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The (In)Elasticity of Moral Ignorance

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Abstract. Ignorance enables individuals to act immorally. This is well known in policy circles, in which there is keen interest in lowering moral ignorance. In this paper, we study how the demand for moral ignorance responds to monetary incentives and how the demand curve for ignorance reacts to social norm messages. We propose a simple behavioral model in which individuals suffer moral costs when behaving selfishly in the face of moral information. In several experiments, we find that moral ignorance decreases by more than 30 percentage points with small monetary incentives, but we find no significant change with social norm messages, and we document strong persistence of ignorance across moral contexts. Our findings indicate that rather simple messaging interventions may have limited effects on ignorance. In contrast, changes in incentives could be highly effective.

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Keywords: information avoidance • morality • unethical behavior • social norms • moral reminders • social nudges

1. Introduction

Ignorance allows individuals to engage more easily in questionable ethical behavior. For example, consumers do not want to know whether a favorite product benefits from child labor or causes damage to the environment. They may even denigrate others who pursue this information (Zane et al. 2016). Likewise, many art collectors and museum managers ignore the origins of potentially stolen artwork.¹ In business, it is not uncommon for managers to turn a blind eye to unethical behavior if those suspected of it are top performers (e.g., Rayner 2012).² Seminal work on the moral wiggle room has shown that people often ignore information about the consequences of their decisions on others' payoffs (e.g., Dana et al. 2007, Bartling et al. 2014, Grossman 2014, Grossman and van der Wee 2017).

An important open question is *how* to reduce moral ignorance. Organizations and policy makers seeking to reduce ignorance can use at least two kinds of tools: monetary incentives that introduce direct financial costs of ignorance and nonmonetary incentives, such as social norm messages (also known as “norm nudges”). Within policy circles, there is hope that it may be possible to foster integrity through norm nudges (Organisation for Economic Co-operation and Development 2018). These are used in practice to curb immoral behavior as reviewed in Bicchieri and

Dimant (2019) across different contexts, such as tax fraud (Hallsworth et al. 2017) or energy consumption (e.g., Schultz et al. 2007, Bhanot 2018). The Australian government encourages employees to use the REFLECT model for decision making, in which the second step is to find relevant information (Australian Public Service Commission 2018), and advises managers to remind employees of their ethical norms and set the ethical tone in the organization they lead. However, how effective norm nudges are in curbing information avoidance and reducing subsequent unethical behavior has not been tested. Given their practical relevance, it is important to systematically test the effects of norm nudges and how persistent information avoidance is across contexts.

This paper examines how the demand for moral ignorance responds to monetary incentives, social norm messages, and moral context. We present a simple behavioral model that builds on the premise that individuals may face moral costs when behaving selfishly in the face of (often inconvenient) moral information (DellaVigna et al. 2012, Andreoni et al. 2017). Therefore, subjects may prefer moral ignorance over moral information. To test the effects of different policy tools for fighting ignorance within this framework, we use the “moral envelope game” (MEG). In the MEG, an individual chooses between an envelope that may (or may not) contain a donation to a charitable cause and

a certain, private payment, which the individual can pocket. We measure demand for moral information (or ignorance) by allowing the individual to learn (or avoid learning) the envelope's contents before choosing between the envelope and the private payment.

We conduct two experiments with more than 1,500 participants. In the first experiment, we elicit the demand curve for moral information in the MEG. We compare this demand curve to the one we obtain in morally neutral counterpart treatments. In the second experiment, we introduce social norm messages at the beginning of the MEG to examine whether the demand curve for information shifts in response to such messages. Through a follow-up task, we measure moral ignorance among the same subjects in a different moral context about a week later.

This paper provides three main findings. First, we document that small monetary incentives have a strong and robust effect on moral information demand. These effects range between 33 and 41 percentage points across the two experiments. Consistent with the behavioral model, demand for information reacts more strongly to shifts from small costs to small rewards in the MEG, in which decisions are morally relevant, than when decisions are morally neutral. Further, the demand for ignorance is strongly driven by selfish individuals, and introducing monetary incentives to seek information has the largest effect on them. Hence, a policy that removes any barriers to information and provides incentives (even if only with small rewards) for information seeking could lead to substantial reductions in moral ignorance. Such a policy would be especially effective among those individuals who are most likely to avoid information, who are often the more selfish ones.

Second, we illuminate the effects of social norm information on moral information demand. Existing research on social norms shows that they can increase prosocial behavior (e.g., Cialdini and Goldstein 2004, Frey and Meier 2004, Schultz et al. 2007, Bicchieri and Xiao 2009, Shang and Croson 2009), but are not always effective (e.g., Bicchieri and Dimant 2019). In the MEG, more than 70% of subjects consider it morally appropriate (inappropriate) to obtain information (avoid information and behave selfishly), and the norm does not vary with the incentives to obtain or avoid information. We use two social norm messages, one positively framed to encourage information seeking and one negatively framed to discourage ignorance and selfish behavior, provided to individuals at the beginning of the MEG. We do not observe significant effects if the norm message is positively framed. If the norm message is negatively framed, it increases subjects' donations. However, norm messages do not increase moral information demand significantly. The evidence suggests that selfish subjects display a marginally significant

decrease in information demand if the norm message is negatively framed. This raises questions about the welfare effects of social norm messages (e.g., DellaVigna et al. 2012, Allcott and Kessler 2019). We structurally estimate two key parameters in the behavioral model, altruism and moral costs, and use these results to provide suggestive insights into the effects of social norm messages on welfare. We find that negatively framed social norm messages, which discourage ignorance and selfish behavior, increase altruistic behavior (donations) and have limited effects on moral costs, leading to an overall increase in welfare.

Third, for our framework and set of findings to be useful for the design of policies to reduce ignorance, a first step is to examine whether moral ignorance in the MEG is predictive of ignorance in other decisions that have a moral component. We examine how our MEG participants approach the controversial question of industrial livestock production. Although consumers enjoy undeniable benefits from these production methods, they generally are not comfortable with the living conditions of the animals (te Velde et al. 2002, American Society for the Prevention of Cruelty to Animals 2016, Bundesministerium für Ernährung und Landwirtschaft 2016) and tend to avoid information on the topic (Onwezen and van der Weele 2016).³ About a week after making decisions within the MEG, the same participants were rewarded for correctly answering questions regarding industrial livestock production and were offered the opportunity to watch an informative video beforehand. The results indicate that moral ignorance is persistent across tasks: those who avoid information in the MEG are more likely to avoid the informative video. A policy implication is that organizations may gain from hiring managers with a strong moral compass as a way to reduce moral ignorance in the first place.

A rich literature documents that individuals often seek excuses to avoid charitable giving and other prosocial behaviors. They avoid charitable asks (e.g., DellaVigna et al. 2012, Andreoni et al. 2017, Exley and Petrie 2018, Adena and Huck 2020) or sharing decisions (Dana et al. 2006, Broberg et al. 2007, Lazear et al. 2012) and exploit uncertainty (Exley 2015, Falk and Szech 2019, Falk et al. 2020, Gneezy et al. 2020) or potential poor charity performance (Exley 2020) as excuses not to donate. Moreover, anecdotal evidence suggests that individuals use news stories about high administrative costs and some charities' high salaries—and ignore information about the charities' performance—as excuses not to give at all.⁴ This paper systematically examines whether two well-known policy tools (direct monetary incentives in the form of costs and rewards as well as norm nudges) can reduce ignorance and increase giving, guided by a simple behavioral model that can be structurally estimated.

Moral ignorance is widely studied within the seminal moral wiggle-room paradigm, in which an individual is unsure whether choosing the option that yields a higher monetary payment for the individual hurts or helps another individual. Dana et al. (2007) are the first to show that individuals often avoid costless information about the consequences of their choices and are more likely to act selfishly as a result (see also, for example, Larson and Capra 2009, Matthey and Regner 2011, Feiler 2014, Kajackaite 2015, Freddi 2021). Related studies consider the impact of a small cost (Grossman and van der Weele 2017, Felgendreher 2018) or a larger cost (Cain and Dana 2012) on the demand for ignorance across different groups of subjects. Both studies find that a small incentive to acquire information has a limited effect on avoidance although information demand drops significantly when a small cost is introduced to acquire information. Our paper adds a systematic study of a wide range of direct incentives for and against information demand as well as a comparison with information demand without moral relevance within the same design. Motivated by our simple behavioral model, we hypothesize that the effects of monetary costs vary by individuals' altruism and, hence, measure the impact of positive and negative prices of information at the individual level. The data also show that information demand in a morally relevant situation reacts significantly more to small monetary incentives than information demand in a morally neutral one, implying that small incentives could be particularly relevant in curbing moral ignorance.

Social norms play an important role in explaining moral ignorance (Krupka and Weber 2013, Spiekermann and Weiss 2016, Stüber 2020), and in the MEG, there is a strong social norm to seek moral information. This allows us to study the effectiveness of social norm messages on ignorance. These messages can easily be used by organizations as "moral reminders" (Organisation for Economic Co-operation and Development 2018). Although such messages increase individuals' valuation of the donation and increase donations when they are negatively framed, we find no evidence of an aggregate shift in the demand curve for ignorance. Our results suggest that the effectiveness of social norm messages is limited and may depend on the underlying moral valuations of those targeted. Among selfish subjects, there is a marginally significant decrease in information demand when the norm is negatively framed, but generous individuals display no significant reaction to social norms.

Recent surveys by Golman et al. (2017) and Hertwig and Engel (2016) demonstrate that ignorance occurs not only in morally relevant situations, but in a variety of other contexts, such as health (Oster et al. 2013, Ganguly and Tasoff 2017, Serra-Garcia and Szech

2020), financial investment (Karlsson et al. 2009, Sicherman et al. 2016), effort provision (Huck et al. 2018), or school choice (Chen and He 2021). Our findings contribute to this large and growing literature (see also Ho et al. 2020). We demonstrate that the extent of the effects of monetary incentives on information seeking depends crucially on whether the situation bears moral relevance or not. A shift in monetary incentives has a greater effect on the demand for information in a moral context than in a morally neutral one.

The remainder of the paper is organized as follows. Section 2 describes the MEG and the experimental design. Section 3 provides a parsimonious theoretical framework and derives the five main hypotheses. Section 4 shows the results, starting with the effects of monetary incentives and norms on moral ignorance and then studying the relationship between ignorance and altruism; this section also provides the structural estimation and first insights into the welfare consequences of norm interventions as well a discussion of the persistence of moral ignorance across context and time. Section 5 concludes.

2. Experimental Design

2.1. The Moral Envelope Game

We study moral ignorance in the following game: An individual is assigned an envelope that with 50% probability ($p = 0.5$) contains a \$10 donation to the Malaria Consortium, a nonprofit organization that fights malaria in sub-Saharan Africa and with 50% probability is empty. The individual makes two decisions. First, the individual chooses whether to open the envelope or not. If the individual first chooses not to open the envelope, the individual chooses between taking \$2.50 for himself and receiving the envelope. If the individual chooses to open the envelope, the individual learns whether the envelope contains a \$10 donation or no donation, and the individual then chooses between taking \$2.50 and donating by choosing the envelope.

