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Norm Elicitation in Within-Subject Designs: Testing for Order Effects

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Abstract:
We investigate norms of corruption using the norm-elicitation procedure introduced by Krupka and Weber (2013). We use a within-subject design whereby the norms are elicited from the same subjects who are observed making choices in a bribery game. We test whether the order in which the norm-elicitation task and the bribery game are conducted affects elicited norms and behavior. We find little evidence of order effects in our experiment. We discuss how these results compare with those reported in the existing literature.

Keywords: social norms; norm elicitation; order effects; within-subject design; bribery game.

JEL Classification Numbers: C91

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1. INTRODUCTION

A growing number of studies in economics appeal to the influence of social norms to explain behaviors that are difficult to reconcile with models of rational and self-interested decision making (e.g., Fehr and Fischbacher, 2004; Nikiforakis et al., 2012; Gächter et al., 2013). Recently, Krupka and Weber (2013, hereafter KW) have introduced a norm-elicitation task that allows a more objective approach to the identification and measurement of norms. In this method subjects are shown a list of actions available to a decision-maker in a given situation and are asked to evaluate whether each action is "socially appropriate" or "socially inappropriate". Subjects are given material incentives to coordinate their evaluation with that of other participants in the experiment. Thus, subjects have an incentive to reveal their perception of what is collectively recognized as appropriate behavior (i.e. the social norm), rather than their own personal views of appropriateness.[1]

The KW elicitation method has been recently used to explain behavior in a variety of decision settings, including dictator games (Krupka and Weber, 2013; Krupka et al., 2014; Erkut et al., 2015), gift-exchange games (Gächter et al., 2013), and oligopoly pricing games (Krupka et al., 2014).[2] These applications are based on *between-subject designs* where the norm elicitations and behavioral regularities are obtained from experiments using different subjects.[3]

However, *within-subject designs* (where norms and behavior are elicited from the same subjects) may offer a number of advantages over between-subject designs for testing the explanatory power of social norms.[4] First, within-subject designs allow to control for the effects of idiosyncrasies in the subject pools used for the measurement of norms and behavior. If the characteristics of the subjects involved in the norm-elicitation task are different from those of the subjects whose behavior is observed, the explanatory power of the elicited norms may be reduced. Moreover, within-subject designs can address questions that may not be answered with a

[1] This is important as social norms are collectively recognized rules of behavior. Ostrom (2000), for example, defines norms as "shared understandings about actions that are obligatory, permitted, or forbidden" (pp. 143-144). Elster (1989) emphasizes that for "norms to be social, they must be shared by other people" (p. 99).

[2] The KW method has also been used outside of a laboratory context, to explain the on-the-job behavior of financial advisers (Burks and Krupka, 2012).

[3] ~~An e~~Exceptions to this are~~is~~ Nikiforakis et al. (2014), who use a within-subject design to study the explanatory power of norms against exploitation and coercion, and Barr et al. (2015), who study discrimination in the context of an allocator game~~.~~

[4] See Charness et al. (2012) for a general discussion of the relative merits of between- and within-subject designs.

between-subject design, such as whether subjects who behave in violation of a given norm do so because they fail to recognize the relevant norm, or rather because they are not sufficiently motivated to follow norms despite being able to identify them. Clearly, for this analysis, one needs to correlate normative evaluations and behavior elicited from the same subjects.

One serious obstacle to the use of within-subject designs is that the order in which the norm-elicitation and behavioral experiments are conducted may systematically affect the elicited norms and behavior. On the one hand, eliciting norms after having elicited behavior may introduce systematic biases in the measurement of norms. For instance, subjects may be prone to self-serving judgment biases whereby they manipulate their evaluation of what constitutes appropriate behavior in a given situation to reconcile it with the choices that they have previously made in that situation. In fact, several studies have found evidence of self-serving biases in (unincentivized) fairness judgments (e.g., Konow, 2005; Croson and Konow, 2009). On the other hand, eliciting norms before eliciting behavior may systematically affect subjects' choices. Theories of social norms (e.g., Cialdini et al., 1990; Bicchieri, 2000) emphasize that norm compliance requires that norms are salient and that subjects' attention is focused on the rules of appropriate behavior. Eliciting normative judgments before subjects make a choice in a given situation may focus their attention on the norms that prevail in that situation, and may thus affect behavior. In fact, Krupka and Weber (2009) find that dictator giving increases when dictators are asked to report their fairness views before making a choice.

In this paper, we describe an experiment where we test these order effects in the elicitation of norms. As an application, we focus on norms that regulate corrupt behavior, using a version of the bribery game introduced by Cameron et al. (2009).[5] We use the KW method to elicit subjects' normative views about such behaviors. In one treatment we elicit norms of corruption before asking subjects to make a choice in the bribery game, and reverse the order of tasks in another treatment.

