



## Norms as obligations

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### ABSTRACT

Economists model legal compliance as the process of maximizing utility while weighing the consequences from norm violation against other (monetary and non-monetary) considerations. Legal philosophers, on the other hand, believe that the normative side of law is central. Citizens comply because they have an obligation to do so. Legal norms provide exclusionary reasons that prevent weighing up on other issues. We test and compare both models in a controlled online experiment. We conduct a modified dictator game with partially unknown yet ascertainable payoffs, and vary between treatments the presence and content of authoritative norms. Our experimental results show that – in the presence of a norm – participants follow norms without searching for information that they deem important in the absence of a norm. This pattern is independent of the specific content of the norm. Our results are consistent with the legal model of norm compliance.

### 1. Introduction

Today, legal scholarship includes surprisingly different conceptions of law and its function to exert social control. At one end of the spectrum is the economic account of law. Notably within Law & Economics and large parts of Empirical Legal Studies, humans are viewed as utility maximizers, whose deliberate decisions are guided by their (selfish, moral, social, etc.) preferences (Zamir and Teichman, 2018; Sunstein, 2000). This does not change if legal norms are applicable: They may modify the (monetary and non-monetary) concerns weighed against each other, yet ultimately leave the process of maximization untouched. Legal norms are one argument among many and not a sufficient reason in and of itself: The utility function may feature a personal preference for norm compliance (Kimbrough and Vostroknutov, 2016), yet it is still weighed against other concerns.

Diametrically opposed is what we will call the legal account. “What society wants from its members, in any case, is not an intelligent calculation of the costs and benefits of abiding by its basic norms, but more or less unthinking obedience to them. To the extent people are specifically comparing the costs and benefits of breaking criminal

laws, the battle is already lost” (Lynch, 1997). Legal philosophers and theorists believe norms cannot be reduced to mere incentives or information. Instead, their normative nature has to be taken seriously: They impose obligations. Having an obligation entails being bound to behave according to the norm. The obligatory nature of law may depend on the legitimacy of the legal system, but is irrespective of individual agreement, convenience or circumstance (such as the likelihood of punishment). Those who recognize laws as obligations therefore do not reconsider it at every turn by making a personal and individual decision to comply or not. They follow the law not because it maximizes their utility, but because it is the law. Much like a chess player will not typically weigh the benefits and costs of moving a chess piece illegally, but simply use the rules to play the game (Hart et al., 2012). That is not to say that nobody behaves like a rational actor or that everybody automatically complies, even in exceptional circumstances.<sup>1</sup> The point is rather that in many cases, the economic account may be an unrealistic description of the decision making process if compliance is internalized and intuitive to some degree (Feldman, 2018; Arlen and Kornhauser, 2022). For the average person in everyday situations with

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<sup>1</sup> In that way, the legal account is an idealization much as the economic one is. Hart for example held that as a minimal condition for legal systems, only legal officials have to internalize norms to some degree. Yet he assumed that in healthy legal systems, the same would be true for citizens (Hart et al., 2012).

low stakes, legal norms do not complicate the decision making process by adding additional considerations, but simplify it.

While legal philosophers proposed different ways to conceptualize the obligatory nature of law, one lends itself particularly well to a comparison with the economic account: Joseph Raz argues that in absence of legal norms, people may decide much like economists envision by weighing all “first-order” reasons for action. This may lead to undesirable outcomes as people will often fail to weigh those reasons competently, or will struggle to coordinate with others effectively, or will find themselves in a social dilemma. Legal authorities can overcome these issues by making a decision better in line with the “first-order” reasons of their subjects. Legal norms are therefore “second-order” reasons that already encompass first-order ones. For citizens, their obligatory nature can be modeled by functioning as “exclusionary reasons”. They are not simply reasons in the balance of reasons, but preempt (re-)considering first-order reasons (Raz, 1999, 2009). For subjects who accept the legal authority as legitimate, deciding based on personal (moral, social or other) preferences is therefore not only pointless but also prohibited. If legal norms indeed function as exclusionary reasons, they should be complied with irrespective of their content. Moreover, the presence of a norm removes the need to gather additional information otherwise deemed decision-relevant.

The present paper provides new empirical evidence to this important debate. We test (a) whether people follow authoritative norms blindly (i.e. irrespective of their content) or opportunistically (i.e. when it serves their self-interest), and (b) whether they treat norms like exclusionary reasons by not gathering information they otherwise deem decision-relevant. Generating clean causal evidence on these important questions requires a setting with (i) a measure of individuals’ willingness to follow a norm, (ii) a measure of individuals’ willingness to obtain decision-relevant information, and (iii) exogenous variation of whether a norm is present or not, and of the specific norm content. Answering these questions with naturally-occurring data in the field is virtually impossible as norms are typically not exogenous but a product of the political process. We therefore design an online experiment with the those three desirable features. Specifically, we conduct a modified dictator game with partially unknown yet ascertainable payoffs (Dana et al., 2007) to generate a scenario where information search is viable. Since obligations by a legal authority cannot be varied in the laboratory, we follow in the footsteps of previous research that used the position of the experimenter to create authoritative norms (Silverman et al., 2014; Galbiati and Vertova, 2008).<sup>2</sup> Between treatments, we vary whether there is no norm, a norm requesting a beneficial choice, or a norm requesting a sacrificial choice.

We find high levels of norm compliance regardless of the norm content. Participants follow the norm not only when it requests a beneficial choice but also when it requests a sacrificial choice. In addition, the presence of a norm leads to a content-independent reduction in people’s information search. When there is a norm, people are less interested in learning how their actions may impact others, even if others could be hurt, and even when information search is costless. Taken together, our findings resonate with the notion of exclusionary reasons as participants stop gathering decision-relevant information. In contrast, utility maximization would predict sacrificial norms to have a distinctly smaller effect on people’s reduction of (costless) information search than beneficial norms.

As our norms carry less obligatory and authoritative weight than legal norms in the real world and information search is cheap, our

<sup>2</sup> Our design thus takes advantage of so-called experimenter demand effects, i.e. people’s well-documented desire to follow the request of the experimenters. Importantly, however, our paper diverges from the literature on demand effects as we are not primarily interested in people’s compliance with the demand, but with their information search behavior (on which the demand is mute).

test of the legal account is a very conservative one. And still, our experimental participants largely treat norms as exclusionary reasons that preempt a personal and informed decision. Norms are not only complied with, they also make it superfluous to search for information that is otherwise deemed relevant. These findings support the view that norms indeed constitute obligations, and not a mere threat of sanctions. They suggest that legal theorists may be right to argue that modeling norms via constraints (Rabin, 1995; Kornhauser, 1999), prices (Cooter, 1984) or preferences (Kornhauser, 1999) misses the point. This debate has important implications for policy makers as well: The legal account would imply that a fine instigates more compliance than a tax, as the former establishes an obligation whereas the latter does not. This resonates with the idea that “people perceive [...] different types of legal probabilities in distinct ways” (Feldman and Teichman, 2009). In addition, the effect of being under an obligation implies that changes in sanction severity and detection probability should not have a linear impact on compliance but distinctly non-linear, as described by Michaeli and Spiro (2015).

The next section relates our paper to various strands of literature. We introduce our experimental design in Section 3 and derive testable hypotheses in Section 4. We report our experimental results in Section 5 and discuss them in Section 6.

## 2. Literature

This paper speaks to different research programs and disciplines. From a theoretical viewpoint, we address both economic and (legal) philosophical accounts of compliance with the law. From an empirical viewpoint, we use a design and methodology from experimental economics to advance the understanding of norm compliance, authority, and willful ignorance.

*Economic theory.* Classical economic theory specifies humans as utility maximizers with unlimited cognitive capacity. Traditional law and economics scholarship assumed self-interested actors, in which case legal norms influence human behavior only via sanction severity and probability (Becker, 1968). Behavioral economics has enriched this framework by (a) expanding the set of objectives people find desirable – e.g. social recognition (Bursztyjn and Jensen, 2017; Kurschilgen and Marcin, 2019), living up to one’s own moral standards (Bénabou and Tirole, 2011; Kurschilgen, 2021), and (b) accounting for people’s cognitive constraints and biases (Kahneman et al., 1982; Simon, 1990).

Behavioral economists have also pointed out a number of additional ways in which legal norms can influence utility maximizers. Law has been shown to provide focal points for successful coordination (McAdams, 2015; McAdams and Nadler, 2008, 2005; Bohnet and Cooter, 2003; Chatziathanasiou et al., 2022), and information on risks and benefits (Ferrer, 2010; Sah, 1991). Legal norms can inform about the expectations of citizens towards the behavior of others (Sunstein, 1996). The existence of a legal norm can signal the social types among citizens as it is introduction will be tailored to preventing or strengthening specific behavior (Sliwka, 2007; van der Weele, 2012; Benabou and Tirole, 2011). Upholding and enforcing legal norms may signal the idiosyncratic moral preferences (Hadfield and Weingast, 2012) of fellow citizens. Finally, legal norms may interact with stigma or remorse (Rasmusen, 1996; Huang and Wu, 1994). All have in common that legal norms provide additional considerations in an utility function where they are maximized next to other (selfish or social) motives.