We expect that many individuals prefer moral ignorance in the MEG; that is, they leave the envelope closed. In Experiment 1, we study the impact of direct monetary incentives on moral ignorance in the MEG and compare it with the impact of incentives in two morally neutral games, Self-10 and Self-5. Self-10 is identical to the MEG, the only difference being that, instead of a donation to the Malaria Consortium, the envelope either contains a payment of \$10 to the individual or nothing. In Self-5, the envelope either contains a payment of \$5 or nothing. In Experiment 2, we analyze the impact of social norms on the demand for ignorance in the MEG. The design of the two experiments is summarized in Table 1.

Experiment 1 was conducted on Amazon Mechanical Turk (AMT) and with subjects from the Karlsruhe

Table 1. Experimental Design Overview

Experiment	Treatments	Description
1	MEG	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	MEG without norm information
	NormAvoid	MEG, avoidance (keep closed and take) is morally inappropriate
	NormSeek	MEG, seeking information (open) is morally appropriate

Institute of Technology (KIT) KD2Lab subject pool. Experiment 2 was conducted on AMT only. The main advantage of conducting experiments on AMT is the ability to run large-scale experiments, which allows us to evaluate the impact of interventions both within and across subjects (social norms messages) with sufficient power. The experiment with KIT subjects followed the same design as that conducted on AMT to examine the robustness of the results across different samples. The experiments on AMT were preregistered. Throughout, we refer to analyses that were not preregistered as explorations of the data.⁵

In total, we analyze the decisions of 1,304 subjects on AMT and 255 subjects from the subject pool of the KD2Lab at KIT who participated online.⁶

2.2. Experiment 1

In this experiment, we study the effect of monetary incentives on preferences for information. Our main treatment is the MEG, in which the envelope contained a \$10 donation with 50% probability. Individuals had to choose one of three options: take a \$2.50 payment, take the envelope, or open the envelope first. Hence, the decision setting contained no default choice (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 $-\$2$.⁷ We compare information demand in the MEG treatment with two morally neutral treatments (Self-5 and Self-10 treatments). In these treatments, we replace the uncertain donation with an uncertain payment for subjects themselves.

2.3. Experiment 2

In Experiment 2, we study the impact of social norm messages in the MEG. A large number of studies shows that social norms can 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, injunctive-norm information, which describes how individuals should behave, can increase prosocial behavior (e.g., Bicchieri and Xiao 2009, Hallsworth et al. 2017). Thus far,

however, no study has examined how social norms affect information demand. Philosophers have proposed the "ignorance thesis," which states that, if an individual chooses to remain ignorant in a moral decision, the individual is culpable for acts that derive from it (Zimmerman 1997, Rosen 2003, Guerrero 2007). If individuals broadly agree with this view within the MEG, we should find that injunctive norms favor information demand.

The nature of social norms has been studied within the moral wiggle-room paradigm. Krupka and Weber (2013) find that, in the moral wiggle-room game of Dana et al. (2007), ignorance while taking the own payoff-maximizing option is considered neither morally appropriate nor inappropriate. On a scale from -1 to 1 , the social appropriateness rating of ignorance while choosing a higher own payoff is 0.175 . By contrast, it is considered morally inappropriate to choose the higher own payoff knowing that it harms another individual (-0.705 appropriateness rating) although it is considered morally appropriate to act altruistically (0.968 appropriateness rating). Spiekermann and Weiss (2016) argue that a potential explanation for ignorance could be that, for some individuals, resolving uncertainty increases their expected normative obligations (to behave prosocially). Hence, they strategically choose to remain ignorant in order to avoid being in a situation with stronger normative obligations.

We expected that choosing to remain ignorant while taking the private payment would be considered strongly morally inappropriate in the MEG. Therefore, we first ran the norms treatment to elicit the perceived morality of information and donation decisions. Subjects rated the three potential decisions (to avoid and take $\$2.50$, to avoid and donate the amount in the envelope, or to open the envelope first) as "very morally appropriate," "somewhat morally appropriate," "somewhat morally inappropriate," or "very morally inappropriate." Ratings were elicited for each of the nine information decisions, that is, for each price of information (avoidance). We also measured the ratings for the decision to donate or not when the envelope is empty, when it contains a donation, and when its content is uncertain. They earned $\$5$ if their rating in a randomly drawn decision

coincided with the most frequently chosen answer of the other subjects in that treatment and \$0 otherwise (as in Krupka and Weber 2013).

Figure 1 displays the fraction of subjects who consider taking the \$2.50 payment without opening the envelope to be morally appropriate as well as the fraction who consider demanding information by first opening the envelope to be morally appropriate. An action is defined as morally appropriate if a subject considers it somewhat or very morally appropriate. On average, 72% of subjects consider avoiding information and choosing the \$2.50 payment very or somewhat morally inappropriate. In the same spirit, 87% of subjects consider seeking information very or somewhat morally appropriate.

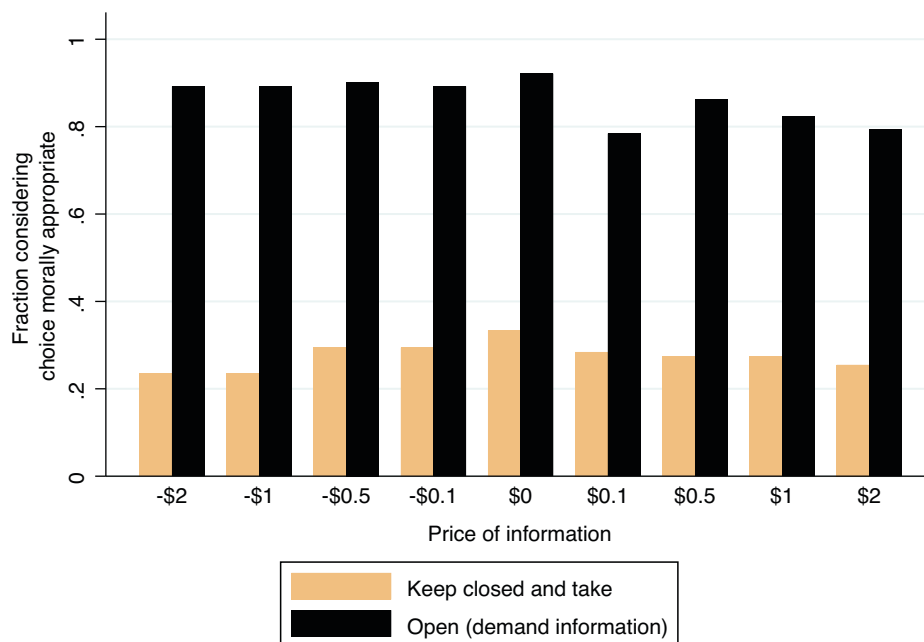
The moral appropriateness of each action in the MEG shows relatively little sensitivity to price. This invariability allowed us to provide simple messages regarding norms to a new set of subjects. We randomly allocated the new subjects to one of three treatments. The first treatment was a NoNorm treatment, which was the same as the MEG treatment in Experiment 1. The second was a NormAvoid treatment, in which subjects were informed that more than 70% of subjects considered taking the \$2.50 payment without seeking information first to be morally inappropriate. The third treatment was a NormSeek treatment, in which subjects were informed that more than 70% of subjects considered seeking information to be morally appropriate.⁸ Each message was shown once, before subjects started making their information decisions.

We, hence, study whether social norms shift the demand curve for ignorance.

In this design, both norms speak truthfully about the average norm beliefs of subjects by stating that more than 70% consider opening the envelope appropriate or leaving it closed inappropriate. Alternatively, one could consider providing norm messages that do not represent the average belief but rather the norm at a specific price point or the norm of a subgroup of people. Higher rates of appropriateness of information seeking could then be communicated, and these may have a stronger impact. However, pilot data show that levels of ignorance remained stable with different messages. In a pilot experiment, presented in detail in Online Appendix D, we presented subjects with norm information that either indicates that more than 90% of subjects considered it morally appropriate to open the envelope when the price of information is \$0 or that 100% of a group of 50 subjects considered it morally appropriate to open the envelope. The first variation is truthful information for the price point of \$0. The second is truthful when focusing on a preselected subsample.⁹ We found effects of norm messages that were very similar in the NormAvoid and NormSeek treatments.

When an opened envelope contains a certain donation of \$10, choosing the \$2.50 payment is considered morally inappropriate by a large majority of individuals, 78.22%. When there is uncertainty and the likelihood of a donation is 50%, choosing the \$2.50 payment is considered less inappropriate (paired

Figure 1. (Color online) Social Norms Regarding Ignorance



t -test, $p < 0.001$, $n = 101$). In this case, 66.33% of individuals consider it morally inappropriate not to donate. This difference in social norms is one potential reason why individuals may feel particularly guilty when choosing the \$2.50 payment knowing that they could have donated \$10. In Online Appendix D, we provide a detailed analysis of all norms.

2.4. Persistence Across Contexts

Moral ignorance may be a behavior that individuals exhibit across contexts. If this is the case, it implies that organizations may reduce ignorance by hiring certain types of individuals with strong moral concerns. We ask, does an individual exhibit the same information-avoiding behaviors in the MEG as in a different incentivized moral dilemma at a different point in time? We invited subjects of our experiments on AMT to an unrelated work task between 7 and 10 days after they had participated in the experiments described earlier. 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 prosocial 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). As suggested in the model by Hestermann et al. (2020), the moral costs of harming animals may lead to information avoidance about the externalities imposed on animals.

Subjects 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 one-minute informational video. We study whether subjects who choose to remain ignorant in the MEG also choose to avoid watching the video.¹⁰

2.5. Experimental Procedures

2.5.1. Other Determinants of Ignorance. After subjects made their information decisions, we elicited several control measures of subjects' preferences. First, we elicited a subject's valuation of the donation (α) to determine its relevance for the subject's decision on whether to remain ignorant or not. Subjects participated in a task that involved eight binary choices between a payment that increased from \$0.10 to \$10 and a \$10 donation. Their monetary equivalent, or willingness to donate (WTD), is measured as the maximum payment that a subject was willing to give up instead of choosing the certain donation.¹¹ Subjects also made eight choices when the donation was uncertain, deciding between a payment that increased from \$0.01 to \$5 and a 50% chance of a \$10 donation. This task provides a

measure of their altruism when no information about the envelope's content is available. Subjects knew that the computer drew either one of the two donation valuation tasks or the main part of the experiment (the envelope game) for payment and that one decision in the randomly selected part would be implemented.

Second, we elicited preferences for information according to the Monitors–Blunters scale (Miller 1987) and moral preferences according to the Machiavellianism scale (Christie and Geis 1970) as well as gender, age, education, and frequency of work in AMT. In the Self-5 and Self-10 treatments, we also elicited a control measure of subjects' risk preferences. After subjects had completed the respective envelope game, we elicited their risk preferences using a series of binary decisions between the envelope and a certain payment. Because these treatments included 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, descriptive statistics, and a balance check in Online Appendix C.