Overall, our experiment delivers little evidence of order effects in our within-subject design. The norms elicited from subjects who had not yet played the game are not systematically different from those elicited from subjects who had previously played the game. We also find little evidence that eliciting norms affects subsequent behavior in the bribery game. We conclude

[5] See Abbink (2006) and Banuri and Eckel (2012) for reviews of laboratory experiments on corruption.

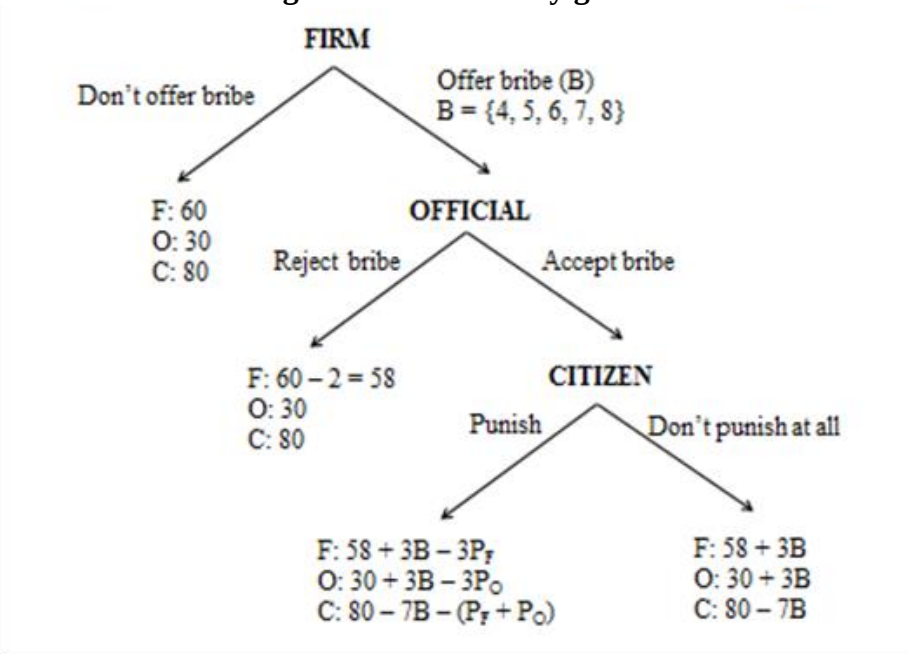
the paper with a discussion of how our results compare with the related literature (Krupka and Weber, 2009; Bicchieri and Chavez, 2010; Barr et al., 2015; Erkut et al., 2015) and a recommendation for researchers interested in using the KW method in within-subject experiments ~~later in the paper~~.

2. Experimental Design

Our experiment consisted of two parts. In one part subjects played a version of the bribery game adapted from Cameron et al. (2009, hereafter CCEG). In the other part we elicited subjects' normative views of corruption using the KW task.

The bribery game used in the experiment is shown in Figure 1. At the beginning of the game subjects are randomly matched in groups of three and randomly assigned to one of three roles: firm, public official, or citizen.[6]

Figure 1 – The bribery game



[6] All payoff amounts are in Experimental Currency Units (ECUs). At the end of the experiment ECUs payoffs were converted into GBP at the following rates: 6 ECUs = 1 GBP for the firm, 4 ECUs = 1 GBP for the official and 3 ECUs = 1 GBP for the citizen. As in CCEG, the choice of conversion rates was aimed at keeping expected earnings comparable across roles.

The firm moves first and decides whether to initiate a corrupt act, by bribing the official. If the firm decides to offer a bribe, it has to choose a bribe amount $B = \{4, 5, 6, 7, 8\}$. Offering the bribe implies a cost of 2 to the firm, regardless of whether the bribe is accepted. If accepted, the bribe increases the firm's payoff by $3B$. The public official moves next: she observes whether the firm has offered a bribe and, if so, decides whether to accept it. Accepting the bribe is profitable for the official, whose payoff is also increased by $3B$, but implies a negative externality on society, captured by a reduction of $7B$ in the citizen's payoff.[7] Finally, the citizen observes the firm's and official's decisions and is given the opportunity to punish corrupt behavior. In particular, if the firm has offered a bribe and this has been accepted by the official, the citizen can sanction the firm and the official, by choosing whether or not to punish them, and if they choose to punish, by selecting a punishment amount $P_F = \{1, 2, 3, 4, 5, 6\}$ and $P_O = \{1, 2, 3, 4, 5, 6\}$, for the firm and official respectively. Punishment is costly for the citizen as the total amount punished $P_F + P_O$ is subtracted from the citizen's payoff. Punishment also reduces the firm's and official's payoffs by $3P_F$ and $3P_O$, respectively.