*Legal theory.* Legal theorists and philosophers think about law differently. Since H.L.A. Hart’s seminal critique of reductionist accounts of law, viewing law from the perspective of the “bad man” (the equivalent of the rational actor) has fallen out of favor (Hart et al., 2012). Many hold that mere incentives cannot explain legal obligations, the normative aspect of law. If legal norms were nothing but the threat of sanctions, much of legal thought and language would be but an illusion, both for legal professionals and citizens. Hart himself did not

propose a specific mechanism through which law influences behavior, but considered a plethora of different reasons why citizens comply with law. Instead of focusing on “bad men”, who may be in the minority, he highlights the “puzzled or ignorant men” (PIM) who “wishes to arrange his affairs if only he can be told how to do it” (Hart et al., 2012).

Legal philosophers have since specified a number of different ways in which law can provide reasons for action. Yet despite the significant amount of testable behavioral hypotheses within, legal theory has been generally antagonistic towards empirical research (Galligan, 2010). Similarly, legal theory and policy have been reluctant to incorporate the advances in behavioral economics (Feldman, 2018). We bridge this gap by testing the account of legal norms developed by Joseph Raz: He argued that legal norms are “exclusionary reasons” provided by an authority, preempting other considerations that usually play a role in self-reliant decisions (Raz, 1999, 2009). They are second-order reasons: While first-order reasons are simply arguments for or against an action, second-order reasons concern if or how first-order reasons can be combined. Since legal norms are provided by an authority that is presumably better at weighing first-order reasons against each other, legal norms prohibit its addressees from reevaluating those reasons. This function is not captured by integrating legal norms as costs, constraints or preferences in utility functions (Kornhauser, 1999).

We can, however, expect similar results even when the obligatory nature of law means little to those addressed. Legal norms may simply be used for guidance as their presence can be convenient. After all, a choice on how to behave has already been made by the respective legal authority. Citizens can “safely apply [the legal rules] without fresh official guidance or weighing up of social issues” (Hart et al., 2012).

*Norm compliance.* We contribute to the literature on the behavioral mechanisms of norm compliance: Both institutionalized sanctions (Bohnet and Cooter, 2003) and unincentivized signals by third parties (McAdams and Nadler, 2008, 2005) have been shown to have a coordinating function, especially when implemented through voting (Tyran and Feld, 2006; Markusen et al., 2013). The presence of institutionalized sanctions has been found to crowd out decentralized norm enforcement (Kube and Traxler, 2011) whereas a legal frame enhances the effectiveness of decentralized sanctions (Engel and Kurschilgen, 2013). Laboratory experiments have identified a prosocial effect of obligations (Galbiati and Vertova, 2008, 2014; Riedel and Schildberg-Hörisch, 2013), authority (Silverman et al., 2014; Karakostas and Zizzo, 2016) and leadership (Levy et al., 2011; Brandts et al., 2015). Additionally, sanctions and incentive schemes are able to communicate the behavior of fellow citizens (Danilov and Sliwka, 2016; Galbiati et al., 2013). Vice versa, sanctions have little effect if their ability to communicate norms is impeded (Xiao, 2013; Xiao and Tan, 2014). The norm-communicating function may be the reason why punishing in public is more effective than punishing in private (Xiao and Houser, 2011). Even in the absence of sanctions, research has shown that participants comply with social norms (Krupka and Weber, 2013) or even pointless norms (Kimbrough and Vostroknutov, 2016) and that this disposition may drive social preferences. Finally, legal norms can modify social norms through its expressive function, especially laws that define a legal threshold for behavior (Lane et al., 2023).

*Authority.* Our experiment also speaks to the literature on authority. From religious leaders to managers, authority is seen as a central concept to imbue commands with a sense of duty beyond pure incentives. Compared with the ubiquitousness of authorities in real life, there have been surprisingly few experimental studies on the topic in behavioral economics.<sup>3</sup>

<sup>3</sup> There is a separate literature on authority understood as the power of decision, e.g. Fehr et al. (2013), Lai and Lim (2012), Hoeft and Mill (2017b,a) and Hoeft et al. (2019). In our context, authority will be understood as the power to influence others.

Early experimental evidence unveiled the striking ease with which participants are willing to obey the orders of the experimenter, thus illustrating the potentially disastrous consequences of authority (Milgram, 2009). More recently, Karakostas and Zizzo (2016) show that experimenters can successfully nudge participants to engage in pointless resource destruction. In a game where participants had to choose an optimal output from a production function, authoritative advice led to suboptimal decisions (Pingle, 1997). Of course, authority need not always be detrimental. Cadsby et al. (2006) reveal that a request to comply by the experimenter can increase tax compliance. Similarly, in a public good game with a hidden production function, providing authoritative reasons increased contributions when paired with non-deterrent punishment (Silverman et al., 2014).

*Willful ignorance.* Finally, our design relates to the literature on moral wiggle room and willful ignorance. It directly builds on the original design by Dana et al. (2007), who found that participants selectively use moral wiggle room to avoid behaving prosocially. There is conflicting evidence on how robust this phenomenon is: whereas Larson and Capra (2009) report that the effect is independent of decision costs, consumption delay and omission bias, Grossman (2014) find self-inflicted ignorance to hinge on which specific information-choice elicitation method is used. Prosocial behavior of interaction partners weakens the temptation to exploit moral wiggle room (van der Weele et al., 2014; Lazear et al., 2012). Bartling et al. (2014) report an interesting interaction between willful ignorance and social sanctions: Whereas staying willfully ignorant prevents people from receiving peer punishment for antisocial behavior, people are being sanctioned for the act of staying ignorant.

There are different attempts to rationalize willful ignorance in economic models. Grossman and van der Weele (2017) suggest that people may choose to remain ignorant because doing so obfuscates the signal about their true extent of selfishness. Spiekermann and Weiss (2016) conjecture that the social norms people comply with do not depend on the *objective* state of the world but rather on the *subjective belief* about the state of the world. Therefore, people opportunistically acquire information that reduces their norm-obligations. Hertwig and Engel (2016) and Hertwig and Engel (2021) build a taxonomy of deliberate ignorance beyond strategic motivations and show various ways in which law curbs or bolsters it. Our study adds to this literature by testing a theory that rationalizes deliberate ignorance as a general normative principle in legal compliance.

*Demand effects.* Norms are a specific embodiment of a demand requiring certain types of conduct. If the demands are set by legitimate authority, they impose obligations. While we cannot replicate legal authority in the lab, we use the position of the experimenter as a proxy. Similar to the government, an experimenter enjoys a position of authority, power and informational advantage. Much as the state can set the rules of interaction between citizens, the experimenter has control over the laboratory setting. This power asymmetry is best modeled through norms set by the experimenter rather than, for instance, norms created by other participants. While both the position of authority and the resulting obligations will be significantly weaker than those of legal authorities, they should capture the mechanism of providing exclusionary reasons.

Our design therefore presupposes that experimenters can create a demand: Previous literature has shown that participants are sensitive to demand effects (Fleming and Zizzo, 2015; Zizzo, 2010; Shmaya and Yariv, 2016; de Quidt et al., 2018). Participants may adhere to demand effects precisely because they constitute an authoritative norm. In previous experiments, they were used to study authority and obligation (Galbiati and Vertova, 2008; Silverman et al., 2014; Galbiati and Vertova, 2014). We follow in the footsteps of these designs to implement authoritative norms.

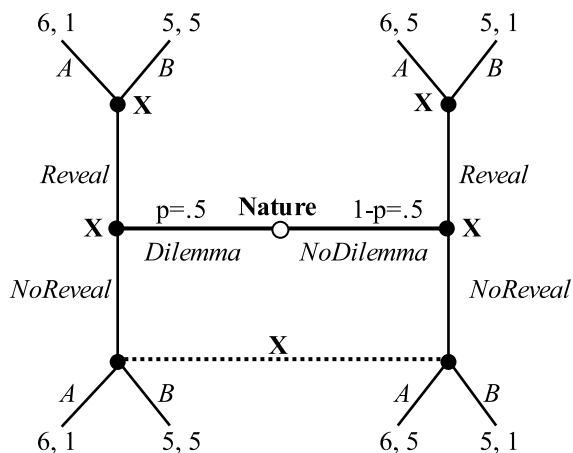


Fig. 1. Ignorant Dictator Game (IDG). Payoffs of dictators  $X$  (recipients  $Y$ ) are depicted before (after) the comma.

### 3. Experimental design

The goal of our experiment is to test (a) whether people follow authoritative norms blindly (i.e. irrespective of their content) or opportunistically (i.e. when it serves their self-interest), and (b) whether they treat norms like exclusionary reasons by not gathering information they otherwise deem decision-relevant. For that purpose, we study behavior in a modified dictator game with partially unknown yet ascertainable payoffs (Dana et al., 2007), and vary between treatments the presence and the content of an authoritative norm.