2.5.2. Sample. Experiment 1 consists of two different samples. The first sample consists of participants on AMT, and it includes 593 subjects, excluding inconsistent subjects as preregistered.¹² The second sample is from the subject pool of the KD2lab at KIT. These individuals also participated online instead of in the laboratory because of COVID-19. In total, we analyze the decisions of 255 consistent subjects. The samples differ in several ways, including age and gender, and for that reason, we do not pool them in the analysis (see details in Online Appendix C).

In Experiment 2, conducted on AMT two months after Experiment 1, we again elicited the behavior of subjects in the MEG treatment, labeled the NoNorm treatment, to control for any differences in the sample (see details in Online Appendix C). In the analysis, which includes 609 consistent subjects, we focus on the treatment effect of providing information about social norms within this experiment. We invited all participants on AMT to complete the follow-up task. On average, 86.3% of subjects in the experiments participated in this task.

Finally, a concern when running an experiment on ignorance, especially among subjects on AMT, is that they remain ignorant in order to save time. In our data, however, this does not seem to play a major role. Obtaining information involves only two additional clicks by the subject (selecting the envelope or the payment for the subject and moving on to the next question), which takes very little time, whereas direct incentives to obtain information can be very high (up to \$2). Indeed, subjects who pay to remain ignorant do not finish earlier than those who do not.

3. Theoretical Background and Hypotheses

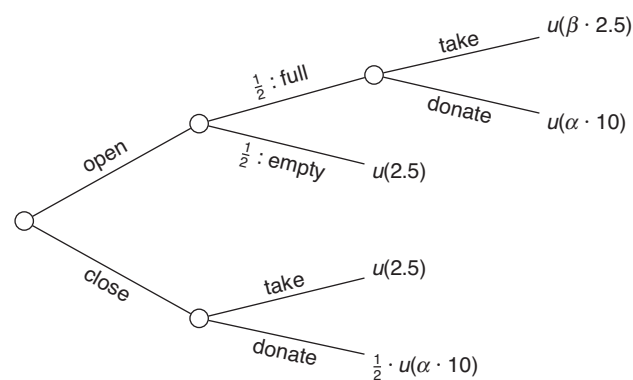
In the following, we describe the equilibria in the MEG and contrast predictions with those for the morally neutral games. These predictions lead to the hypotheses that guide our analyses of the data.

We start with the case in which opening the envelope or leaving it closed is costless in the MEG. Then, we turn to the case with direct monetary incentives for opening the envelope or keeping it closed. We refer to choosing to take the private payment instead of the envelope as choosing the “selfish option,” and choosing the moral envelope as “donating.”

We assume utility takes the form $u(x) = x^r$ with risk parameter $r > 0$, where x denotes a monetary payment adjusted for moral values and costs. As we show in Online Appendix A, the predictions are independent of the risk parameter, and yet they hinge on two parameters. First, it matters how much the individual values the donation of \$10, which we capture by $\alpha \cdot 10$. The parameter $0 \leq \alpha \leq 1$ is, thus, a measure of altruism. Second, information demand depends on the moral cost associated with rejecting the certain donation of \$10. Research has shown that rejecting a certain donation opportunity can induce significant guilt or disutility, for example, from violating the social norm to donate (e.g., DellaVigna et al. 2012, Andreoni et al. 2017, Ellingsen and Mohlin 2019), or give rise to self-image costs (e.g., Bénabou and Tirole 2011, Grossman and van der Weele 2017). We model this moral cost via a moral discount factor β . An individual who rejects the certain donation gets $\beta \cdot 2.5$ with $\beta < 1$ instead of 2.5. In other words, rejecting the certain donation feels morally worse than rejecting an uncertain one and, thus, causes moral costs. This moral cost aims to represent different potential mechanisms that may generate it. Figure 2 provides the game tree.

When ignorance is costless, the main result is that moral discounting renders it dominant for individuals

Figure 2. Game Tree of the MEG When Information Is Costless



with low levels of altruism to leave the envelope closed and take the selfish option right away. Only individuals with high levels of altruism open the envelope. This result, which arises from backward induction, is described in Proposition 1. (All proofs are presented in Online Appendix A.)

Proposition 1. Consider the MEG when information is costless. In equilibrium, individuals with $\alpha < \frac{1}{4}$ keep the envelope closed. Individuals with $\alpha \geq \frac{1}{4}$ open the envelope. After opening the envelope, individuals donate unless the envelope is empty. After keeping the envelope closed, individuals choose the selfish option.

Throughout, for simplicity, we refer to individuals with a low α ($\alpha < \frac{1}{4}$) as “selfish” individuals in contrast to “altruistic” individuals, who have a high α ($\alpha \geq \frac{1}{4}$).

Next, we introduce a cost of information. We assume that moral costs and altruism are fixed with respect to this cost. When avoiding or obtaining information entails a cost, behavior depends on both the individual’s altruism and moral discounting. Suppose direct monetary incentives m_o for opening the envelope and m_c for keeping it closed exist as shown in the game tree in Figure 3. For simplicity, we focus on the case $r = 1$. In Online Appendix A, we also address cases of risk aversion and risk lovingness.

Proposition 2. The equilibria of the MEG with monetary incentives $m_o, m_c > 0$, and $r = 1$ are as follows:

- i. If $m_c - m_o \geq \frac{5}{4}$, individuals keep the envelope closed regardless of α .
- ii. If $m_c - m_o < -5\left(\frac{1}{4} - \frac{\beta}{4}\right)$, individuals open the envelope regardless of α .
- iii. In the intermediate case,

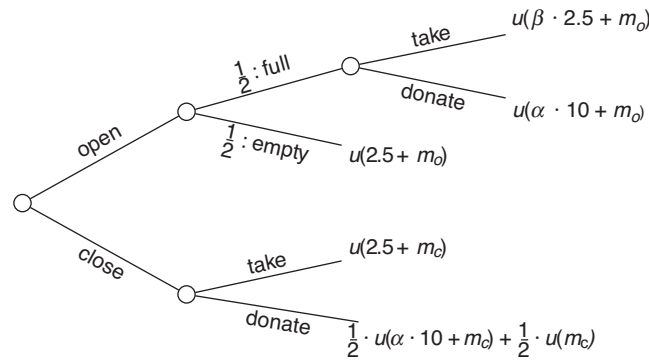
$$-5\left(\frac{1}{4} - \frac{\beta}{4}\right) \leq m_c - m_o < \frac{5}{4},$$

a threshold value of $\alpha_t \in \left(\frac{\beta}{4}, \frac{1}{2}\right)$ exists such that individuals open the envelope if $\alpha \geq \alpha_t$ and keep it closed if $\alpha < \alpha_t$. The value of α_t is given explicitly by

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

In the experiments, $m_c - m_o$ ranges from $-\$2$ to $\$2$. Figure 4 depicts optimal information demand and donation behavior, which depend on the price of information and the level of altruism, for three cases of moral discounting. The level of altruism generally determines whether individuals open the envelope or leave it closed. If moral discounting is very strong, selfish individuals pay to remain ignorant. If moral discounting is mild, they may open the envelope and bear the moral costs when taking the selfish option. This is when the lower rectangular area to the left emerges. Individuals who leave the envelope closed take the \$2.50 payment unless their altruism is very

Figure 3. Game Tree of the MEG with Direct Monetary Incentives



high ($\alpha > 0.5$). The latter case is described by the upper rectangular area to the right.

From Figure 4, one can infer the demand curve for information depending on levels of altruism and moral discounting. To illustrate the demand curve directly, Figure 5 shows the demand curve for information under the assumption that α and β are continuously distributed with α following beta(1,3) and β beta(3,1) distributions. We assume that α and β are independently drawn.¹³ We observe a nondifferentiability around a price of information of \$0. When ignorance is costly, β affects the slope of the demand curve. When obtaining information is costly, by contrast, α affects the slope of the demand curve.

We use this analysis to derive five main hypotheses. We expect that many individuals prefer \$2.50 over the \$10 donation. This corresponds to α below 0.25 in the MEG. We also expect that many individuals display moral discounting, that is, β below 1. Therefore, we expect that many individuals avoid information and pay for ignorance. In both self-treatments, by contrast,

individuals should pay for information (up to \$1.25 if risk neutral). This comparison yields Hypothesis 1.

Hypothesis 1. *There is less information demand in the MEG than in the self-treatments.*

In the self-treatments, individuals demand information regardless of whether they receive \$0.10, receive nothing, or pay \$0.10. This is different in the MEG. When avoidance costs \$0.10, individuals who have both α below 0.23 and β below 0.92 prefer to pay to avoid information. At a cost of \$0, individuals with α below 0.25 prefer to avoid information (regardless of β). When information costs \$0.10, individuals with α above 0.27 demand information (regardless of β). Thus, Hypothesis 2 states that changes in the price of ignorance around \$0 matter substantially more in the MEG than in the self-treatments.

Hypothesis 2. *The shift from negative to positive prices of information affects demand more strongly in the MEG than in the self-treatments.*

Figure 4. 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

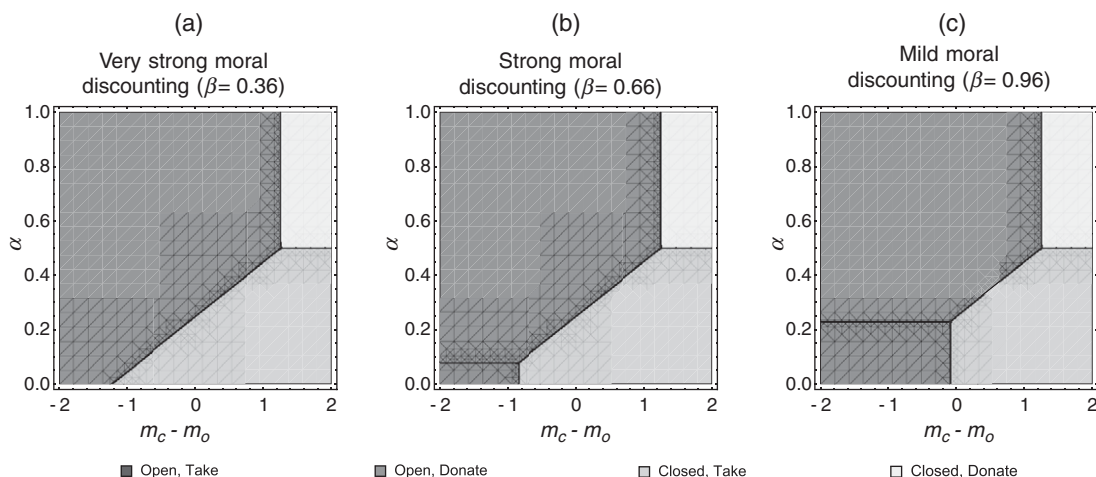
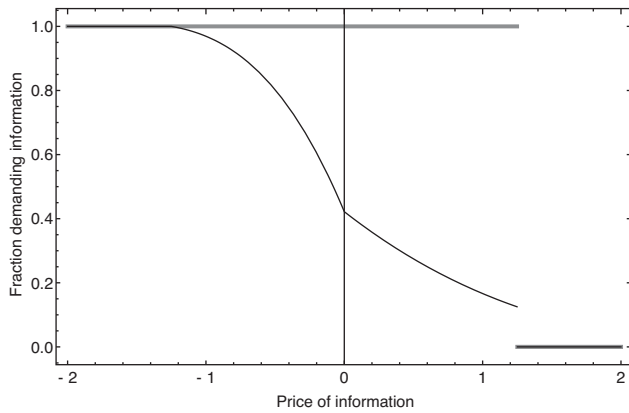


Figure 5. Illustration of the Demand for Information, Assuming That α follows Beta(1,3) and β Beta(3,1) Distribution, Depicted in Black



Note. For comparison, the demand function of the Self-5 with $\alpha = 0.5$ is shown in grey.