We implemented a one-shot version of this game, using the strategy method to elicit the official's and citizen's decisions. These choices were collected in an incentive-compatible way: the firm's actual bribing decision determined which of the official's choices (if any) was actually relevant. This in turn determined which of the citizen's punishment decisions (if any) was relevant for computing payoffs.

The KW norm-elicitation task was used to elicit subjects' perceptions of the appropriateness of engaging in corrupt behavior and punishing bribery. Subjects were described a scenario involving an act of corruption and an act of punishment of corrupt behavior. We elicit judgments of appropriateness of four different actions: i) a firm manager's decision to offer a bribe to a public official; ii) the public official's decision to accept the bribe; iii) a citizen's decision to punish the firm for offering the bribe; and iv) the citizen's decision to punish the public official for accepting the bribe. In each case, subjects evaluated whether the action was

[7] Thus, our game is a version of the welfare-reducing game used by CCEG, where corruption is not justified by any efficiency motive.

"very socially inappropriate", "somewhat socially inappropriate", "somewhat socially appropriate", or "very socially appropriate".[8]

Subjects received a monetary reward if their appropriateness judgments matched the judgments provided by others. For each action, subjects received a payment of £0.50 if their judgment of the action matched that of a randomly drawn other person in the session. As discussed in KW, this gives subjects an incentive to reveal what they perceive to be the jointly recognized perceptions of the appropriateness of the behaviors described in the scenario, and not their own personal perception of appropriateness.[9]

Our design consists of two between-subject treatments: in our "**NormFirst**" treatment, subjects first participated in the norm elicitation task and then played the bribery game. In our "**BehaviorFirst**" treatment the order of the two tasks was reversed. In both treatments subjects were informed of the two-part structure of the experiment at the beginning of the session, but they were not given any information about the second part until everyone had completed the first part. Moreover, subjects completed the second part of the experiment without receiving any ~~information~~ feedback on outcomes from the first part.

Our experiment allows us to measure the extent of self-serving judgment biases by comparing the norms elicited from the "impartial spectators" in the NormFirst treatment (i.e. from subjects who have not participated in a game that reproduces the scenario they are asked to evaluate) with those elicited from subjects who had previously played the bribery game in the role of firm, public official or citizen in the BehaviorFirst treatment. Moreover, to measure the extent to which participation in the norm elicitation task affects subsequent behavior (e.g., by focusing subjects' attention on normative considerations), we compare choices in the bribery game in the NormFirst treatment with those in the BehaviorFirst treatment, where subjects were not primed to think about norms of corruption before playing the game.

[8] Note that in the norm-elicitation task subjects were not asked to evaluate the specific actions that players could take in the bribery game, but a more general corruption situation that was modelled based on the bribery game. This design choice differs from previous applications of the KW method and was made because the large action space of the game made it impractical to elicit judgments of appropriateness of each possible action in the game. An implication of this is that we cannot perform a within-subject analysis to test whether the perception of appropriateness of actions in the game predicts their use in the experiment. We discuss further implications of this design choice in section 4.

[9] The material incentives used in the task generate a coordination game with multiple equilibria. KW argue that jointly recognized social norms create focal points in this game, which subjects are likely to exploit to coordinate.

Overall, 204 subjects participated in the experiment, 102 in each treatment. The experiment was conducted at the University of Birmingham using z-tree (Fischbacher, 2007). Subjects were recruited using ORSEE (Greiner, 2015). Each session lasted approximately 1 hour, and subjects earned, on average, £19.94 (including a £2.50 show-up fee).[10]

3. RESULTS

3.1 The effect of game play on elicited norms

In this sub-section we examine whether making choices in the bribery game affects subjects' subsequent normative judgments about offering and accepting bribes and punishing corrupt behavior. Table 1 reports the full distributions of ratings elicited from subjects in the BehaviorFirst and NormFirst treatments. In the former case, we distinguish between ratings elicited from subjects who took the role of firm, public official, or citizen in the bribery game.[11] In the latter case, this is not needed because subjects had not yet participated in the bribery game when norms were elicited (and thus, assignment to specific roles had not yet taken place).