**Ignorant dictator game (IDG).** We conduct a modified dictator game with partially unknown but ascertainable payoffs, as depicted in Fig. 1.<sup>4</sup> For brevity, we will refer to this game as the “ignorant dictator game” (IDG). There are two players: a dictator  $X$  and a recipient  $Y$ . The recipient is passive. The IDG consists of three decision nodes. In node 1 there is a chance move which determines the payoffs of the passive player  $Y$ . The payoffs of player  $X$  are unaffected by the chance move. With probability  $p = .5$ , Nature chooses *Dilemma*, and with  $1 - p$  *NoDilemma*. In node 2,  $X$  can choose between revealing the true payoffs for  $Y$  and thus making an informed decision in node 3, or staying ignorant and making an uninformed decision in node 3. In node 3, player  $X$  can choose between an option  $A$ , giving her a payoff of 6, and an option  $B$ , yielding a payoff of 5. If Nature chose *Dilemma* in node 1, the corresponding payoffs for  $Y$  are 1 for  $A$  and 5 for  $B$ , if Nature chose *NoDilemma*,  $Y$ 's payoffs are 5 for  $A$  and 1 for  $B$ .

Thus, when the state of the world is *Dilemma*,  $X$  has to choose between maximizing her own payoffs by playing  $A$ , or foregoing some payoffs but instead maximizing  $Y$ 's payoffs by playing  $B$ . In contrast, when the state of the world is *NoDilemma*, playing  $A$  not only maximizes  $X$ ' payoffs but also  $Y$ 's payoffs.<sup>5</sup> Importantly, players do not know in which state they are prior to their revelation decision (node 2), making the information acquisition necessary to reveal the payoff of  $Y$ .

**Authoritative norms.** The experiment consists of a *Baseline* and two treatments. The *Baseline* is the IDG explained above. The two treatments do not alter the game structure but only add a written request presented

<sup>4</sup> This game was first introduced as “hidden information treatment” in Dana et al. (2007).

<sup>5</sup> Whereas in the *Dilemma* world, both efficiency and equality are maximized by playing  $B$ , in the *NoDilemma* world, both efficiency and equality are maximized by playing  $A$ .

on dictators' decision screen, see Fig. 2. In the *Selfish-Request* treatment, dictators are requested to play  $A$ , and in the *Sacrificial-Request* treatment, they are requested to play  $B$ .

The decision is illustrated in Fig. 1. On a first decision screen, dictators are offered three options: “play  $A$  (without knowing  $Y$ 's payoffs)”, or “play  $B$  (without knowing  $Y$ 's payoffs)”, or “first reveal  $Y$ 's payoffs”. If and only if dictators choose to reveal, they see a second decision screen, on which  $Y$ 's payoffs for choosing  $A$  and  $B$  are visible. After choosing to reveal, dictators learn whether they are playing in the *Dilemma* world (in which playing  $A$  benefits the dictator but hurts the recipient) or in the *NoDilemma* world (in which playing  $A$  benefits both players).

In line with previous literature on authority and obligations we decided for a norm stipulated by the experimenter rather than by participants themselves (Silverman et al., 2014; Galbiati and Vertova, 2008; Karakostas and Zizzo, 2016; Cadsby et al., 2006). On the one hand, a norm that is exogenously dictated by the experimenter avoids potential issues of selection and signaling one may encounter when allowing participants to set their own norms. On the other hand, such a design neglects the fact that citizens of a democracy would typically have some say in the norms they are supposed to follow. In fact, the experimental literature on endogenous institutions shows that institutions (e.g. sanctions) are perceived as more legitimate and have a stronger effect on behavior when they are democratically chosen by the participants rather than imposed by the experimenter (Marcin et al., 2019; Kamei et al., 2015; Bó et al., 2010). Our treatments lack such legitimacy premium.

Following the procedure established by Silverman et al. (2014), we avoided using terms such as “required”, “must choose” or “obliged to choose” and reminded participants that they are free not to comply. We chose this minimal intervention to provide clean evidence: Contrary to the real world, our authority not only instructs participants about their normative obligations but also their factual action space. Stronger language may create the misconception that participants have no choice at all.<sup>6</sup>

In sum, our treatments are therefore a very conservative test of our hypotheses: Legal or social authorities in the real world will tend to have more legitimacy, creating a stronger sense of obligation and demanding obedience without highlighting the element of choice.

**Beliefs.** In addition to eliciting dictators' incentivized choices in the IDG, we also elicit recipients' beliefs about dictators' choices. Specifically, participants assigned the role of the recipient were asked to indicate the decision of their assigned dictator. In case they correctly predicted the behavior of their assigned dictator they received an additional bonus of 10 cents. These incentivized beliefs measure the extent to which participants generally *expect others* to treat norms rather in line with the economic account or with the legal account.

**Procedures.** 784 US-residents were recruited in the summer of 2017 as dictators and randomly assigned to the different treatments using the online labor market Amazon Mechanical Turk (MTurk).<sup>7</sup> The experiment was implemented using the online survey tool Qualtrics. The

<sup>6</sup> We cannot exclude the possibility of participants believing that disregarding the norm might lead to hidden sanctions. However, we believe that our wording of the instructions makes clear that participants are free to choose any option they want, reducing this risk. More importantly, hidden sanctions would influence only the decision to follow the norm. It would, however, not impact the decision to search for information. We consider the search for information the main focus of our study and therefore are confident that hidden sanctions do not pose a threat to our identification.

<sup>7</sup> Dictators were randomly matched to recipients. Only US-based workers, verified through IP addresses in MTurk, with an average approval rate of 97% and an approved amount of tasks of no less than 500 were allowed to take part in our experiment.

Even though you can make any decision you want, you are asked to choose option B.

**Option A**

Player X	Player Y
6	?

**Option B**

Player X	Player Y
5	?

Play A (without knowing Y's payoffs)

Play B (without knowing Y's payoffs)

First, I want to know the payoffs of Player Y

»

Fig. 2. Decision screen (Treatment *Sacrificial-Request*).

entire experiment lasted on average for about seven minutes.<sup>8</sup> Using an exchange rate of 1 token = \$ 0.1, participants earned on average \$ 1.16, resulting in an average hourly wage of \$ 12.57, which is considerably higher than the amount US-based Mturk workers typically earn.<sup>9</sup> 52% of participants were female, age ranged from 18 to 75. 67% of participants reported to have at least a college degree.

To verify that participants were sufficiently responsive to the seemingly small monetary incentives, we conducted two versions of the experimental design just described. Participants in all three treatments faced either exactly the game depicted in Fig. 1, in which revealing Y's payoffs was *costless*, or a version of the game in which revealing Y's payoffs entailed a *small fee* of 0.1 tokens = \$ 0.01 (see Table 1).<sup>10</sup> We find that the small fee reduced revealing significantly from 37% to 18% ( $z(1) = 36.3, p \leq 0.001$ ) but did not interact with the treatments.<sup>11</sup> For details, see Fig. 5 in the Appendix. Thus, in the results section, we will pool the two versions. This is in line with the literature on stake size and decision-making. For example, Forsythe et al. (1994) and Carpenter et al. (2005) provide compelling evidence that mean allocations in dictator games with low stakes do not differ from allocations in dictator games with high stakes. Additionally, Camerer and Hogarth (1999) survey the experimental economics literature and shows that behavior is impacted mainly if tasks are incentivized. Thus, by making the experiment having low stakes, we do not distort the results.

<sup>8</sup> One concern could be that some of our participants were bots or did not pay sufficient attention. However, only 5% of participants finished our study in less than three minutes, speaking against bots being an issue. Further, 92% of participants answered all control questions directly correct, speaking in favor of attentive participation.

<sup>9</sup> According to a recent study by the Pew Research Center 92% of US-based Mturk workers earn less than \$ 8.00 an hour, see Hitlin (2016). Our participants were told that they would be paid within one week. After finishing collection, we matched subjects according to the instructions and paid them their bonus.

<sup>10</sup> In other words, in that second version of the game, X's payoffs in the upper half of the game depicted in Fig. 1 decrease from 6 to 5.9 and from 5 to 4.9 tokens. Y's payoffs stay the same.

<sup>11</sup> This result indicates that our findings are not a mere artifact of a corner solution. Specifically, we see that behavior is highly sensitive to a minor change in costs. However, this change in costs does not affect the treatment comparisons, nor does it interact with the treatments. Hence, it seems likely that varying the relative costs of information search more drastically, would not affect the main insight of the paper but only affect the general level of information revealing.

Table 1  
Number of decision-makers by treatment.