The expected few individuals with a large α of 0.5 or 1 in the MEG should behave as in the corresponding self-treatments. Specifically, the Self-10 treatment is equivalent to setting α to one in the MEG. The Self-5 treatment is identical to Self-10 except that the envelope may contain \$5 (not \$10). This corresponds to the case of $\alpha = 0.5$ in the MEG.

Hypothesis 3.

- In the MEG, individuals' demand for information if $\alpha = 1$ corresponds to the demand curve in Self-10.
- In the MEG, individuals' demand for information if $\alpha = 0.5$ corresponds to the demand curve in Self-5.

We next examine the effects of social norm messages on information demand in the MEG. In the MEG, without such messages, α is below 0.25 for many individuals. An increase in α that is a result of social norms, therefore, bears lots of potential for fostering information demand. However, social norm messages also increase moral costs, that is, strengthen moral discounting. This leads information demand to fall among subjects for whom α is still below 0.25.

Hypothesis 4.

- In the MEG, social norm messages increase the appreciation of the donation, α . This increases costly information seeking.
- In the MEG, social norm messages strengthen moral discounting, β . This increases costly information avoidance.

In Experiment 2, there were two kinds of messages regarding social norms: one positively and one negatively framed. The negatively framed message explicitly states that taking is inappropriate and can directly increase α . The positively framed message encourages individuals to seek information without mentioning

that it is inappropriate to take \$2.50. Both frames mention information demand and can, thus, increase moral costs, changing β . Ex ante, the overall effects of each frame are unclear. We provide empirical evidence by comparing them, which could be important for our understanding of how to use these frames when applying them to reduce ignorance in organizations.

About a week after making decisions within the MEG, individuals were confronted with the option to see a video about conventional dairy farming and received \$0.15 for answering several questions correctly. Individuals knew that the video would inform them about the living conditions of cows and their calves. If the level of concern for the children the Malaria Consortium aims to help is related (though not perfectly correlated) to the level of concern for animals, we expect that subjects who had a strong preference for ignorance in the MEG are more likely to avoid watching the video than those who had a weaker preference for ignorance. Hence, we expect moral ignorance to be persistent across these two moral contexts.

Hypothesis 5. *The willingness to pay for information avoidance is predictive of information avoidance in a different—and later—morally relevant context.*

4. Results

4.1. The Demand Curve for Ignorance

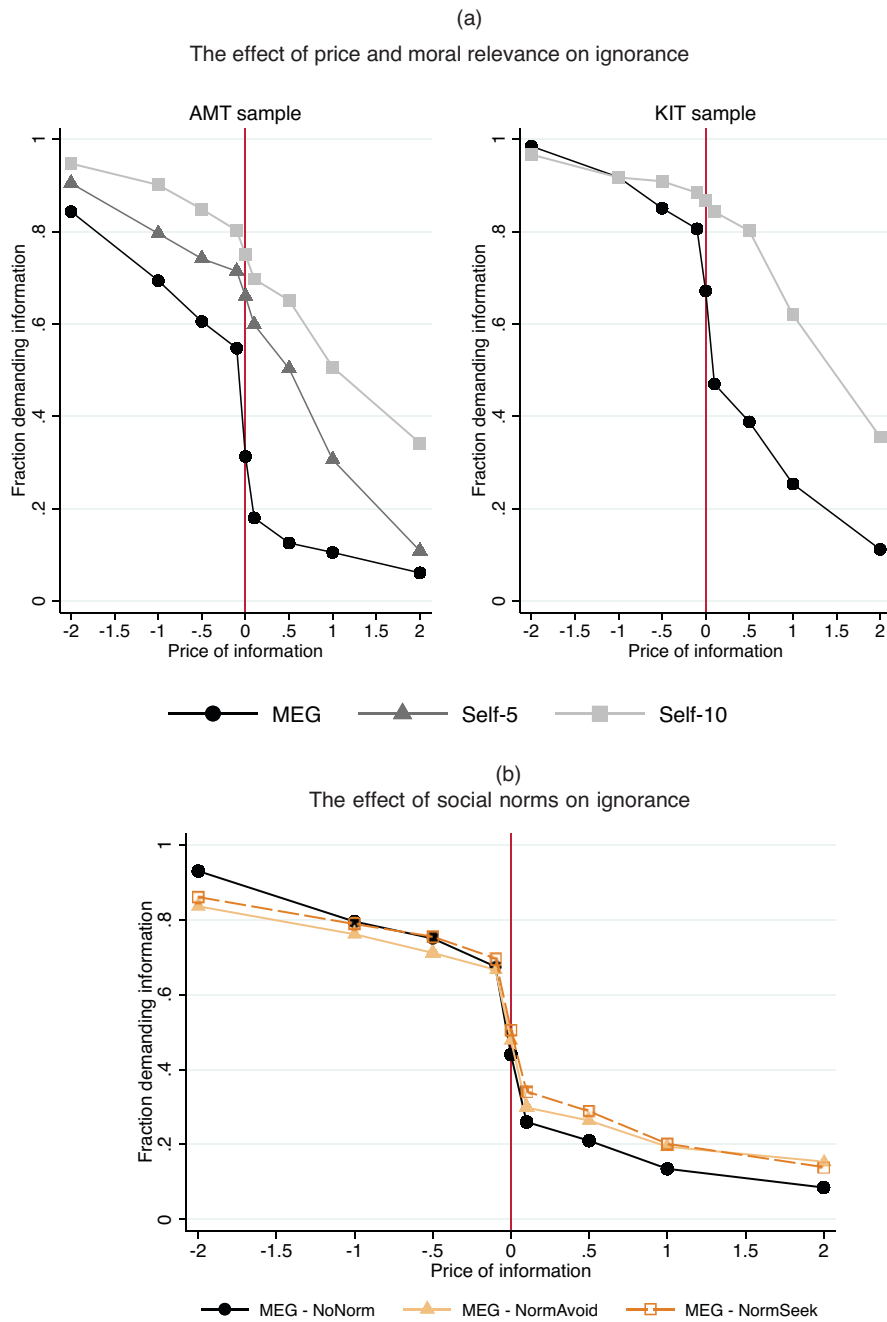
For each price of information, in each experiment and treatment, Figure 6 displays the share of subjects who demand information, that is, open the envelope. We first consider the effect of monetary incentives both when the decision involves a donation and when it does not. In Figure 6(a), the bottom black curve depicts information demand in the MEG treatment. In the AMT sample, we observe limited information demand.

On average, subjects pay 40 cents in order to remain ignorant in the MEG treatment. This amount is significantly negative (t -test, $p < 0.01$). By contrast, they pay \$0.83 for information in the Self-10 treatment and \$0.29 in the Self-5 treatment. Similar comparative statics arise in the KIT sample, in which subjects are more willing to pay for information as we show in detail in Section 4.3. On average, they pay 38 cents to be informed, a significantly positive amount (t -test, $p < 0.01$) although they pay \$1.10 in the Self-10 treatment. Hence, in line with Hypothesis 1, we observe less information demand in the MEG than in the Self-treatments.

Result 1. *There is less information demand in the MEG than in the self-treatments.*

There is some information avoidance in the Self-treatments in both samples. Some subjects pay to avoid information that is instrumental to them. This could be because of mistakes or preferences to avoid

Figure 6. (Color online) Information Demand by Treatment and Experiment



Notes. (a) The effect of price and moral relevance on ignorance. (b) The effect of social norms on ignorance.

instrumental information as documented, for example, in Eliaz and Schotter (2010) or Huck et al. (2018).

In both samples, there are large changes in information demand in the MEG when the price of information moves from being \$0 to being slightly negative or slightly positive, in line with Hypothesis 2. Removing a small cost of information and paying \$0.10 to seek information increases information demand by 36 percentage points, from 18% to 55% in the AMT sample.

Similarly, in the KIT sample, removing a small cost of information and instead paying subjects \$0.10 to seek information increases information demand by 33 percentage points from 47% to 80%. Hence, although absolute levels of information demand vary across samples, the effect of small monetary incentives on moral ignorance is strong in both samples.

Figure 6(b) shows information demand in Experiment 2 with and without social norm messages. The

MEG–NoNorm treatment in Experiment 2 is a replication of the MEG treatment in Experiment 1. Again, introducing small monetary incentives to seek information instead of having a small price for information affects information demand, which increases by 41 percentage points. A similar increase is found for the Norm treatments (37 percentage points in NormAvoid and 36 percentage points in NormSeek). The effect of introducing small monetary incentives to seek information is, thus, a very robust finding. This effect could be larger than the effect of changing the default information choice, which potentially entails small psychological costs. Grossman (2014) shows that changing the default from one in which one must click to make a choice, as in the MEG, to one in which seeking information is the default reduces the fraction of subjects who remain ignorant by 22 percentage points from 25% to 3%.

To quantify the effects of monetary incentives, we estimate the slope of the demand curve in all treatments in an exploratory analysis. Table 2 presents the results of linear probability models on the decision to demand information as a function of the price of information. The regression includes an indicator variable for costly information, that is, when prices are strictly positive, to examine how the demand curve changes around a price of information of \$0. To allow for the slope of the demand curve 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. Columns (1) and (2) focus on treatments in Experiment 1 on the AMT sample, columns (3) and (4) consider the treatments in Experiment 1 on the KIT sample, and columns (5) and (6) report the results in Experiment 2.

Table 2 shows that, in the MEG, information demand decreases by 28 percentage points when a small monetary incentive replaces a small monetary cost of information. This effect is significantly larger than that in the Self-treatments ($p < 0.001$).