Table 1 – Appropriateness ratings across treatments

	Firm					**Official**				
Action	Mean	--	-	+	++	Mean	--	-	+	++
OfferBribe	**-0.75**	68%	26%	6%	0%	**-0.65**	53%	41%	6%	0%
AcceptBribe	**-0.84**	79%	18%	3%	0%	**-0.80**	76%	18%	6%	0%
PunishFirm	**0.80**	0%	3%	24%	73%	**0.90**	0%	0%	15%	85%
PunishOfficial	**0.77**	0%	3%	29%	68%	**0.88**	0%	0%	18%	82%
	Citizen					**NormFirst**				
Action	Mean	--	-	+	++	Mean	--	-	+	++
OfferBribe	**-0.80**	76%	18%	6%	0%	**-0.80**	80%	12%	6%	2%
AcceptBribe	**-0.82**	76%	21%	3%	0%	**-0.77**	76%	14%	8%	2%
PunishFirm	**0.78**	0%	0%	32%	68%	**0.79**	1%	1%	27%	71%
PunishOfficial	**0.78**	0%	0%	32%	68%	**0.82**	1%	2%	21%	76%

Note: responses are "very socially inappropriate" (--), "somewhat socially inappropriate" (-), "somewhat socially appropriate" (+), "very socially appropriate" (++). Modal responses are shaded.

The ratings are remarkably similar across treatments. Both the impartial normative judgments elicited in the NormFirst treatment and those elicited in BehaviorFirst show that a

[10] The experimental instructions are reproduced in the Online Supplementary Material.

[11] As in KW, mean ratings were constructed by converting responses into numerical scores using the following scale: "very socially inappropriate" = -1, "somewhat socially inappropriate" = -1/3, "somewhat socially appropriate" = 1/3, "very socially appropriate" = 1.

large majority of subjects think that offering and accepting bribes is very socially inappropriate. The punishment of corrupt behavior is instead viewed as very socially appropriate by most subjects in either treatment. Moreover, within the BehaviorFirst treatment, we observe little differences between ratings collected from firms, public officials, and citizens. In all cases, the modal response by either type of subject coincides with that in the NormFirst treatment.

We formally analyze the responses in the different treatments by using Fisher's randomization tests.[12] We start by comparing, for each of the four actions, the ratings elicited in the NormFirst treatment with those elicited in the BehaviorFirst treatment, without distinction as to the role taken in the bribery game. For each action, we do not detect statistically significant differences between ratings elicited in the NormFirst and BehaviorFirst treatments (all $p > 0.270$).

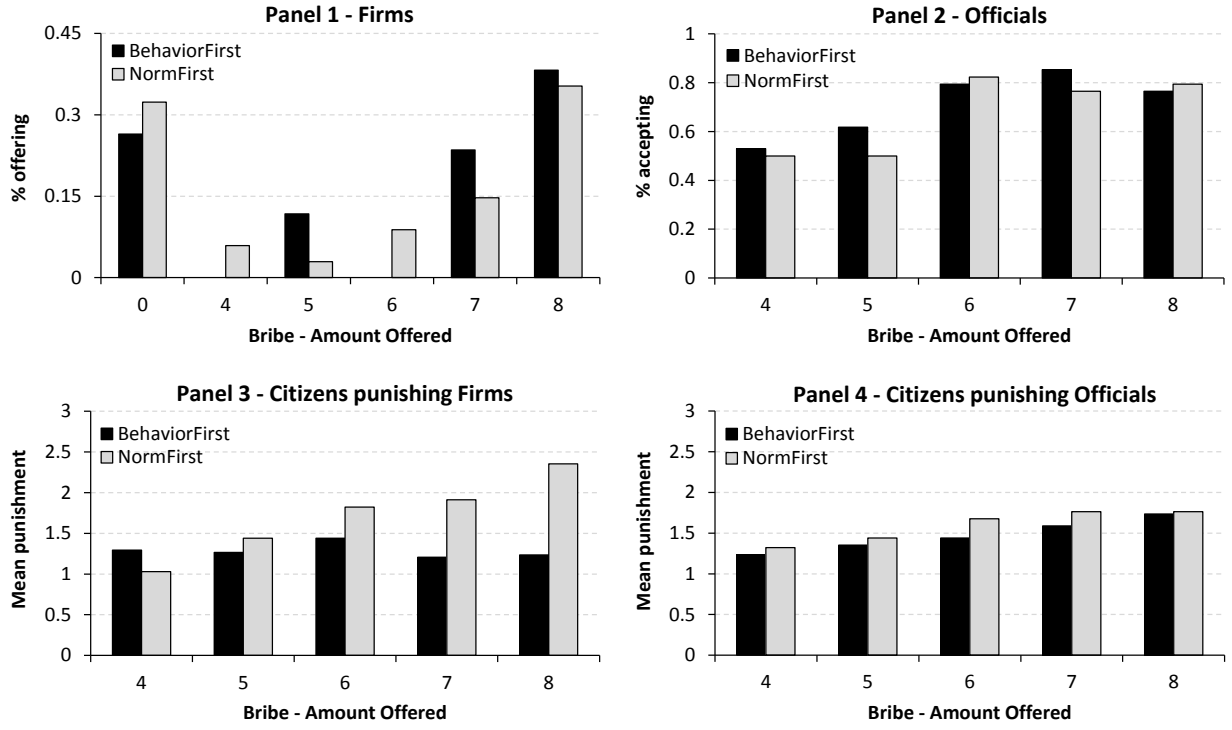
We next compare the ratings elicited in NormFirst with those elicited either from firms, public officials, or citizens in BehaviorFirst. Eleven of the twelve possible comparisons are statistically insignificant at the 10% level, according to Fisher's randomization tests. The exception occurs for the action OfferBribe, which subjects in the role of public official in BehaviorFirst rated as relatively less inappropriate than subjects in NormFirst ($p = 0.097$). However, this result must be interpreted with caution due to the multiple testing problem, which increases the overall type I error rate. None of the statistical comparisons is significant if we apply a Bonferroni correction to account for the multiple testing.