Treatments	X
Baseline (costless)	142
Baseline (small fee)	116
Selfish-Request (costless)	126
Selfish-Request (small fee)	134
Sacrificial-Request (costless)	120
Sacrificial-Request (small fee)	146
	784

#### 4. Hypotheses

The legal and the economic account generate diverging hypotheses regarding both information search and norm compliance:

**Information search.** The legal account predicts that participants treat norms as exclusionary reasons preempting selfish, moral, social concerns that otherwise guide decision making (Raz, 2009, 1999). As those are not decision relevant anymore, we should see less information search if a norm is present. Participants can simply apply the decision rule, "without weighing up on social issues" (Hart et al., 2012). As obligations are irrespective of the norm content, this effect should be symmetric in the sacrificial and the selfish norm treatment.

The economic account, on the other hand, stipulates that participants continue to maximize their utility, even if the norm presents an additional factor in the utility function. Norms may reduce information search, as certain information may not be decisive anymore. But information search should still be sensitive to the norm content: Subjects may gain additional utility from complying with an authoritative norm but this effect might be offset if disobedience maximizes (selfish or social) preferences or enables them to comply with other social or moral norms. If the authoritative norm prescribes a financially sacrificial rather than a beneficial action, information search is more likely to reveal information that is decisive in deciding against complying with the authoritative norm. For sacrificial authoritative norms, participants should be inclined to gather more information to see if complying with the authoritative norm is overall utility maximizing when taking their selfish or social preferences as well as other norms into account. On the other hand, a norm prescribing a financially beneficial action can be used as a narrative to remain (willfully) ignorant. According to the economic account, we should therefore see more information search in the presence of a sacrificial norm than in the case of a selfish norm.

**H1a (legal account):** Norms lead to a reduction of information search. The reduction is equally pronounced for sacrificial and for selfish norms.

**H1b (economic account):** Selfish norms lead to a reduction of information search. Sacrificial norms do not lead to a reduction of information search.

*Norm compliance.* The obligatory nature of legal norms is independent of their individual content. The legal account therefore predicts similar rates of compliance for both norms. This follows from treating norms as exclusionary reasons, as this reason is irrespective of the norms content and by definition not weighed up against other concerns. In contrast, the economic account predicts opportunistic compliance with selfish norms because these are aligned with people's desire for monetary payoffs but no compliance with sacrificial norms, which hurt both players financially.

**H2a (legal account):** People comply with both the selfish norm and the sacrificial norm.

**H2b (economic account):** People comply with a selfish norm but not with a sacrificial norm.

## 5. Results

We first report experimental results on how norms affect information search. Subsequently, we will look into treatment differences in norm compliance.<sup>12</sup>

*Information search.* The left panel of Fig. 3 shows dictators' decision to reveal the missing information across the three treatments. We find that when no norm is present (the *Baseline* treatment), 32% of the dictators choose to reveal the missing information. When a norm is present, revelation drops significantly to 25% (two tailed proportion test  $z(1) = 4.2$ ,  $p = 0.04$ ,  $h = 0.18$ ). Strikingly, the reduction of information search is independent of the specific content of the norm. Hence, in the presence of norms significantly fewer dictators revealed the missing information.

To investigate whether subjects rather obey norms blindly (Hypothesis 1a) or opportunistically (Hypothesis 1b) we compare the revelation proportion between the selfish-norm (25% revelation) and the sacrificial-norm (25% revelation). The revelation proportion is obviously not significantly lower in the selfish-norm treatment compared to the sacrificial-norm treatment  $z(1) = 0$ ,  $p = 0.5$ , with a power of 0.52). The observed symmetry of the effect is consistent with the legal account of decision making (Hypothesis 1a) but not with the economic account (Hypothesis 1b).

The right panel of Fig. 3 shows that also recipients' expectations are very much in line with the legal account of norm compliance. They expect selfish norms and sacrificial norms to cause a similarly strong (i.e. symmetric) reduction of information search. They actually expect the effect to be even stronger ( $\beta = -0.80$ ,  $t(1551) = -3.15$ ,  $p < 0.01$ ).

**Result 1.** Sacrificial norms and selfish norms reduce information search to the same degree.

<sup>12</sup> Note that we did not pre-register the design and the hypotheses since at the time we conducted the experiment (2017), the field had not yet converged on the (undeniable) usefulness of pre-registrations.

**Table 2**

Decision to choose the selfish option A.

Selfish-Request	0.11** (0.04)
Sacrificial-Request	-0.51*** (0.04)
RevealDilemma	-0.75*** (0.06)
RevealNoDilemma	0.11 (0.06)
Selfish-Request x RevealDilemma	-0.04 (0.09)
Selfish-Request x RevealNoDilemma	-0.11 (0.09)
Sacrificial-Request x RevealDilemma	0.44*** (0.09)
Sacrificial-Request x RevealNoDilemma	0.33*** (0.09)
Constant	0.86*** (0.03)
Observations	784
R <sup>2</sup>	0.48
Adjusted R <sup>2</sup>	0.48
Residual Std. Error	0.34 (df = 775)
F Statistic	90.73*** (df = 8; 775)

Notes: Linear Regression. Dependent Variable is the incidence of the selfish Option (A). The reference group is *Baseline NoReveal*. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

*Norm compliance.* The left panel of Fig. 4 displays how often the selfish option (action A in Fig. 1 is chosen by the dictators across the three norm regimes.

We find that the presence of a norm requesting subjects to play the selfish option A (two tailed proportion test:  $z(1) = 17.3$ ,  $p \leq 0.001$ ), significantly increases the incidence of A choices. On the other hand, the presence of a norm requesting subjects to play the sacrificial option B, significantly increases the incidence of B choices ( $z(1) = 64.6$ ,  $p \leq 0.001$ ). Thus, subjects obey authority not only self-servingly (as conjectured by the economic account; Hypothesis 2b) but rather ignorantly, providing evidence for a legal account of decision making (Hypothesis 2a).

The right panel of Fig. 4 shows again that recipients' expectations are very much in line with dictators' actual behavior. They correctly expect the selfish request to increase the incidence of A choices, and the sacrificial request to reduce the incidence of A choices.

**Result 2.** Subjects comply both with selfish norms and with sacrificial norms.

This finding is confirmed by the regression analysis of Table 2. Using a linear probability model, we estimate that the selfish request increases the incidence of A by 11 percentage points whereas the sacrificial request decreases the incidence of A by 51 percentage points. Consistent with the idea that participants are sensitive to the payoffs of the experiment, we find that subjects from the *Baseline* who (after revealing) found themselves in the *Dilemma* situation are 75 percentage points less selfish than those who choose not to reveal. In contrast, there is no statistical difference between those who choose not to reveal and those who (after revealing) found themselves in *NoDilemma* situation.

Strikingly, as shown in Table 2, the influence of the sacrificial request even remains after dictators choose to reveal and find themselves in the *NoDilemma* situation. In that situation, they still are 18 percentage points less selfish than dictators in the *Baseline* ( $-0.51 + 0.33 = -0.18$ , two-tailed proportion test:  $z(1) = 4$ ,  $p = 0.04$ ). Even though dictators know that choosing the selfish option A also maximizes the payoff of the recipient, dictators follow the norm and choose the sacrificial option, thus reducing their own as well as the recipient's payoff.

**Result 3.** Subjects comply with the sacrificial norm even when there is no benefit neither to them nor to the recipient (*NoDilemma* situation).

## 6. Discussion

In this section, we discuss alternative interpretations of our findings and possible extensions for future research.

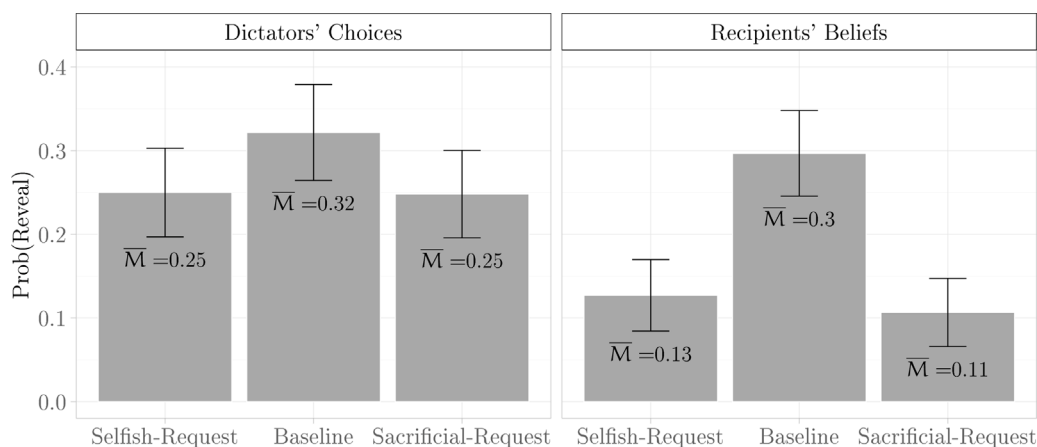


Fig. 3. Decision to reveal the payoff by norm treatment. Means with 95% confidence intervals.

