necessary to understand the exact mechanisms behind this result. This may be an interesting endeavor for future research.

## D.6 Norm elicitation results in Experiment 2

Table D.4 shows individual ratings of moral appropriateness of each action, for each price of avoidance. Panel A focuses on the choice to avoid and choose \$2.50. Panel B focuses on the choice to avoid and donate by choosing the envelope. Panel C focuses on the choice to seek information, by opening the envelope.

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<sup>25</sup>Among the selected sample of individuals who no longer demand information when it costs \$0.10, we find that 30 individuals choose the \$2.5 payment, while 9 choose the closed envelope. To examine whether those subjects who switch to the closed envelope are relatively risk loving with respect to the donation, we explore the ratio of their valuation of the donation with certainty, relative to their valuation of the donation with uncertainty. A risk neutral individual would exhibit a ratio of 2. We find that on average the ratio for all subjects is 2.33 (s.d. 2.78). For the subjects who switched it is 1.74 (s.d. 0.66). Thus, indeed, we find some indication of risk lovingness in these subjects.

Table D.4: Individual ratings of moral appropriateness of each action

	Moral Appropriateness Category Rating			
	Very morally inappropriate	Somewhat morally inappropriate	Somewhat morally appropriate	Very morally appropriate
Price of information	<b>PANEL A. Choose \$2.50</b>			
-\$2	38.24	38.24	18.63	4.9
-\$1	39.22	37.25	16.67	6.86
-\$0.50	40.2	30.39	23.53	5.88
-\$0.10	38.24	32.35	18.63	10.78
\$0	36.27	30.39	24.51	8.82
\$0.1	41.18	30.39	19.61	8.82
\$0.5	38.24	34.31	19.61	7.84
\$1	40.2	32.35	17.65	9.8
\$2	43.14	31.37	17.65	7.84
Total	39.43	33.01	19.61	7.95
Price of information	<b>PANEL B. Choose envelope</b>			
-\$2	0.98	3.92	54.9	40.2
-\$1	0	6.86	55.88	37.25
-\$0.50	0	6.86	54.9	38.24
-\$0.10	2.94	5.88	50.98	40.2
\$0	1.96	7.84	47.06	43.14
\$0.1	0	9.8	44.12	46.08
\$0.5	2.94	6.86	48.04	42.16
\$1	0	7.84	50	42.16
\$2	0.98	9.8	41.18	48.04
Total	1.09	7.3	49.67	41.94
Price of information	<b>PANEL C. Open envelope first</b>			
-\$2	1.96	8.82	45.1	44.12
-\$1	0.98	9.8	46.08	43.14
-\$0.50	0.98	8.82	48.04	42.16
-\$0.10	0.98	9.8	42.16	47.06
\$0	1.96	5.88	47.06	45.1
\$0.1	3.92	17.65	43.14	35.29
\$0.5	2.94	10.78	55.88	30.39
\$1	6.86	10.78	49.02	33.33
\$2	7.84	12.75	45.1	34.31
Total	3.16	10.57	46.84	39.43

## E Structural Estimation

We structurally estimate the parameters of our theoretical model, using the experimental decisions in Experiment 1 and Experiment 2. As in our model, we assume individuals have CRRA utility, with risk aversion parameter  $r$ , such that  $u(x) = x^r$ . When individuals donate they value the donation with  $\alpha$ . When they choose the selfish option, knowing that the envelope contains a certain donation, they suffer from the (additional) moral cost  $\beta$ . Since the decision structure of individuals involves two steps, we estimate a nested logit model, with three branches (for details see, e.g., Cameron and Trivedi, 2005, Ch. 12.6.2). Two branches are degenerate. First, if the individual decides to take the selfish payment of \$2.5 without opening. The utility of this is denoted by  $V^{c,0}$ . Second, if she takes the envelope without opening it. The utility of this we denote as  $V^{c,1}$ .

The third branch is the choice to open the envelope. Then, knowing whether the envelope is full or empty, the individual decides whether to take the envelope or not. To specify the likelihood, denote the decision to take the envelope as  $d \in \{0, 1\}$ . The utility of  $d$ , conditional on opening, is  $V^{d,f}$ , where  $f$  indicates whether the envelope is full or empty. The likelihood of opening and taking the envelope is:

$$p_{o,d} = p_o \times p_{d|o} = \frac{\exp(\rho I^o)}{\exp(\rho I^o) + \exp(V^{c,1}) + \exp(V^{c,0})} \times \frac{\exp(V^{d,f}/\rho)}{\sum_d \sum_f \exp(V^{d,f}/\rho)},$$

where  $I^o = \ln(\sum_d \sum_f \exp(V^{d,f}/\rho))$ , which is known as the inclusive value. The likelihood of leaving the envelope closed and taking it is:

$$p_{c,1} = \frac{\exp(V^{c,1})}{\exp(\rho I^o) + \exp(V^{c,1}) + \exp(V^{c,0})},$$

and the likelihood of leaving the envelope closed and taking the \$2.5 payment is:

$$p_{c,0} = \frac{\exp(V^{c,0})}{\exp(\rho I^o) + \exp(V^{c,1}) + \exp(V^{c,0})}.$$

In all estimations, we include the payoff of the decision or resulting donation as well as the individual's show-up fee. This avoids negative payoffs in the rare cases where the individual opens the envelope and chooses the empty envelope.

The estimation of the nested logit includes an additional parameter,  $\rho$ , which is a function of the correlation between the error term in the decisions in the first stage (whether to open or not the envelope) and the error term in the decisions in the

second stage (donation, conditional on opening). This parameter is noted in the footnote of Tables 2 and 6. Since  $\rho$  enters multiplicatively in the utility of choosing between the envelope (with a donation or not) and the outside payment of \$2.5, it cannot be separately identified from a Fechner error (see, e.g., von Gaudecker et al., 2011). Hence, we do not explicitly add Fechner errors to the model, and interpret  $\rho$  with care.

To further examine the coherence of the estimated risk aversion parameters in the Self treatments we also estimated the implied CRRA parameters from the control measures, elicited through simple binary decisions, after the main part of the experiment (for a more detailed description see Appendix C). The estimated CRRA parameter from those decisions in the Self-10 treatment is 0.77 (sd=0.02), and that in the Self-5 treatment is 1.02 (sd=0.02). Hence, these parameters are closely in line with those estimated from the decisions in the main part of the experiment.

Finally, we note that we have explored the results of structural estimation when including all participants, also those who were inconsistent in their decisions. We find that the results remain qualitatively similar, and that the effects on social norm information are strengthened (leading again to an increase in the altruism parameter and an increase in moral costs, measured as smaller  $\beta$ ).

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