3.2 The effect of norm elicitation on game play

We next examine whether asking subjects to report their views about norms of corruption affects subsequent behavior in the bribery game. To do so, we compare the behavior of subjects in the NormFirst treatment with that of subjects in the BehaviorFirst treatment. Figure 2 summarizes the behavior of firms (Panel 1), public officials (Panel 2), and citizens (Panels 3 and 4) in the two treatments of the experiment.

[12] See Moir (1998) for a discussion of the randomization test.

Figure 2 – Behavior across treatments



Starting with the behavior of firms (Panel 1), 27% of firms chose not to offer any bribe to the public official in the BehaviorFirst treatment. The proportion of non-bribing firms in NormFirst is 32%. This difference is not statistically significant according to a χ^2 test ($p = 0.595$). More generally, we do not find any significant difference in the distributions of bribes offered in the two treatments (χ^2 test, $p = 0.172$). We also do not detect significant differences in the average bribe offered across the two treatments (5.29 in BehaviorFirst; 4.78 in NormFirst; Fisher's randomization test, $p = 0.583$).

Looking at the proportion of public officials who were prepared to accept a bribe of a given amount (Panel 2), we find that, in both treatments, the acceptance rate increases in the bribe amount: only about half of the officials were willing to accept the lowest bribe amount of 4, but about 80% were willing to accept the highest bribe amount of 8. Acceptance rates are very similar between the two treatments. In fact, for any bribe amount, we do not detect any significant differences between the proportion of officials accepting the bribe in BehaviorFirst and NormFirst (χ^2 tests, all $p \geq 0.329$).

Turning to citizen's behavior, we find that citizens' punishment against firms (Panel 3) averages between 1.2 and 1.4 depending on the bribe offered in BehaviorFirst, although there is no clear monotonic relation between punishment and bribe amount. In NormFirst the punishment amount increases monotonically in the bribe offered: average punishment increases from 1.03 when firms offer the lowest possible bribe to 2.35 when firms offer the highest possible bribe. While the differences in punishment between the two treatments appear qualitatively large, especially for bribe amounts of 7 and 8, we detect insignificant differences in punishment behavior between treatments using Fisher's randomization tests when firms offer a bribe of 4, 5, 6 or 7 (all $p \geq 0.195$). We detect a weakly significant difference in punishment behavior when firms offer a bribe of 8 ($p = 0.062$). However, none of the statistical comparisons is significant if we apply a Bonferroni correction to account for multiple testing.

For citizens' punishment against public officials (Panel 4), we find that in both treatments there is a weakly positive correlation between punishment and bribe amount. The pattern is similar across treatments and using Fisher's randomization tests we do not detect ~~any~~ statistically significant differences in punishments for any bribe amount (all $p \geq 0.689$).

4. DISCUSSION AND CONCLUSION

In this paper we test~~ed~~ the effects of eliciting social norms of appropriate behavior in within-subject designs where the same subjects make a choice and express a judgment about appropriate behavior in a given decision setting. We ~~have~~ consider~~ed~~ two possible effects. On the one hand, eliciting normative judgments after having asked subjects to make a choice in a decision setting may distort the measurement of norms because subjects may be prone to self-serving biases that lead them to distort their view of what constituted appropriate behavior to justify their choices in the decision situation. On the other hand, eliciting normative judgments before subjects make a choice in the decision setting may affect their behavior as this may draw subjects' attention to the relevant social norms and encourage norm compliance.

We test these effects in a version of the bribery game originally introduced by Cameron et al. (2009). We elicit social norms using the method introduced by Krupka and Weber (2013). In one treatment subjects play the bribery game first and then report judgments of appropriateness in the KW task. In the other treatment, the order of tasks is reversed.