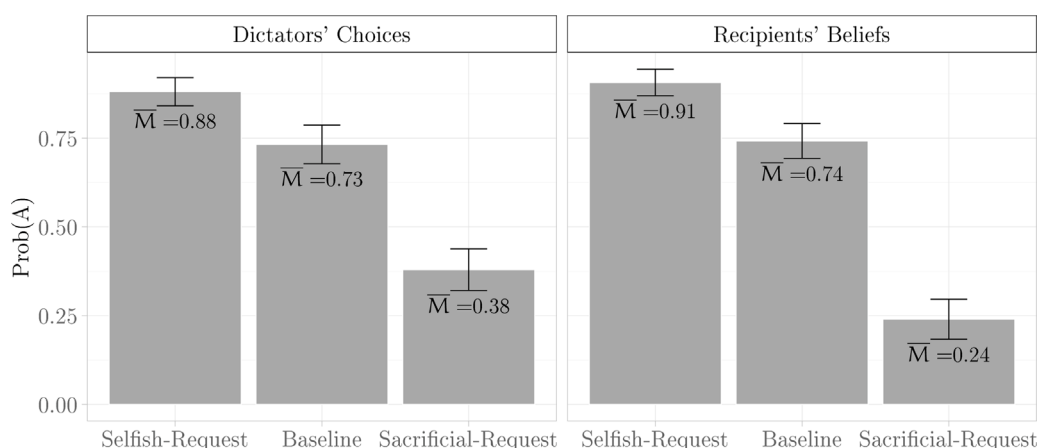


Fig. 4. Decision to choose the selfish option A. Means with 95% confidence intervals.

**Frugal heuristics.** Our evidence in favor of the legal account could also be interpreted as a (frugal) heuristic of compliance with authoritative norms. Both feature “a strategy that ignores part of the information with the goal of making decisions more quickly, frugally, and/or accurately than more complex methods” (Gigerenzer and Gaissmaier, 2011). So far, scholarship has mainly considered how legal norms interact with preexisting heuristics (Pogarsky et al., 2018; Barnum et al., 2021). While a general heuristic of legal compliance has been considered (Goldstein et al., 2006), it assumed that laws content is subsidiary to personal or social norms. Our findings suggest otherwise. A general heuristic of legal compliance that primarily considers law, on the other hand, would be hard to distinguish from the legal account: Raz himself considered “rules of thumb” to provide exclusionary reasons if the agent complies in conditions of uncertainty (Raz, 1999). Legal norms differ only in that the exclusionary reasons are provided by an authority. A richer concept of authority could be tested against a compliance heuristic in future experiments.

**Social preferences.** One alternative interpretation of our results is that the observed behavioral effects are not driven by a sense of obligation but rather by individual preferences. The exogenously imposed norm (requesting either a selfish or a sacrificial choice) might allow people with more inherent pro-social tendencies to avoid gathering information, thus changing their behavior in the dilemma scenario. On the other hand, those individuals with higher moral costs might only seek information and adjust their behavior if they perceive the moral cost to be low. Selfish individuals might not change their behavior regardless of the norm. However, the fact that we find an identical effect with regard to the reduction of information search for both the selfish and the

sacrificial request speaks against this interpretation. Moreover, social preferences can be considered as part of the heterogeneous response to the obligation induced by the norm.

**Demand effects.** Our paper diverges from the literature on demand effects as our main interest is not compliance with the demand itself, but with people’s information search behavior. Notably, our requests are mute on whether participants should uncover the information. We find that our treatment effects are distinctly larger than the bounds of experimental demand effects estimated for the dictator game (de Quidt et al., 2018), which suggests that participants view these requests indeed as norms. Nonetheless, one could be worried that, in light of the small monetary stakes of the experiment, participants may be indifferent between the choices presented, thus making the request pivotal. To address this concern, we conducted a variation of the game with a minuscule fee (0.1 tokens = \$0.01) for revealing the information. The small fee substantially reduces revealing from 37% to 18% ( $z(1) = 36.3$ ,  $p \leq 0.001$ ), showing that participants are highly sensitive to even tiny payoff differences. Importantly, our observed treatment differences do not vary with having or not a small fee (see Fig. 5 in the Appendix).

**Requests as norms.** In order to test the pure authoritative function of norms, our design aims at excluding the possibility that the requests are not followed *per se* but because they reference a good reason for compliance. Additionally, we wanted to ensure our participants are not under the impression of having no real choice at all. Our implementation of authoritative norms is therefore deliberately minimalistic: Building on previous studies (Galbiati and Vertova, 2008; Silverman et al., 2014; Galbiati et al., 2013), we exclude any justification, explanation or sanction for our norm.

One may question whether this is sufficient to create a norm. While there is not an established, consensual definition of “norm” in legal philosophy, Raz has a rather minimalistic conception of a norm: Any general prescription on how to behave constitutes a norm, as long as it is intended and regarded as an exclusionary reason. The same is true for authority: It implies that “some of [its] orders or other expressions of views” are treated as “authoritative instructions, and therefore as exclusionary reasons” (Raz, 1999). We therefore believe we capture the essential characteristics of authoritative norms. The fact that our norms are rather weak should make our observed effects a conservative approximation of stronger norms.

**Abstract norm following.** Our results also point to a mechanisms of how legal norms can influence social norms Lane et al. (2023). Social norms depend on descriptive and normative expectations. If a sufficiently large subset of the population treats legal norms as exclusionary reasons, their introduction will align their behavior and, in turn, influence the (first and second order) expectations of other citizens, thereby changing the social norm.

**Bilateral setting.** In the interest of having a experimental design that is as complex as necessary to address the research question but as simple as possible to minimize potential participant confusion, we have restrained our attention to a one-shot, bilateral setting, in which the decision of one agent (dictator) has a direct consequence on the well-being of another agent (recipient). In reality, causal attribution is often more far more complex. The psychological and economic literature on diffusion of responsibility (Darley and Latané, 1968; Bartling et al., 2015; Falk and Szech, 2013; Falk et al., 2020) suggests that when attribution is blurred, people behave more selfishly. But it is unclear how this would affect people’s disposition for making an informed decision in the light of a norm stipulating a specific action. Future research should study how people’s disposition for blind norm adherence interacts with the complexity of causal attribution.

**Minuscule fines.** In her study of electoral turnout in Switzerland, Funk (2007) illustrates that legal norms with minuscule, symbolic fines can have sizeable effects on behavior. Our findings show that even in the total absence of a fine, a norm may have an effect, not only on the action space governed by the norm but, more broadly, on people’s disposition to make an informed decision. An interesting extension of our work would be to study the extent to which fines further reinforce this effect, or to the contrary, crowd it out.

**Dictator’s uncertainty.** In the IDG, there is uncertainty with regard to the recipients’ payoff while the dictator’s payoff is always known. Whereas this variation is sufficient to answer our research question, it may also be interesting to introduce uncertainty in the dictator’s payoff. This would not only test the robustness of our results but also extend this paper’s core idea to a broader range of legal and policy applications in which remaining ignorant can have adverse consequences (for oneself and/or for others).

## 7. Conclusion

In the real world, decision problems are often characterized by ambiguity, complexity, and a lack of information. Utility maximization is difficult when the consequences of an action – for oneself but also for others – are uncertain. For example, deciding whether to speed on a rainy highway would require an assessment of the risks for oneself and others, how much faster one would arrive at the destination, what is the probability of being caught speeding, etc. In order to make an informed decision, utility-maximizers would have to gather a considerable amount of information about the expected costs and benefits of their decision options. On the other hand, if people view legal norms as obligations, the situation is strikingly simple. A legal authority has already made a binding decision on how to weigh all applicable concerns. People who recognize legal authority conceive of

legal norms as exclusionary reasons: Regardless of the norms content, other concerns are not decision-relevant any longer. They apply the rule at hand (i.e. the speed limit) but have no reason to look for additional information.

The goal of our study is to empirically inform this important debate. For that purpose, we have designed a laboratory experiment in which utility-maximizers are predicted to behave markedly different from those who perceive norms as exclusionary reasons. Previous experimental work typically gives participants full information in simple decision scenarios, thus artificially eliminating the complexity and lack of information inherent to many decisions in the real world. Instead, the decision environment studied in this paper allows us to identify the pure guiding function of authoritative norms.

Our experimental results yield support to the notion that Law is not a neutral and context-free incentive mechanism but an institution that is by definition charged with normative content and authority. In particular, we show that the presence of a norm (even a sacrificial one) reduces people’s desire to gather additional information. In other words, norms change not only the decision outcome, but also the decision process. Our results therefore highlight a gap in the current literature on legal compliance, that usually tests interventions on fully informed actors in scenarios that invite clear social and moral norms and preferences. They also caution against underestimating the normative side of norm compliance that is typically modeled as a simple addendum to the decision process. As scepticism about the Law’s influence on behavior beyond the threat of sanctions remains (Schauer, 2015), our results provide additional evidence for a mechanisms hypothesized in legal theory but overlooked in empirical work in legal compliance.