Result 2. *The shift from negative to positive prices of information affects demand more strongly in the MEG than in the self-treatments.*

On average, social norms do not significantly affect information demand. For example, when the cost of information is \$0, information is demanded by 48% and 50% of the subjects in the NormAvoid and NormSeek treatments compared with 44% in the NoNorm treatment. This shift is not statistically significant. For negative prices of information, social norms significantly decrease the slope of the information demand curve for negative prices of information from -0.19 to -0.14 ($p = 0.002$). They also weakly decrease it for positive prices of information ($p = 0.059$). These findings

Table 2. Demand for Information Across Domains

Treatments	Experiment 1: AMT		Experiment 1: KIT		Experiment 2	
	MEG	Self	MEG	Self	MEG	Norms
Price (of information)	-0.2159*** (0.0145)	-0.1011*** (0.0150)	-0.1302*** (0.0208)	-0.0455** (0.0201)	-0.1922*** (0.0151)	-0.1367*** (0.0098)
Costly information	-0.2751*** (0.0242)	-0.0641** (0.0250)	-0.2760*** (0.0347)	0.0202 (0.0335)	-0.3247*** (0.0300)	-0.2896*** (0.0205)
Costly information × Price	0.1581*** (0.0221)	-0.1264*** (0.0228)	-0.0593* (0.0316)	-0.2229*** (0.0306)	0.1006*** (0.0247)	0.0449*** (0.0161)
Self-5		-0.1238*** (0.0163)				
NormSeek						0.0237 (0.0323)
Constant	0.4452*** (0.0149)	0.7954*** (0.0173)	0.7525*** (0.0213)	0.8763*** (0.0206)	0.5796*** (0.0315)	0.5956*** (0.0277)
Observations	2,646	2,691	1,206	1,089	1,800	3,681
Number of ids	294	299	134	121	200	409
R ²	0.3039	0.2094	0.3568	0.2017	0.3460	0.2492
		MEG versus Self		MEG versus Self		Effect of norms
Constant		< 0.001		0.007		0.704
Price of information		< 0.001		< 0.001		0.002
Costly information		< 0.001		< 0.001		0.333
Costly information × Price		< 0.001		< 0.001		0.059

Notes. This table examines the impact of price on information demand in the MEG, Self-10, and Self-5 treatments using linear probability models. The dependent variable takes value one if the subject demands information (opens envelope). Robust clustered standard errors are shown in parentheses. The bottom panel of the table compares the coefficient estimates across the linear probability models using Zellner’s seemingly unrelated regression model (Zellner 1962).

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

imply that the demand curve for information flattens with social norms.

4.2. Behavior Conditional on Information Choices

In Experiment 1, 31% of subjects in the AMT sample demand information if the cost of information is \$0. As shown in Table 3, when they find a \$10 donation in the envelope, they donate in 74% of the cases. More subjects demand information when the price of information is negative. These subjects are less likely to donate, and hence, donation rates are lower (between 49% and 52%). Very altruistic subjects pay for information. Accordingly, as the price of information increases, the share of subjects who donate increases to 100%. These findings are consistent with selection into demanding information according to subjects' willingness to donate, which has been found within the moral wiggle-room paradigm by, among others, Fong and Oberholzer-Gee (2011) and Grossman and van der Weele (2017), but not always (e.g., Larson and Capra 2009).

In the KIT sample, when subjects demand information and find a \$10 donation, the share of subjects who donate is substantially higher (between 80% and 100%), and there is, thus, less evidence of (and scope for) selection. On the one hand, this result is driven by the fact that subjects value the donation more. On the other hand, it also implies high moral discounting:

very few subjects choose to take \$2.50 when they are paid to obtain information. However, we still find higher donation rates with increasing cost of acquiring information.

In the Self-treatments, conditional on demanding information, subjects choose the envelope when it is full (empty) 99.2% (98.0%) of the time in the Self-5 treatment for the AMT sample and 99.0% (99.4%) of the time in the Self-10 treatment for the AMT sample and 99.3% (99.8%) in the KIT sample. The latter findings confirm that subjects who demanded information paid attention to their decisions.

In Experiment 2, conditional on demanding information, subjects who learn that the envelope contains a \$10 donation donate 67% of the time in the NoNorm treatment, 77% in the NormAvoid treatment, and 74% in the NormSeek treatment. The increase is marginally significant in the NormAvoid treatment ($p = 0.069$) and mainly driven by higher donation rates when subjects are paid to demand information. This finding indicates that moral pressure to donate increased in the NormAvoid treatment. Compared with the NoNorm treatment, the likelihood that a donation is made overall increases from 21.7% to 26.2% in the NormAvoid treatment ($p = 0.052$) and does not change significantly in the NormSeek treatment, in which it is 24.2% ($p = 0.267$). Hence, the NormAvoid treatment increases the likelihood that a donation is made in the MEG.

Table 3. Donation Behavior Conditional on Demanding Information

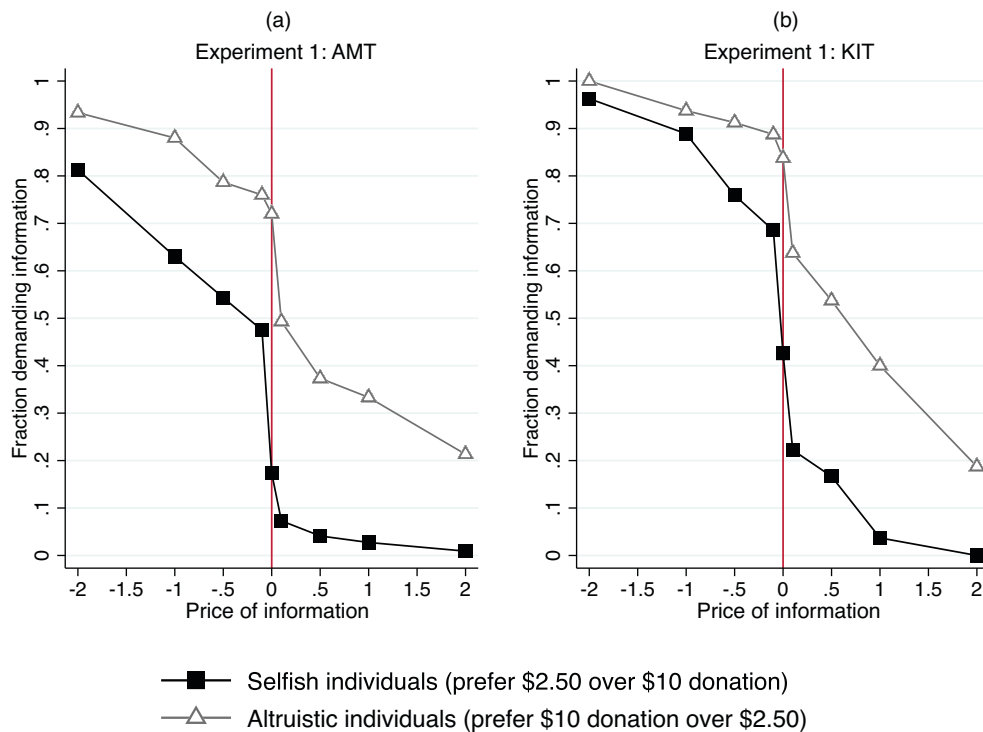
Price of information	Experiment 1					
	AMT sample		KIT sample		N	
	Mean, %	N	Mean, %	N		
-2	49	126	91	67	67	
-1	50	101	93	58	58	
-0.5	52	94	82	61	61	
-0.1	51	78	80	50	50	
0	74	47	90	39	39	
0.1	87	31	91	23	23	
0.5	96	25	100	26	26	
1	93	15	100	17	17	
2	100	7	100	8	8	
Price of information	Experiment 2					
	MEG-NoNorm		MEG-NormAvoid		MEG-NormSeek	
	Mean, %	N	Mean, %	N	Mean, %	N
-2	57	88	67	81	66	93
-1	62	77	65	72	70	74
-0.5	68	72	69	77	68	78
-0.1	62	68	74	77	67	64
0	72	50	80	61	78	55
0.1	91	22	100	31	97	33
0.5	83	18	100	28	85	34
1	92	12	100	18	95	20
2	92	13	100	15	91	11

4.3. Ignorance and Altruism

To understand the drivers of information demand and the consistency of the data with the theoretical framework, we examine the relationship between subjects' altruism and their demand for information. According to the model, information demand depends on whether subjects are selfish and prefer to keep \$2.50 over donating \$10 (corresponding to an α lower than 0.25) or whether they are generous and prefer the \$10 donation.¹⁴ Panels (a) and (b) of Figure 7 show information demand for these two groups. Selfish subjects often prefer to remain ignorant even if doing so is costly. By contrast, altruistic subjects often choose to obtain information even if it is costly, in line with the model.

According to Hypothesis 3, subjects with a WTD of \$10 should behave as in Self-10, and those 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 MEG treatment and subjects in the Self-10 treatment, in the AMT sample, we find no difference in willingness to pay for information, which is \$0.83 in both cases ($p = 0.9773$). We find a similar result in the KIT sample, in which willingness to pay for information of those with a WTD of \$10 is \$0.80 ($n = 23$) although willingness to pay for information in Self-10 is

Figure 7. (Color online) Information Demand and Altruism in Experiment 1



\$1.10 ($p = 0.1982$). Comparing subjects with a WTD of \$5 to the Self-5 treatment does not lead to any significant differences either; however, the number of subjects with a WTD of \$5 in the MEG treatment is small ($n = 8$).

Result 3. *In the MEG, individuals' willingness to pay for information if $\alpha = 1$ is not significantly different from that in Self-10. Qualitatively, we also find that individuals' willingness to pay for information in the MEG if $\alpha = 0.5$ is similar to that in Self-5.*

Next, we examine the effects of social norms on altruism and information demand. The monetary equivalent of the donation increases by \$0.71 (t -test, $p = 0.0619$) and \$0.68 (t -test, $p = 0.0813$) in the NormAvoid and NormSeek treatments, respectively, compared with the NoNorm treatment. Considering information demand, the effects of social norm information for selfish and altruistic subjects are displayed in panels (a) and (b) of Figure 8, respectively. Among selfish subjects, willingness to pay for information decreases from $-\$0.38$ to $-\$0.60$ ($p = 0.0884$) in NormAvoid and does not change significantly in NormSeek ($p = 0.7021$), in which it is $-\$0.42$. Among altruistic subjects, willingness to pay for information does not change significantly. It is \$0.34 without social norm messages, \$0.48 in NormAvoid ($p = 0.4410$), and \$0.62 in NormSeek ($p = 0.1467$). Hence, social norm messages increase willingness to donate and decrease information demand among selfish subjects if they are