We find that norms elicited from subjects who had previous experience with the decision situation they are asked to evaluate are not systematically different from norms elicited from "impartial spectators", who report their normative judgments ~~of appropriateness~~ before having played the game. We also find little evidence that focusing subjects on social norms of corruption affects their subsequent behavior in the bribery game (possibly with the exception of punishment behavior, which in some cases seems more pronounced when subjects are first asked to focus on normative considerations).

Our results suggest that order effects are relatively unimportant in the context of the KW norm-elicitation task~~s~~. But what is the generalizability of these findings? While our study contributes to the study of order effects in one specific scenario (related to corrupt behavior) using a specific experimental setting, comparisons with the existing literature may shed some light on the extent to which the use of norm-elicitation tasks is generally likely to generate order effects.

We are aware of two other studies that report the effects of eliciting norms from subjects who have played the game they are asked to evaluate: Barr et al. (2015) and Erkut et al. (2015).[13] We are aware of three studies that report the effects of eliciting normative judgments on subsequent game behavior: Krupka and Weber (2009), Bicchieri and Chavez (2010) and Barr et al. (2015).[14] Figure 3 and Figure 4 show the effect sizes and confidence intervals reported in these studies, as well as in our study.

Figure 3 shows the average effect sizes of letting subjects participate in the norm elicitation task after having played the game they are asked to evaluate.[15] The figure is divided into two panels. In the left panel we report effect sizes for actions that are generally viewed as "inappropriate" or "unfair" (offering a bribe; accepting a bribe; keeping more than half of the pie in a dictator game; discriminating against others in an allocator game). The right panel contains actions that are instead typically considered as "appropriate" or "fair" (punishing someone who

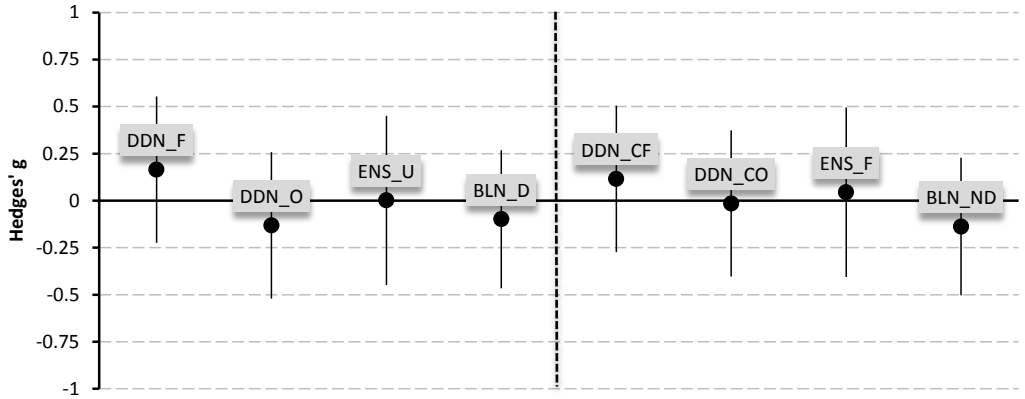
[13] Barr et al. (2015) study discrimination in the context of an allocator game. Erkut et al. (2015) study dictator game giving. Also related is Veselý (2015), who studies whether the elicitation of norms is affected by prior elicitation of fairness judgments in an ultimatum game, and finds that the order in which the two types of judgments are elicited does not affect them.

[14] Krupka and Weber (2009) study dictator game giving. Bicchieri and Chavez (2010) study proposer's offers in the ultimatum game. Barr et al. (2015) study discrimination in the context of an allocator game.

[15] The figure reports, for each paper, an average effect size computed for a given action or group of actions. See the Online Supplementary Materials for details on how these average effect sizes were computed.

has offered or accepted a bribe; offering half of the pie or more in the dictator game; not discriminating against others in the allocator game). In all studies, and for both types of actions, the reported effect sizes are very small (never larger than 0.25) and statistically indistinguishable from zero. Moreover, we do not observe a clear separation between "unfair" and "fair" actions: it is not the case, for instance, that playing the game beforehand makes unfair actions generally more acceptable or reduces the appropriateness of fair actions (as one would expect if normative judgments were prone to self-serving biases). Overall, these results show that norms elicited from "impartial spectators", who have no experience with the game they are asked to evaluate, are unlikely to differ systematically from norms elicited from subjects who have just played the game.[16]

Figure 3 – Effect size of eliciting norms after behavior



Note: Effect sizes are computed using Hedges' *g* (Hedges, 1981). Bars represent 95% confidence intervals. DDN_F: this paper, avg. appropr. of firm offering bribe. DDN_O: this paper, avg. appropr. of official accepting bribe. ENS_U: Erkut et al. (2015), avg. appropr. of unfair dictator offers. BLN_D: Barr et al. (2015), avg. appropr. of discriminating. DDN_CF: this paper, avg. appropr. of citizen punishing firm. DDN_CO: this paper, avg. appropr. of citizen punishing official. ENS_F: Erkut et al. (2015), avg. appropr. of fair or hyperfair dictator offers. BLN_ND: Barr et al. (2015), avg. appropr. of not discriminating.