Naturally, our laboratory setting differs from legal compliance in the real world. Most of these differences suggest that our design underestimates the legal account: The experimenter is a less compelling source of authority than a lawmaker, and our norm was worded very conservatively to avoid misconceptions by the participants. Feelings of obligation elicited by legal norms should be significantly stronger. And while our stakes were low to model everyday decision making, virtually any decision in real life will be more complex and feature higher information acquisition costs. Another amplifier is strategic interaction: If, as our data suggests, people believe others will be compliant and ignorant, preferences for conformity are bound to further reinforce the effect.

Both models are idealizations. Ultimately, economists and legal philosophers will recognize some degree of internalized, blind compliance as well as conscientious norm-breaking. Yet which is a more accurate description for everyday decision making matters greatly: If legal norms provide exclusionary reasons, a legal system can save on enforcement cost and attain higher levels of coordination. Conversely, the risk of ineffective or ill-advised norms achieving bad outcomes due to blind obedience is higher. The flip side of obligatory norms is that the responsibility for compliant behavior lies mainly with the authority, not its subjects.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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**Appendix A. Instructions**

*[The following depict the experimental instructions shown to participants.]*

In this experiment, each of you will play a game with one other person. Before playing, we will randomly match people into pairs. The grouping will be anonymous, meaning that no one will ever know which person they played with.

Each of you will be randomly assigned a role in this game. Your role will be either player X or player Y. This role will also be kept anonymous. The difference between these roles will be described below. Thus, exactly one half of you will be a Player X and one half a Player Y. Also, each of you will be in a pair that includes exactly one of each of these types.

The game you play will be like the one pictured below. Player X will choose one of two options: “A” or “B”. Player Y will not make any choice. Both players will receive payments based on the choice of Player X. The numbers in the table are the payments players receive. The payments in this table were chosen only to demonstrate how the game works. In the actual game, the payments will be different.

Every point displayed in the table will represent 10 cents.

For example, if player X chooses “B”, then we should look in the second row for the earnings. Here, Player X receives 3 points (30 cents) and Player Y receives 4 points (40cents).

	Player X	Player Y
Option A	0	0
Option B	3	4

At this point, to make sure that everyone understands the game, please answer the following questions with regard to the following example decisions:

	Player X	Player Y
Option A	1	2
Option B	3	4

If Player X chooses option “B” then the Player X receives:	1	2	3	4
If Player X chooses option “B” then the Player Y receives:	1	2	3	4
If Player X chooses option “A” then the Player X receives:	1	2	3	4
If Player X chooses option “A” then the Player Y receives:	1	2	3	4

The actual game you will play will be one of the two pictured below. Notice that both games are the same except that Player Y’s payments are flipped between the two. Note that in both games, Player X gets his or her highest payment of \$0.60 by choosing A. In the game on the left, this gives Player Y his or her lowest payment of \$0.10. In the game on the right this gives Player Y his or her highest payment of \$0.50.

In both games, if Player X chooses B, he or she gets a lower payment of \$0.50. In the game on the left, this gives Player Y the highest payment of \$0.50. In the game on the right, this gives Player Y the lowest payment of \$0.10.

You do not know which of the games you will be playing. However, note that for Player X, the payments will be identical. The only thing that differs is the payments for Player Y.

The actual game you will play was determined by a coin flip before the experiment. However, we will not reveal publicly which game you are actually playing. Before playing, Player X can choose to find out which game is being played, if they want to do so. This choice will be anonymous, thus Player Y will not know if X knows which game is being played.

Player X is not required to find out and may choose not to do so. When the game ends, we will pay each player privately on their MTurk-accounts.

	Player X	Player Y
Option A	6	1
Option B	5	5

	Player X	Player Y
Option A	6	5
Option B	5	1

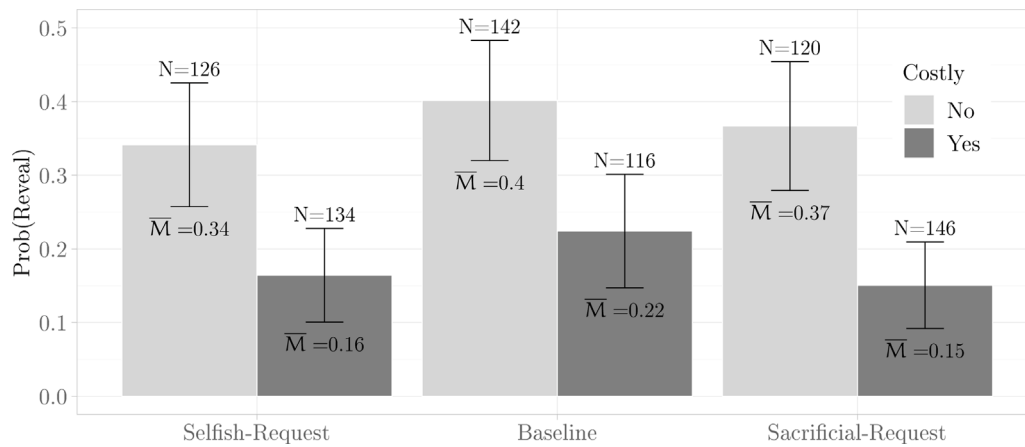


Fig. 5. Decision to reveal the payoff by authority treatment and costs of revelation. Means with 95% confidence intervals.

Table 3

Logistic regression with logit link of the decision to reveal the payoff or not by costs and authority.

	Decision to reveal		
	Pooled authority treatments		
	Costless revelation	Costly revelation	Comparing costly vs costless revelation
Constant	-0.40* (0.17)	-1.24*** (0.22)	-0.40* (0.17)
Authority	-0.20 (0.22)	-0.44 (0.28)	-0.20 (0.22)
Costly			-0.84** (0.28)
Authority x Costly			-0.23 (0.35)
Observations	388	396	784
Log Likelihood	-255.47	-183.50	-438.97
Akaike Inf. Crit.	514.94	370.99	885.93

Note:  $p < 0.1$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ;

At this point, to make sure that everyone understands the game, please answer the following questions with regard to the following example decisions:

	Player X	Player Y
Option A	6	1
Option B	5	5

	Player X	Player Y
Option A	6	5
Option B	5	1

In both games, which action gives player X his or her highest payment of \$0.60?

- Option A
- Option B

If Player X chooses B, then Player Y receives:

- \$0.50
- \$0.10
- either \$0.10 or \$0.50

Appendix B. Additional results

Fig. 5 and Table 3 show that the introduction of a small fee for revealing the recipients' payoffs substantially reduces the dictators' information acquisition. Importantly however, the effect of the small fee does not interact with the authority treatments. Hence, in the main part of the paper we pool the data of the costless and costly treatments.

## Data availability

Data will be made available on request.