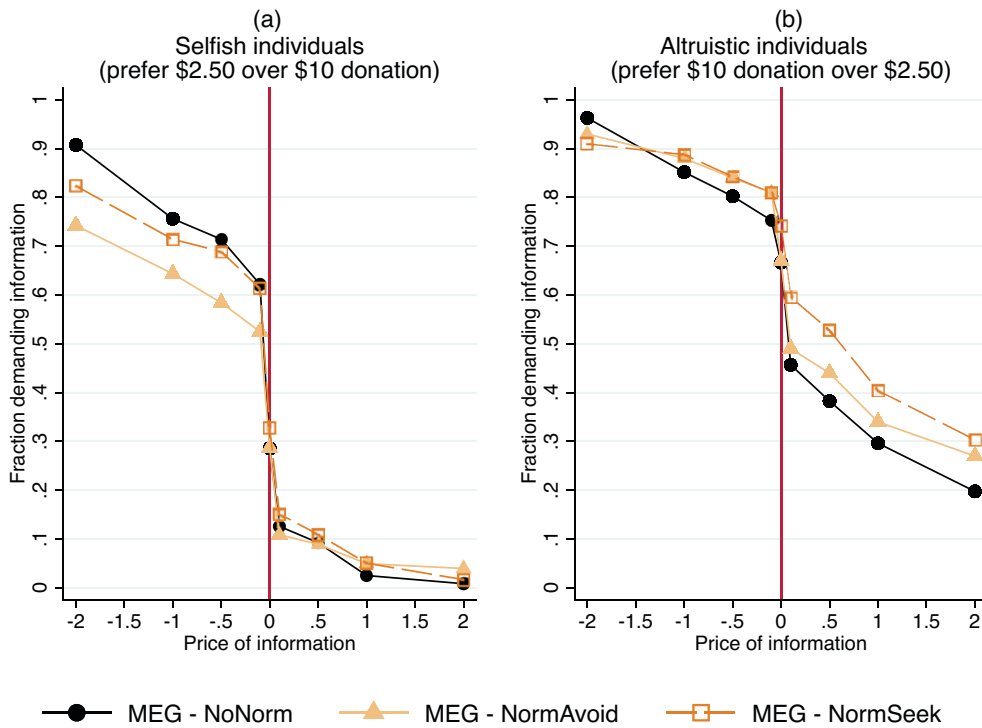
negatively framed as in NormAvoid. In the aggregate, information demand remains similar to that in the NoNorm treatment.¹⁵

4.4. Structural Estimates

We conduct exploratory analyses that estimate the extent of altruism and moral discounting structurally based on the simple behavioral model of information demand that we propose. Using a nested logit model (see, for example, Cameron and Trivedi 2005, chapter 15) for the MEG treatment, we first estimate average altruism (α) and moral discounting (β) as well as the constant relative risk aversion (CRRA) parameter (r) as detailed in Online Appendix E. For Experiment 1, the results are shown in columns (1) and (2) of Table 4. In the AMT sample, we find that the estimated α is 0.200 ($s.d. = 0.01$), and the estimated β is 0.721 ($s.d. = 0.05$), which is significantly smaller than one ($p < 0.01$), consistent with significant moral discounting. In the KIT sample, we find significantly higher altruism with an α of 0.253 ($s.d. = 0.01$). Very few subjects in this sample open the envelope and choose to take the private payment when they are paid to obtain information. This suggests that moral discounting is strong as illustrated in Figure 4(a) in Section 3, in which subjects with $\beta = 0.36$ never open and take. Indeed, we find that β is 0.422 ($s.d. = 0.10$).

In Experiment 2, we find similar effects of social norm messages on altruism and moral discounting as documented descriptively in Section 4.3. Subjects'

Figure 8. (Color online) Effects of Social Norm Messages by Altruism in Experiment 2



average altruism α is 0.217 in the absence of norm information, and it increases to 0.235 in NormAvoid ($p = 0.074$) although not changing significantly in the NormSeek treatment. The estimated moral discounting parameter β does not change significantly with social norm messages. It is 0.650 without norm information in Experiment 2, 0.582 in the NormAvoid treatment, and 0.539 in the NormSeek treatment.

Result 4.

a. *In line with Hypothesis 4(a), in the MEG, negatively framed social norm messages increase the appreciation of the donation, α . There is no increase if the norm is positively*

framed, however. We observe no significant effect on information seeking.

b. *In contrast to Hypothesis 4(b), in the MEG, social norm messages do not affect moral discounting, β .*

Structural estimates can help us explore the welfare effects of policies that remind individuals of social norms. Because there is wide heterogeneity across individuals, using the average estimated parameters is inappropriate, and we estimate individual-level parameters to evaluate the effects of social norm messages on utilities. Specifically, given the limited number of decisions, we estimate altruism and moral

Table 4. Estimation of Preferences for Ignorance

	(1)	(2)	(3)	(4)	(5)
	Experiment 1: AMT	Experiment 1: KIT	NoNorm	Experiment 2 NormAvoid	NormSeek
Altruism parameter α	0.1998 (0.0095)	0.2528 (0.0062)	0.2165 (0.0074)	0.2347 (0.0070)	0.2209 (0.0082)
Moral discounting β	0.7208 (0.0483)	0.4222 (0.0990)	0.6497 (0.0578)	0.5823 (0.0738)	0.5391 (0.0748)
CRRA coefficient r	1.0516 (0.0309)	0.9641 (0.0439)	1.0008 (0.0411)	0.8829 (0.0438)	0.9410 (0.0435)
Observations	2,646	1,206	1,800	1,809	1,872

Notes. This table presents structural estimation results of the preference parameters of subjects in Experiments 1 and 2. Robust standard errors, clustered at the individual level, are shown in parentheses.

discounting assuming risk neutrality. Altruism is estimated first, using subjects' decisions in the additional tasks that aim to capture WTD. We then estimate β from their choices in the MEG, following a similar approach to that taken in the intertemporal domain by Andersen et al. (2008). The moral discounting parameter is identified only for individuals who avoid information when avoidance is costly; for the others, moral discounting is set to one (further details are provided in Online Appendix E). The estimation recovers the altruism and moral discounting for a large majority of participants (79% of 609). The distribution of individual estimates of α and β is shown in Figure 9 and is consistent with the patterns of decisions observed in Experiment 2.

In Table 5, we present the estimated average individual utility of each action when information is costless, using individual-level estimated structural parameters. The table separates individuals who are information avoiders and pay a positive amount to avoid opening the envelope, considering all their decisions, from those who are information seekers and open the envelope even if weakly costly. As can be seen, norms weakly decrease the utility of opening and keeping (action (d)) for information avoiders from \$1.79 for NoNorm to \$1.69 and \$1.72 for NormAvoid and NormSeek, respectively, as a result of the weak increase in moral discounting. By contrast, they increase the utility of donating, especially for information seekers, in line with the increase in altruism.

We use the individual-level estimated utility of each action to measure the welfare effects of norms. For this exercise, we assume that welfare is measured as the sum of individual utility and donations and that those two components are given equal weight. Individual expected utility is \$2.79 in the NoNorm treatment, and it is \$3.09 in NormAvoid (p -value = 0.0185) and \$3.01 in NormSeek (p -value = 0.0898). This (marginally) significant increase is due to the increase in altruism, which increases the utility of donating. The negative effect of norms on moral discounting is small and, thus, has a small effect on utility. Combined with the increase in the likelihood that a donation is made, norms significantly increase welfare in the NormAvoid treatment but have no significant effect on welfare in the NormSeek treatment. Qualitatively similar effects are found for different prices of information except for the case in which the price of information is \$2 because social norm messages weakly increase the likelihood that information is demanded at a very high cost.

4.5. Persistence of Ignorance Across Contexts

We document that information demand about a moral dilemma, such as that studied in the MEG, is highly responsive to monetary incentives but rather inelastic to social norms. Hypothesis 5 posits that information demand in the MEG is predictive of information demand in other moral dilemmas.¹⁶

Figure 9. (Color online) Estimated Altruism and Moral Discounting in Experiment 2

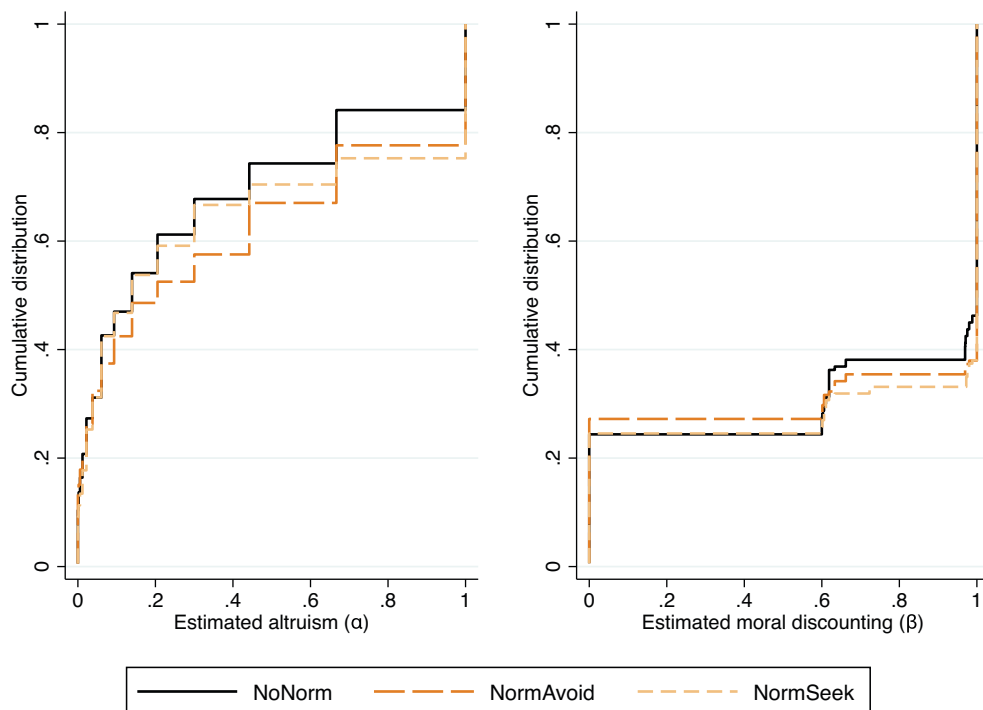


Table 5. Welfare

Action		Treatment		
		NoNorm	NormAvoid	NormSeek
Information Avoider	(a) Avoid & keep	2.50	2.50	2.50
	(b) Avoid & donate	0.76	0.83	0.56
	(c) Open & donate	2.01	2.08	1.81
	(d) Open & keep	1.79	1.69	1.72
Information Seeker	(b) Avoid & donate	2.25	2.77	2.58
	(c) Open & donate	3.50	4.02	3.83
	(d) Open & keep	2.50	2.50	2.50
All individuals	(b) Avoid & donate	1.47	1.86	1.68
	(c) Open & donate	2.72	3.11	2.93
	(d) Open & keep	2.13	2.12	2.15
	Individual utility	2.79	3.09	3.01
	Expected donation	2.13	2.97	2.39
	Welfare	4.92	6.07	5.41
	Welfare effect of norms: <i>t</i> -test, <i>p</i> -value		0.0418	0.3734
	<i>N</i>	160	158	163

Notes. This table presents the average utility of each action of the individual using individual-level estimated structural parameters when the price of information is \$0. An individual is an information avoider if the individual chooses not to obtain information when the price of information is negative and is an information seeker otherwise. The average utility of each action is calculated for information avoiders, seekers, and all individuals for actions (b), (c), and (d). By definition, (a) is the same for all individuals. The average individual utility in each treatment is calculated based on the individual’s decision when the price of information is \$0. The number of observations in each treatment corresponds to the number of subjects for whom altruism and moral discounting could be recovered (in total, 481 out of 609, 79% of participants).