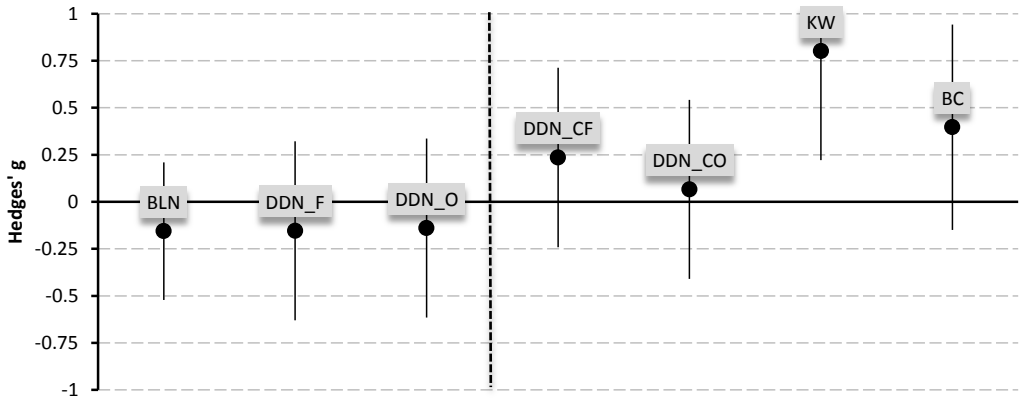
Figure 4 shows the average effect sizes of eliciting behaviors from subjects who have just expressed a normative judgment about those behaviors.[17] Figure 4 is also divided into two panels,

[16] The fact that the findings from the literature are in line with our results is reassuring, especially because one concern with our study is that the norm-elicitation task used in our experiment does not use the same action space of the bribery game, which may have minimized the likelihood of one task influencing the other. The fact that similar findings are also reported by studies where subjects are asked to evaluate the exact same actions available in the game (Barr et al., 2015; Erkut et al., 2015) mitigates this concern.

[17] See the Online Supplementary Materials for details on how the effect sizes were computed.

for domains of behavior that generally have a "negative" connotation (left panel: discrimination; corruption), or a "positive" connotation (right panel: punishment of corrupt actions; dictator or ultimatum game giving). In most cases the effect sizes are small and statistically indistinguishable from zero. However, in two cases (Krupka and Weber, 2009; Bicchieri and Chavez, 2010) the reported effect sizes are fairly large (0.80 and 0.40, respectively) and, in the case of Krupka and Weber (2009), statistically different from zero.[18] Moreover, Figure 4 also shows that focusing subjects' attention on normative considerations tends to reduce the occurrence of behaviors that have a "negative" connotation (discrimination, corruption), while it increases the occurrence of "positive" behaviors (punishment of corruption; giving). This is in line with a focusing effect of norms on behavior: focusing subjects' attention on norms of appropriate behavior seems to have a polarized impact on behaviors that are inappropriate or appropriate, by decreasing the occurrence of the former while increasing that of the latter.

Figure 4 – Effect size of eliciting behavior after norms



Note: Effect sizes are computed using Hedges' *g* (Hedges, 1981). Bars represent 95% confidence intervals. BLN: Barr et al. (2015), average discrimination. DDN_F: this paper, average bribe offered by firm. DDN_O: this paper, average bribe acceptance by official. DDN_CF: this paper, average punishment by citizen to firm. DDN_CO: this paper, average punishment by citizen to official. KW: Krupka and Weber (2009), average dictator game offer. BC: Bicchieri and Chavez (2010), average ultimatum game offer.

[18] Note, however, that the elicitation methods used by Krupka and Weber (2009) and Bicchieri and Chavez (2010) differs from the KW method that we follow here and that Barr et al. (2015) also follow. The fact that Krupka and Weber (2009) report a stronger effect compared to our study may be due to the fact that that the framing used in our bribery game may be per se more conducive to a normative focusing effect than the relatively more neutral frame used in the dictator game of Krupka and Weber (2009). This would be in line with Banerjee (2015) who studies different versions of a bribery game, where the game is either neutrally framed or framed in the context of corruption and bribery, and shows that the game frame affects judgments of social appropriateness and influences behavior.