## References

- Arlen, J., Kornhauser, L.A., 2022. Battle for our souls: A psychological justification for corporate and individual liability for organizational misconduct. SSRN Electron. J. <http://dx.doi.org/10.2139/ssrn.4152960>, URL <https://www.ssrn.com/abstract=4152960>.
- Barnum, T.C., Nagin, D.S., Pogarsky, G., 2021. Sanction risk perceptions, coherence, and deterrence. *Criminology* 59 (2), 195–223.
- Bartling, B., Engl, F., Weber, R.A., 2014. Does willful ignorance deflect punishment? - an experimental study. *Eur. Econ. Rev.* 70, 512–524. <http://dx.doi.org/10.1016/j.euroecorev.2014.06.016>.
- Bartling, B., Weber, R.A., Yao, L., 2015. Do markets erode social responsibility? *Q. J. Econ.* 130 (1), 219–266.
- Becker, G.S., 1968. Crime and punishment: An economic approach. In: *The Economic Dimensions of Crime*. Palgrave Macmillan, London, pp. 13–68. [http://dx.doi.org/10.1007/978-1-349-62853-7\\_2](http://dx.doi.org/10.1007/978-1-349-62853-7_2).
- Benabou, R., Tirole, J., 2011. Laws and Norms. National Bureau of Economic Research, Working Paper 17579.
- Bénabou, R., Tirole, J., 2011. Identity, morals, and taboos: Beliefs as assets. *Q. J. Econ.* 126 (2), 805–855.
- Bó, P.D., Foster, A., Putterman, L., 2010. Institutions and behavior: Experimental evidence on the effects of democracy. *Amer. Econ. Rev.* 100 (5), 2205–2229.
- Bohnet, I., Cooter, R.D., 2003. Expressive Law: Framing or Equilibrium Selection?. *Social Science Research Network*, Rochester, NY, SSRN Scholarly Paper ID 452420.
- Brandts, J., Cooper, D.J., Weber, R.A., 2015. Legitimacy, communication, and leadership in the turnaround game. *Manage. Sci.* 61 (11), 2627–2645. <http://dx.doi.org/10.1287/mnsc.2014.2021>.
- Bursztyn, L., Jensen, R., 2017. Social image and economic behavior in the field: Identifying, understanding, and shaping social pressure. *Annu. Rev. Econ.* 9, 131–153.
- Cadsby, C.B., Maynes, E., Trivedi, V.U., 2006. Tax compliance and obedience to authority at home and in the lab: A new experimental approach. *Exp. Econ.* 9 (4), 343–359. <http://dx.doi.org/10.1007/s10683-006-7053-8>.
- Camerer, C.F., Hogarth, R.M., 1999. The effects of financial incentives in experiments: A review and capital-labor-production framework. *J. Risk Uncertain.* 19 (1), 7–42. <http://dx.doi.org/10.1023/A:1007850605129>, URL <http://dx.doi.org/10.1023/A:1007850605129>.
- Carpenter, J., Verhoogen, E., Burks, S., 2005. The effect of stakes in distribution experiments. *Econom. Lett.* 86 (3), 393–398. <http://dx.doi.org/10.1016/j.econlet.2004.08.007>, URL <http://www.sciencedirect.com/science/article/pii/S0165176504003118>.
- Chatziathanasiou, K., Hippel, S., Kurschilgen, M., 2022. Does the threat of overthrow discipline the elites? Evidence from a laboratory experiment. *J. Leg. Stud.* 52.
- Cooter, R., 1984. Prices and sanctions. *Columbia Law Rev.* 84 (6), 1523. <http://dx.doi.org/10.2307/1122472>, URL <https://www.jstor.org/stable/1122472?origin=crossref>.
- Dana, J., Weber, R.A., Kuang, J.X., 2007. Exploiting moral wiggle room: Experiments demonstrating an illusory preference for fairness. *Econom. Theory* 33 (1), 67–80. <http://dx.doi.org/10.1007/s00199-006-0153-z>.
- Danilov, A., Sliwka, D., 2016. Can Contracts Signal Social Norms? Experimental evidence. *Manage. Sci.* <http://dx.doi.org/10.1287/mnsc.2015.2336>.
- Darley, J.M., Latané, B., 1968. Bystander intervention in emergencies: Diffusion of responsibility. *J. Pers. Soc. Psychol.* 8 (4p1), 377.
- de Quidt, J., Haushofer, J., Roth, C., 2018. Measuring and bounding experimenter demand. *Amer. Econ. Rev.* 108 (11), 3266–3302. <http://dx.doi.org/10.1257/aer.20171330>, URL <https://pubs.aeaweb.org/doi/10.1257/aer.20171330>.
- Engel, C., Kurschilgen, M., 2013. The coevolution of behavior and normative expectations: An experiment. *Am. Law Econ. Rev.* 15 (2), 578–609.
- Falk, A., Neuber, T., Szech, N., 2020. Diffusion of being pivotal and immoral outcomes. *Rev. Econ. Stud.* 87 (5), 2205–2229.
- Falk, A., Szech, N., 2013. Morals and markets. *Science* 340 (6133), 707–711.
- Fehr, E., Herz, H., Wilkening, T., 2013. The lure of authority: Motivation and incentive effects of power. *Amer. Econ. Rev.* 103 (4), 1325–1359. <http://dx.doi.org/10.1257/aer.103.4.1325>.
- Feldman, Y., 2018. *The Law of Good People: Challenging States' Ability to Regulate Human Behavior*. Cambridge University Press, Cambridge, <http://dx.doi.org/10.1017/9781316480328>, URL <https://www.cambridge.org/core/books/law-of-good-people/DEB07C540F75D5D3B0A53B2499722F70>.
- Feldman, Y., Teichman, D., 2009. Are all legal probabilities created equal. *NYUL Rev.* 84, 980.
- Ferrer, R., 2010. Breaking the law when others do: A model of law enforcement with neighborhood externalities. *Eur. Econ. Rev.* 54 (2), 163–180. <http://dx.doi.org/10.1016/j.euroecorev.2009.04.008>.
- Fleming, P., Zizzo, D.J., 2015. A simple stress test of experimenter demand effects. *Theory and Decision* 78 (2), 219–231. <http://dx.doi.org/10.1007/s11238-014-9419-2>, URL <https://doi.org/10.1007/s11238-014-9419-2>.
- Forsythe, R., Horowitz, J.L., Savin, N., Sefton, M., 1994. Fairness in simple bargaining experiments. *Games Econ. Behav.* 6 (3), 347–369. <http://dx.doi.org/10.1006/game.1994.1021>, URL <http://www.sciencedirect.com/science/article/pii/S0899825684710219>.
- Funk, P., 2007. Is there an expressive function of law? An empirical analysis of voting laws with symbolic fines. *Am. Law Econ. Rev.* 9 (1), 135–159. <http://dx.doi.org/10.1093/aler/ahm002>.
- Galbiati, R., Schlag, K.H., van der Weele, J.J., 2013. Sanctions that signal: An experiment. *J. Econ. Behav. Organ.* 94, 34–51. <http://dx.doi.org/10.1016/j.jebo.2013.08.002>.
- Galbiati, R., Vertova, P., 2008. Obligations and cooperative behaviour in public good games. *Games Econ. Behav.* 64 (1), 146–170. <http://dx.doi.org/10.1016/j.jeb.2007.09.004>.
- Galbiati, R., Vertova, P., 2014. How laws affect behavior: Obligations, incentives and cooperative behavior. *Int. Rev. Law Econ.* 38, 48–57. <http://dx.doi.org/10.1016/j.irl.2014.03.001>.
- Galligan, D.J., 2010. Legal theory and empirical research. In: Cane, P., Kritzer, H. (Eds.), *The Oxford Handbook of Empirical Legal Research*. Oxford University Press, pp. 976–1001. <http://dx.doi.org/10.1093/oxfordhb/9780199542475.013.0041>, URL <http://oxfordhandbooks.com/view/10.1093/oxfordhb/9780199542475.001.0001/oxfordhb-9780199542475-e-41>.
- Gigerenzer, G., Gaissmaier, W., 2011. Heuristic decision making. *Ann. Rev. Psychol.* 62 (1), 451–482.
- Goldstein, D.G., Arkes, H.R., Beckenkamp, M., Cooter, R., Ellickson, R.C., Engel, C., Guthrie, C., Hertwig, R., Kurzenhäuser, S., Weber, E.U., 2006. Group report: How do heuristics mediate the impact of law on behavior? In: Gigerenzer, G., Engel, C. (Eds.), *Heuristics and the Law*. The MIT Press, pp. 439–466. <http://dx.doi.org/10.7551/mitpress/3488.003.0024>, URL <https://direct.mit.edu/books/book/2538/chapter/68271/Group-Report-How-Do-Heuristics-Mediate-the-Impact>.
- Grossman, Z., 2014. Strategic ignorance and the robustness of social preferences. *Manage. Sci.* 60 (11), 2659–2665. <http://dx.doi.org/10.1287/mnsc.2014.1989>.
- Grossman, Z., van der Weele, J.J., 2017. Self-image and willful ignorance in social decisions. *J. Eur. Econom. Assoc.* 15 (1), 173–217. <http://dx.doi.org/10.1093/jeea/jvw001>, arXiv:oup/backfile/content\_public/journal/jeea/15/1/10.1093.jeea\_jvw001/5/jvw001.pdf.
- Hadfield, G.K., Weingast, B.R., 2012. What is law? A coordination model of the characteristics of legal order. *J. Leg. Anal.* 4 (2), 471–514. <http://dx.doi.org/10.1093/jla/las008>.
- Hart, H., Green, L., Raz, J., Bulloch, P.A., 2012. *The Concept of Law*, 3. Auflage Oxford University Press, Usa.
- Hertwig, R., Engel, C., 2016. Homo ignorans: Deliberately choosing not to know. *Perspect. Psychol. Sci.* 11 (3), 359–372.
- Hertwig, R., Engel, C., 2021. *Deliberate Ignorance: Choosing Not to Know*, Volume 29. MIT Press.
- Hittin, P., 2016. Research in the crowdsourcing age, a case study. *Pew Res. Cent.* Available at <http://www.pewinternet.org/2016/07/11/research-in-the-crowdsourcing-age-a-case-study/#fnref-15902-3>.
- Hoeft, L., Mill, W., 2017a. Abuse of power: An experimental investigation of the effects of power and transparency on centralized punishment. Mimeo.
- Hoeft, L., Mill, W., 2017b. Selfish punishers. *Econ. Lett.* 157, 41–44.
- Hoeft, L., Mill, W., Vostroknutov, A., 2019. Normative perception of power abuse. Mimeo.
- Huang, P.H., Wu, H.-M., 1994. More order without more law: A theory of social norms and organizational cultures. *J. Law Econ. Organ.* 10 (2), 390–406.
- Kahneman, D., Slovic, S.P., Slovic, P., Tversky, A., 1982. *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge University Press.
- Kamei, K., Putterman, L., Tyran, J.-R., 2015. State or nature? Endogenous formal versus informal sanctions in the voluntary provision of public goods. *Exp. Econ.* 18, 38–65.
- Karakostas, A., Zizzo, D.J., 2016. Compliance and the power of authority. *Taxation, Social Norms and Compliance*, *J. Econ. Behav. Organ.* Taxation, Social Norms and Compliance, 124, 67–80. <http://dx.doi.org/10.1016/j.jebo.2015.09.016>.
- Kimbrough, E.O., Vostroknutov, A., 2016. Norms make preferences social. *J. Eur. Econom. Assoc.* 14 (3), 608–638. <http://dx.doi.org/10.1111/jeea.12152>.
- Kornhauser, L.A., 1999. The normativity of law. *Am. Law Econ. Rev.* 1 (1), 3–25. URL <https://www.jstor.org/stable/42705347>, Publisher: Oxford University Press.
- Krupka, E.L., Weber, R.A., 2013. Identifying Social Norms Using Coordination Games: Why does dictator game sharing vary? *J. Eur. Econom. Assoc.* 11 (3), 495–524. <http://dx.doi.org/10.1111/jeea.12006>.
- Kube, S., Traxler, C., 2011. The interaction of legal and social norm enforcement. *J. Public Econ. Theory* 13 (5), 639–660.
- Kurschilgen, M., 2021. Moral awareness polarizes people's fairness judgments. *Munich Papers in Political Economy* 2021/08.
- Kurschilgen, M., Marcin, I., 2019. Communication is more than information sharing: The role of status-relevant knowledge. *Games Econ. Behav.* 113, 651–672.
- Lai, E.K., Lim, W., 2012. Authority and communication in the laboratory. *Games Econ. Behav.* 74 (2), 541–560. <http://dx.doi.org/10.1016/j.jeb.2011.08.006>.