To this end, we examine the relationship between information demand in the MEG and information demand about animal welfare in dairy production several days later. We find that a majority of subjects (71%) choose to watch the informational video about cows’ living conditions, and those watching the video answer the questions correctly in 73% of the cases compared with 27% for those who do not watch it. Figure 10 shows a positive relationship between the likelihood of watching the video and a subject’s willingness to pay for information in the envelope game.

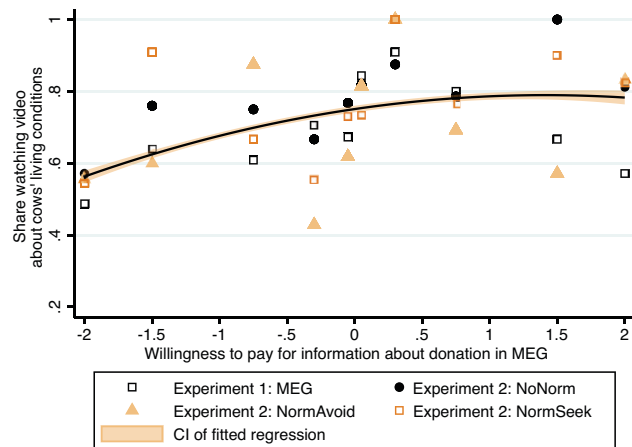
We test the relationship between willingness to pay to remain ignorant in the MEG and the choice to watch the informational video in Table 6. The results indicate

that a \$1 increase in a subject’s willingness to pay for information increases the likelihood that the subject watches the video about cows’ living conditions by five percentage points, in line with Hypothesis 5. This relationship is not driven by the subject’s valuation of the donation as the regressions control for the subject’s WTD, and this variable has no predictive power on information demand regarding cows’ living conditions, and it is similar in Experiments 1 and 2.

Result 5. *The willingness to pay for information avoidance is predictive of information avoidance in a different—and later—morally relevant context.*

The rate of avoidance of the video varies depending on the social norm messages to which subjects were exposed in Experiment 2. The share of subjects who watch the video is 76.9% in the NoNorm treatment, 68.8% in the NormAvoid treatment, and 74.3% in the NormSeek treatment. As shown in column (2) of Table 6, the NormAvoid treatment led to a marginally significant increase in avoidance of the video. Although the effect is comparatively small and exploratory, it suggests that the impact of social norm messages should be carefully measured in the short- and long-run in order to fully capture potential spillovers onto information demand in other moral contexts.

Figure 10. (Color online) Demand for Information Across Tasks



5. Conclusion

This paper investigates how the demand for moral ignorance responds to monetary and nonmonetary incentives. Ignorance often enables individuals to engage in questionable ethical decisions in a variety of

Table 6. Persistence of Ignorance Across Contexts

	(1)	(2)
	Likelihood of watching video about cows' living conditions	
Willingness to pay for information	0.0509*** (0.0181)	0.0502*** (0.0181)
Monetary equivalent of \$10 donation (WTD)	0.0073 (0.0058)	0.0085 (0.0058)
Experiment 1: MEG	-0.0314 (0.0467)	-0.0707 (0.0536)
Experiment 1: MEG × Willingness to pay for information	-0.0071 (0.0335)	-0.0067 (0.0334)
Experiment 1: MEG × WTD	-0.0084 (0.0121)	-0.0096 (0.0120)
Experiment 2: NormAvoid treatment		-0.0839* (0.0472)
Experiment 2: NormSeek treatment		-0.0444 (0.0481)
Observations	774	774

Notes. This table reports marginal effects from probit regressions on the likelihood of watching the informational video about cows' living conditions. Willingness to pay for information is measured by the price of information at the point at which the subject switches from demanding information to avoiding information. A monetary equivalent of \$10 donation (WTD) is the subject's willingness to donate as measured after the envelope game. Experiment 1: MEG is an indicator variable for participants in Experiment 1. The interaction of this indicator with willingness to pay and donate are also included and shown in the table. Experiment 2: NormAvoid and NormSeek are treatment indicators for the corresponding treatments in Experiment 2. All regressions include controls for the subject's gender, age, and educational achievement. Robust standard errors are shown in parentheses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

domains. In the domain of charitable giving, ignorance appears to be a widespread excuse for not giving.

Our findings reveal that ignorance can be substantially reduced by using small monetary incentives. From a policy perspective, this implies that incentives matter. Removing any (small) monetary costs of information and introducing small monetary incentives for information seeking can reduce moral ignorance significantly by more than 30 percentage points in our context.

One could consider institutional changes, such as delegation, market trading, authority, or committee decisions, to reduce moral ignorance. When it comes to immoral behavior, however, these institutions often render problems more severe (Milgram 1963, Fischbacher et al. 2001, Falk and Szech 2013, Falk, et al. 2020). Motivated by the literature on social norms (see Bicchieri and Dimant (2019) for an overview), which is often cited by policy makers as an effective way to curb unethical behavior, we tested whether social norm messages would decrease moral ignorance. We find no significant effects of such messages on information demand in the aggregate. However, negatively framed norms increase the likelihood that a donation is made by 20% (or, equivalently, five percentage points). The results suggest that, although information behavior may not change, social norms could increase the "pressure" felt to donate.

Further, we observe persistence in ignorance across moral contexts. For organizations and policy makers,

these findings imply that changing a culture of moral ignorance to one of transparency and information seeking may require costlier interventions than norm nudges. Curbing costs of information seeking could be key. If costs can be replaced by rewards, moral transparency may flourish.

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Endnotes

¹ 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" (CNN.com, 2000).

² 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, and yet investigations suggest that Winterkorn could have known already in 2007 (Bomey 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).

³ We follow Bandura (2016) in that avoiding unnecessary harm to humans, animals, and/or nature is of moral relevance. Evidence on the extent of moral ignorance in situations in which the recipient is an environmental charity is provided in Lind et al. (2019) and Momsen and Ohndorf (2020).

⁴ "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" (Carrick 2017).

⁵ Preregistration was done on aspredicted.org, and preregistrations are shown in Online Appendix F.

⁶ We used TurkPrime to run the studies on AMT and to reinvite subjects to the follow-up task (Litman et al. 2016). Further details are provided in Online Appendix C.

⁷ 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 Online Appendix B.

⁸ The message shown to subjects was "Over 70% of MTurkers who evaluated the actions in this part of the study consider it morally inappropriate to choose the option 'Get \$2.50' without revealing what the envelope contains first" in NormAvoid and "Over 70% of MTurkers who evaluated the actions in this part of the study consider it morally appropriate to reveal what the envelope contains first" in NormSeek.

⁹ Although our messages stated the conditions under which they were true, they may have been perceived as true more generally by participants. There is an ongoing discussion regarding whether such messages could be considered deceptive (e.g., Krawczyk 2019, Charness et al. 2020).

¹⁰ In contrast to the MEG, here, repugnance (e.g., Roth 2007) may be an additional reason for avoiding information. Nevertheless, we observe a marked correlation across the two contexts.

¹¹ One potential concern with this measure of subjects' altruism is that it was elicited after they participated in the MEG. Reassuringly, we find qualitatively similar changes in altruism with social norm messages in Experiment 2 when considering donation decisions conditional on opening an envelope that contains \$10 (within the MEG) as we do in this additional measure of altruism. For details, see Section 4.

¹² Subjects are classified as if they give inconsistent answers, switching multiple times in the elicitation of willingness to pay to resolve uncertainty or in the elicitation of preferences to donate.

¹³ This assumption is consistent with the data. Considering those individuals who prefer the \$2.50 payment over the \$10 donation, we do not observe a significant relationship between the individual's valuation of the donation captured by α , and the individual's willingness to pay to avoid information captured by β ($p > 0.10$). From the model, only for those subjects would a correlation affect predictions.

¹⁴ More continuous classifications yield similar insights as shown in Online Appendix D. We also find that donation choices under certainty are highly correlated with those under uncertainty. Hence, when we study the relationship between ignorance and altruism, we focus on our measure of altruism for the case in which the donation is certain. In Online Appendix D, we study in further detail the

determinants of ignorance at the individual level. In that analysis, which was preregistered, we relate willingness to pay for information with willingness to donate under certainty and uncertainty as well as psychological scales of ignorance and morality.

¹⁵ In the experiment, we do not elicit subjects' beliefs about the norm prior to participating in the MEG because of the potential effects on behavior. However, eliciting beliefs before and after the norm intervention could lead to additional insights.

¹⁶ Willingness to pay for information in the MEG is related to the Monitors–Blunters scale (Miller 1987), a scale that measures information seeking by individuals when they are under threat, for AMT subjects, and it is also weakly negatively related to the Machiavellianism scale score for subjects in Experiment 2. We present detailed results in Online Appendix D.

References

- Adena M, Huck S (2020) Online fundraising, self-image, and the long-term impact of ask avoidance. *Management Sci.* 66(2): 722–743.
- Albrecht K, Krämer F, Szech N (2017) Animal welfare and human ethics: A personality study. CESifo Working Paper No. 6609, Munich, Germany.
- Allcott H, Kessler JB (2019) The welfare effects of nudges: A case study of energy use social comparisons. *Amer. Econom. J. Appl. Econom.* 11(1):236–276.
- American Society for the Prevention of Cruelty to Animals (2016) New research finds vast majority of americans concerned about farm animal welfare, confused by food labels and willing to pay more for better treatment. Press release, American Society for the Prevention of Cruelty to Animals, New York City.
- Andersen S, Harrison GW, Lau MI, Rutström EE (2008) Eliciting risk and time preferences. *Econometrica* 76(3):583–618.
- Andreoni J, Rao JM, Trachtman H (2017) Avoiding the ask: A field experiment on altruism, empathy, and charitable giving. *J. Political Econom.* 125(3):625–653.
- Australian Public Service Commission (2018) Reflect: APS values and code of conduct: Decision-making model. Australian Government. Accessed June 2, 2021, <https://legacy.apsc.gov.au/reflect-aps-values-and-code-conduct-decision-making-model>.
- Bandura A (2016) *Moral Disengagement: How People Do Harm and Live with Themselves* (Worth Publishers, New York).
- Bartling B, Engl F, Weber RA (2014) Does willful ignorance deflect punishment? An experimental study. *Eur. Econom. Rev.* 70:512–524.
- Bénabou R, Tirole J (2011) Identity, morals and taboos: Beliefs as assets. *Quart. J. Econom.* 126(2):805–855.
- Bhanot SP (2018) Isolating the effect of injunctive norms on conservation behavior: New evidence from a field experiment in California. *Organ. Behav. Human Decision Processes* 163:30–42.
- Bicchieri C, Dimant E (2019) Nudging with care: The risks and benefits of social information. *Public Choice*, ePub ahead of print July 9, <https://doi.org/10.1007/s11127-019-00684-6>.
- Bicchieri C, Xiao E (2009) Do the right thing: But only if others do so. *J. Behav. Decision Making* 22(2):191–208.
- Bomey N (2017) Ex-VW CEO: 'I would have stopped' the cheating but 'I wasn't informed.'" *USA Today Online* (January 19), <https://www.usatoday.com/story/money/2017/01/19/volkswagen-martin-winterkorn/96764832/>.
- Broberg T, Ellingsen T, Johannesson M (2007) Is generosity involuntary? *Econom. Lett.* 94(1):32–37.
- Bundesministerium für Ernährung und Landwirtschaft [German Ministry of Nutrition and Agriculture] (2016) Deutscher Ernährungsreport [German nutrition report], Bonn (Germany).
- Cain DM, Dana J (2012) Paying people to look at the consequences of their actions. Working paper, Yale School of Management, New Haven.