- Lane, T., Nosenzo, D., Sonderegger, S., 2023. Law and norms: Empirical evidence. *Amer. Econ. Rev.* 113 (5), 1255–1293.
- Larson, T., Capra, C.M., 2009. Exploiting moral wiggle room: Illusory preference for fairness? A comment. *Judgm. Decis. Mak.* 4 (6), 467–474.
- Lazear, E.P., Malmendier, U., Weber, R.A., 2012. Sorting in experiments with application to social preferences. *Am. Econ. J. Appl. Econ.* 4 (1), 136–163. <http://dx.doi.org/10.1257/app.4.1.136>.
- Levy, D.M., Padgitt, K., Peart, S.J., Houser, D., Xiao, E., 2011. Leadership, cheap talk and really cheap talk. *J. Econ. Behav. Organ.* 77 (1), 40–52. <http://dx.doi.org/10.1016/j.jebo.2010.02.018>.
- Lynch, G.E., 1997. The role of criminal law in policing corporate misconduct. *Law Contemp. Probl.* 60 (3), 23–65. <http://dx.doi.org/10.2307/1192003>, URL <https://www.jstor.org/stable/1192003>, Publisher: Duke University School of Law.
- Marcin, I., Robalo, P., Tausch, F., 2019. Institutional endogeneity and third-party punishment in social dilemmas. *J. Econ. Behav. Organ.* 161, 243–264.
- Markussen, T., Putterman, L., Tyran, J.-R., 2013. Self-organization for collective action an experimental study of voting on sanction regimes\*. *Rev. Econ. Stud.* rdt022. <http://dx.doi.org/10.1093/restud/rdt022>.
- McAdams, R.H., 2015. *The Expressive Powers of Law: Theories and Limits*. Harvard University Press.
- McAdams, R.H., Nadler, J., 2005. Testing the focal point theory of legal compliance: The effect of third-party expression in an experimental hawk/dove game. *J. Empir. Legal Stud.* 2 (1), 87–123.
- McAdams, R.H., Nadler, J., 2008. Coordinating in the shadow of the law: Two contextualized tests of the focal point theory of legal compliance. *Law Soc. Rev.* 42 (4), 865–898.
- Michaeli, M., Spiro, D., 2015. Norm conformity across societies. *J. Public Econ.* 132, 51–65.
- Milgram, S., 2009. *Obedience to Authority: An Experimental View*. vYGA45EOD0gC, HarperCollins, Google-Books-ID.
- Pingle, M., 1997. Submitting to authority: Its effect on decision-making. *J. Econ. Psychol.* 18 (1), 45–68. [http://dx.doi.org/10.1016/S0167-4870\(96\)00046-3](http://dx.doi.org/10.1016/S0167-4870(96)00046-3), URL <http://www.sciencedirect.com/science/article/pii/S0167487096000463>.
- Pogarsky, G., Roche, S.P., Pickett, J.T., 2018. Offender decision-making in criminology: Contributions from behavioral economics. *Ann. Rev. Criminol.* 1 (1), 379–400.
- Rabin, M., *Moral Preferences, Moral Constraints, and Self-Serving Biases*, Berkeley Department of Economics Working Paper No. 95, 34.
- Rasmusen, E., 1996. Stigma and self-fulfilling expectations of criminality. *J. Law Econ.* 39 (2), 519–543.
- Raz, J., 1999. *Practical Reason and Norms*, New ed. Oxford University Press, USA.
- Raz, J., 2009. *The Authority of Law: Essays on Law and Morality*. OUP Oxford, Google-Books-ID: ObSH22v3984C.
- Riedel, N., Schildberg-Hörisch, H., 2013. Asymmetric obligations. *J. Econ. Psychol.* 35, 67–80. <http://dx.doi.org/10.1016/j.joep.2012.12.003>.
- Sah, R.K., 1991. Social osmosis and patterns of crime. *J. Political Econ.* 99 (6), 1272–1295.
- Schauer, F., 2015. *The Force of Law*. Harvard University Press, Cambridge, Massachusetts.
- Shmaya, E., Yariv, L., 2016. Experiments on decisions under uncertainty: A theoretical framework. *Amer. Econ. Rev.* 106 (7), 1775–1801. <http://dx.doi.org/10.1257/aer.20120978>, URL <https://www.aeaweb.org/articles?id=10.1257/aer.20120978>.
- Silverman, D., Slemrod, J., Uler, N., 2014. Distinguishing the role of authority “in” and authority “to”. *J. Public Econ.* 113, 32–42. <http://dx.doi.org/10.1016/j.jpubeco.2014.02.003>.
- Simon, H.A., 1990. *Bounded rationality*. In: *Utility and Probability*. Springer, pp. 15–18.
- Sliwka, D., 2007. Trust as a signal of a social norm and the hidden costs of incentive schemes. *Amer. Econ. Rev.* 97 (3), 999–1012. <http://dx.doi.org/10.1257/aer.97.3.999>.
- Spiekermann, K., Weiss, A., 2016. Objective and subjective compliance: A norm-based explanation of “moral wiggle room”. *Games Econ. Behav.* 96, 170–183. <http://dx.doi.org/10.1016/j.geb.2015.11.007>.
- Sunstein, C.R., 1996. On the expressive function of law. *Univ. Pa. Asian Law Rev.* 144 (5), 2021. <http://dx.doi.org/10.2307/3312647>.
- Sunstein, C.R., 2000. *Behavioral law and economics*. Cambridge Series on Judgment and Decision Making, Cambridge University Press, <http://dx.doi.org/10.1017/CBO9781139175197>, URL <https://www.cambridge.org/core/books/behavioral-law-and-economics/A907C8E3C3400513D299EE6D5232BF69>.
- Tyran, J.-R., Feld, L.P., 2006. Achieving compliance when legal sanctions are non-deterrent\*. *Scand. J. Econ.* 108 (1), 135–156. <http://dx.doi.org/10.1111/j.1467-9442.2006.00444.x>.
- van der Weele, J., 2012. The signaling power of sanctions in social dilemmas. *J. Law Econ. Organ.* 28 (1), 103–126. <http://dx.doi.org/10.1093/jleo/ewp039>.
- van der Weele, J.J., Kulisa, J., Kosfeld, M., Friebel, G., 2014. Resisting moral wiggle room: How robust is reciprocal behavior? *Am. Econ. J. Microecon.* 6 (3), 256–264. <http://dx.doi.org/10.1257/mic.6.3.256>.
- Xiao, E., 2013. Profit-seeking punishment corrupts norm obedience. *Games Econ. Behav.* 77 (1), 321–344. <http://dx.doi.org/10.1016/j.geb.2012.10.010>.
- Xiao, E., Houser, D., 2011. Punish in public. *J. Public Econ.* 95 (7), 1006–1017. <http://dx.doi.org/10.1016/j.jpubeco.2010.11.021>.
- Xiao, E., Tan, F., 2014. Justification and legitimate punishment. *J. Inst. Theor. Econ.* JITE 170 (1), 168–188. <http://dx.doi.org/10.1628/093245614X13817353577439>.
- Zamir, E., Teichman, D., 2018. *Behavioral Law and Economics*. Oxford University Press.
- Zizzo, D.J., 2010. Experimenter demand effects in economic experiments. *Exp. Econ.* 13 (1), 75–98. <http://dx.doi.org/10.1007/s10683-009-9230-z>, URL <https://doi.org/10.1007/s10683-009-9230-z>.