- Cameron AC, Trivedi PK (2005) *Microeconometrics: Methods and Applications* (Cambridge University Press, New York City).
- Carrick R (2017) A frank discussion of your excuses for not giving to charity. *The Globe and Mail Online* (December 5), <https://www.theglobeandmail.com/globe-investor/personal-finance/household-finances/a-frank-discussion-of-your-excuses-for-not-giving-to-charity/article37196754/>.
- Charness G, Samek A, van de Ven J (2020) What is deception in experimental economics? A survey. Working paper, University of California Santa Barbara, Santa Barbara.
- Chen Y, He Y (2021) Information acquisition and provision in school choice: An experimental study. *J. Econom. Theory*. Forthcoming.
- Christie R, Geis FL (1970) *Studies in Machiavellianism* (Academic Press, New York).
- Cialdini RB, Goldstein NJ (2004) Social influence: Compliance and conformity. *Annual Rev. Psych.* 55:591–621.
- CNN.com (2000) Manhattan museum plans to issue Holocaust looted-art study. Accessed April 6, 2021, <http://www.cnn.com/2000/STYLE/arts/03/02/holocaust.art.reut/>.
- d’Adda G, Gao Y, Golman R, Tavoni M (2018) It’s so hot in here: Information avoidance, moral wiggle room, and high air conditioning usage. Working paper, Università degli Studi di Milano, Milan, Italy.
- Dana J (2006) Strategic ignorance and ethical behavior in organizations. Tenbrunsel AE, ed. *Ethics in Groups: Research on Managing Groups and Teams*, vol. 8 (Emerald Group Publishing, Bingley, UK), 39–57.
- Dana J, Cain DM, Dawes RM (2006) ‘What you don’t know won’t hurt me: Costly (but quiet) exit in a dictator game. *Organ. Behav. Human Decision Processes* 100(2):193–201.
- Dana J, Weber RA, Kuang JX (2007) Exploiting moral wiggle room: Experiments demonstrating an illusory preference for fairness. *Econom. Theory* 33(1):67–80.
- DellaVigna S, List JA, Malmendier U (2012) Testing for altruism and social pressure in charitable giving. *Quart. J. Econom.* 127(1):1–56.
- Eliasz K, Schotter A (2010) Paying for confidence: An experimental study of the demand for non-instrumental information. *Games Econom. Behav.* 70(2):304–324.
- Ellingsen T, Mohlin E (2019) Decency. Working paper, Stockholm School of Economics, Stockholm, Sweden.
- Exley C (2015) Excusing selfishness in charitable giving: The role of risk. *Rev. Econom. Stud.* 83(2):587–628.
- Exley C (2020) Using charity performance metrics as an excuse not to give. *Management Sci.* 66(2):553–563.
- Exley C, Petrie R (2018) The impact of a surprise donation ask. *J. Public Econom.* 158:152–167.
- Falk A, Szech N (2013) Morals and markets. *Sci.* 340(6133):707–711.
- Falk A, Szech N (2019) Competing image concerns: Pleasures of skills and moral values. Working paper, University of Bonn, Bonn, Germany.
- Falk A, Neuber T, Szech N (2020) Diffusion of being pivotal and immoral outcomes. *Rev. Econom. Stud.* 87(5):2205–2229.
- Feiler L (2014) Testing models of information avoidance with binary choice dictator games. *J. Econom. Psych.* 45:253–267.
- Felgendreher S (2018) Do consumers choose to stay ignorant? The role of information in the purchase of ethically certified products. Working paper, University of Gothenburg, Gothenburg, Sweden.
- Fischbacher U, Gächter S, Fehr E (2001) Are people conditionally cooperative? Evidence from a public goods experiment. *Econom. Lett.* 71(3):397–404.
- Fong CM, Oberholzer-Gee F (2011) Truth in giving: Experimental evidence on the welfare effects of informed giving to the poor. *J. Public Econom.* 95(5–6):436–444.
- Freddi E (2021) Do people avoid morally relevant information? Evidence from the refugee crisis. *Rev. Econom. Statist.* Forthcoming.
- Frey BS, Meier S (2004) Social comparisons and pro-social behavior: Testing ‘conditional cooperation’ in a field experiment. *Amer. Econom. Rev.* 94(5):1717–1722.
- Ganguly AR, Tasoff J (2017) Fantasy and dread: The demand for information and the consumption utility of the future. *Management Sci.* 63(12):4037–4060.
- Gneezy U, Saccardo S, Serra-Garcia M, van Veldhuizen R (2020) Bribing the self. *Games Econom. Behav.* 120:311–324.
- Golman R, Hagmann D, Loewenstein G (2017) Information avoidance. *J. Econom. Literature* 55(1):96–135.
- Grossman Z (2014) Strategic ignorance and the robustness of social preferences. *Management Sci.* 60(11):2659–2665.
- Grossman Z, van der Weele JJ (2017) Self-image and willful ignorance in social decisions. *J. Eur. Econom. Assoc.* 15(1):173–217.
- Guerrero AA (2007) Don’t know, don’t kill: Moral ignorance, culpability, and caution. *Philos. Stud.* 136:59–97.
- Hallsworth M, List J, Metcalfe R, Vlaev I (2017) The behavioralist as tax collector: Using natural field experiments to enhance tax compliance. *J. Public Econom.* 148:14–31.
- Hertwig R, Engel C (2016) Homo ignorans: Deliberately choosing not to know. *Perspect. Psych. Sci.* 11(3):359–372.
- Hestermann N, Le Yaouanq Y, Treich N (2020) An economic model of the meat paradox. *Eur. Econom. Rev.* 129:103569.
- Ho E, Hagmann D, Loewenstein G (2020) Measuring information preferences. *Management Sci.* 67(1):126–145.
- Huck S, Szech N, Wenner L (2018) More effort with less pay: On information avoidance, optimistic beliefs and performance. Working paper, Karlsruhe Institute of Technology, Germany.
- Jackall R (1988) Moral mazes: The world of corporate managers. *Internat. J. Politics Culture Soc.* 1(4):598–614.
- Kajackaite A (2015) If I close my eyes, nobody will get hurt: The effect of ignorance on performance in a real-effort experiment. *J. Econom. Behav. Organ.* 116:518–524.
- Karlsson N, Loewenstein G, Seppi D (2009) The ostrich effect: Selective attention to information. *J. Risk Uncertainty* 38(2): 95–115.
- Krawczyk M (2019) What should be regarded as deception in experimental economics? Evidence from a survey of researchers and subjects. *J. Behav. Experiment. Econom.* 79:110–118.
- Krupka EL, Weber RA (2013) Identifying social norms using coordination games. Why does dictator game sharing vary? *J. Eur. Econom. Assoc.* 11(3):495–524.
- Larson T, Capra CM (2009) Exploiting moral wiggle room: Illusory preference for fairness? A comment. *Judgment Decision Making* 4(6):467–474.
- Lazear EP, Malmendier U, Weber RA (2012) Sorting in experiments with application to social preferences. *Amer. Econom. J. Appl. Econom.* 4(1):136–163.
- Lind JT, Nyborg K, Pauls A (2019) Save the planet or close your eyes? Testing strategic ignorance in a charity context. *Ecological Econom.* 161:9–19.
- Litman L, Robinson J, Abberbock T (2016) TurkPrime.com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behav. Res. Methods* 49:433–442.
- Matthey A, Regner T (2011) Do I really want to know? A cognitive dissonance-based explanation of other-regarding behavior. *Games* 2(1):114–135.
- Milgram S (1963) Behavioral study of obedience. *J. Abnormal Soc. Psych.* 67(4):371–378.
- Miller SM (1987) Monitoring and blunting: Validation of a questionnaire to assess styles of information seeking under threat. *J. Personality Soc. Psych.* 52(2):345–353.
- Momsen K, Ohndorf M (2020) When do people exploit moral wiggle room? An experimental analysis of information avoidance in a market setup. *Ecological Econom.* 169:106479.

- Onwezen MC, van der Weele CN (2016) When indifference is ambivalence: Strategic ignorance about meat consumption. *Food Quality Preference* 52:96–105.
- Organisation for Economic Co-operation and Development (2018) Behavioural insights for public integrity harnessing the human factor to counter corruption. OECD Public Governance Reviews, OECD Publishing, Paris.
- Oster E, Shoulson I, Dorsey ER (2013) Optimal expectations and limited medical testing: Evidence from Huntington disease. *Amer. Econom. Rev.* 103(2):804–830.
- Rayner S (2012) Uncomfortable knowledge: The social construction of ignorance in science and environmental policy discourses. *Econom. Soc.* 41(1):107–125.
- Rosen G (2003) Culpability and ignorance. *Proc. Aristotelian Soc.* 103(1):61–84.
- Roth AE (2007) Repugnance as a constraint on markets. *J. Econom. Perspect.* 21(3):37–58.
- Schultz PW, Nolan JM, Cialdini RB, Goldstein NJ, Griskevicius V (2007) The constructive, destructive and reconstructive power of social norms. *Psych. Sci.* 18(5):429–434.
- Serra-Garcia M, Szech N (2020) Demand for COVID-19 antibody testing, and why it should be free. CESifo Working Paper No. 8340, Munich, Germany.
- Shang J, Croson R (2009) A field experiment in charitable contribution: The impact of social information on the voluntary provision of public goods. *Econom. J. (London)* 119(540):1422–1439.
- Sicherman N, Loewenstein G, Seppi DJ, Utkus SP (2016) Financial attention. *Rev. Financial Stud.* 29(4):863–897.
- Spiekermann K, Weiss A (2016) Objective and subjective compliance: A norm-based explanation of “moral wiggle room.” *Games Econom. Behav.* 96:170–183.
- Stüber R (2020) The benefit of the doubt: Willful ignorance and altruistic punishment. *Experiment. Econom.* 23(3):848–872.
- te Velde H, Aarts N, van Woerkum C (2002) Dealing with ambivalence: Farmers’ and consumers’ perceptions of animal welfare in livestock breeding. *J. Agricultural Environ. Ethics* 15:203–219.
- Zane DM, Irwin JR, Reczek RW (2016) Do less ethical consumers denigrate more ethical consumers? The effect of willful ignorance on judgments of others. *J. Consumer Psych.* 26(3):337–349.
- Zellner A (1962) An efficient method of estimating seemingly unrelated regressions and tests for aggregation bias. *J. Amer. Statist. Assoc.* 57(298):348–368.
- Zimmerman MJ (1997) Moral responsibility and ignorance. *Ethics* 107(3):410–426.