Taken together, our results and the findings from previous studies suggest that normative judgments elicited using the KW task are robust to self-serving biases whereby individuals may tend to adjust their moral views to accommodate their past actions. Existing findings paint instead a more mixed picture of the effects of eliciting norms from subjects who are about to make decisions in related decision settings. On balance, if researchers intend to elicit social norms using a within-subject design, the evidence from our study and the existing literature suggests that this is less likely to generate distortions if norms of appropriate behavior are elicited after subjects have made a choice in the decision situation.

REFERENCES

Abbink, K. 2006. Laboratory experiments on corruption. In *International Handbook on the Economics of Corruption*, ed by. Susan Rose-Ackerman. Cheltenham, UK: Edward Elgar.

Banerjee, R. 2015. On the interpretation of bribery in a laboratory corruption game: moral frames and social norms. *Experimental Economics*, 1–28.

Banuri, S., and C. Eckel. 2012. Experiments in Culture and Corruption: A Review. In *New Advances in Experimental Research on Corruption*, 15:51–76. Research in Experimental Economics 15. Emerald Group Publishing Limited.

Barr, A., T. Lane, and D. Nosenzo. 2015. On the social appropriateness of discrimination. CeDEx Discussion Paper, University of Nottingham.

Bicchieri, C. 2000. Words and Deeds: A Focus Theory of Norms. In *Rationality, Rules, and Structure*, ed by. Julian Nida-Rümelin and Wolfgang Spohn, 153–184. Theory and Decision Library 28. Springer Netherlands.

Bicchieri, C., and A. Chavez. 2010. Behaving as expected: Public information and fairness norms. *Journal of Behavioral Decision Making* 23(2), 161–178.

Burks, S.V., and E. Krupka. 2012. A Multimethod Approach to Identifying Norms and Normative Expectations Within a Corporate Hierarchy: Evidence from the Financial Services Industry. *Management Science* 58(1), 203–217.

Cameron, L., A. Chaudhuri, N. Erkal, and L. Gangadharan. 2009. Propensities to engage in and punish corrupt behavior: Experimental evidence from Australia, India, Indonesia and Singapore. *Journal of Public Economics* 93(7-8), 843–851.

Charness, G., U. Gneezy, and M.A. Kuhn. 2012. Experimental methods: Between-subject and within-subject design. *Journal of Economic Behavior & Organization* 81(1), 1–8.

Cialdini, R.B., R. Reno, and C. Kallgren. 1990. A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology* 58(6), 1015–1026.

Croson, R., and J. Konow. 2009. Social preferences and moral biases. *Journal of Economic Behavior & Organization* 69(3), 201–212.

Elster, J. 1989. Social Norms and Economic Theory. *The Journal of Economic Perspectives* 3(4), 99–117.

Erkut, H., D. Nosenzo, and M. Sefton. 2015. Identifying Social Norms Using Coordination Games: Spectators vs. Stakeholders. *Economics Letters* 130, 28–31.

Fehr, E., and U. Fischbacher. 2004. Social norms and human cooperation. *Trends in Cognitiove Science* 8, 185–190.

Fischbacher, U. 2007. z-Tree: Zurich toolbox for ready-made economic experiments. *Experimental Economics* 10(2), 171–178.

Gächter, S., D. Nosenzo, and M. Sefton. 2013. Peer Effects in Pro-social Behavior: Social Norms or Social Preferences? *Journal of the European Economic Association* 11(3), 548–573.

Greiner, B. 2015. Subject pool recruitment procedures: organizing experiments with ORSEE. *Journal of the Economic Science Association* 1(1), 114–125.

Hedges, L.V. 1981. Distribution Theory for Glass's Estimator of Effect size and Related Estimators. *Journal of Educational and Behavioral Statistics* 6(2), 107–128.

Konow, J. 2005. Blind Spots: The Effects of Information and Stakes on Fairness Bias and Dispersion. *Social Justice Research* 18, 349–390.

Krupka, E., S. Leider, and M. Jiang. 2014. A Meeting of the Minds: Informal Agreements and Social Norms. Manuscript. University of Michigan.

Krupka, E., and R.A. Weber. 2009. The focusing and informational effects of norms on pro-social behavior. *Journal of Economic Psychology* 30(3), 307–320.

Krupka, E., and R.A. Weber. 2013. Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association* 11(3), 495–524.

Moir, R. 1998. A Monte Carlo analysis of the Fisher randomization technique: reviving randomization for experimental economists. *Experimental Economics* 1(1), 87–100.

Nikiforakis, N., C.N. Noussair, and T. Wilkening. 2012. Normative conflict and feuds: The limits of self-enforcement. *Journal of Public Economics* 96(9–10), 797–807.

Nikiforakis, N., J. Oechssler, and A. Shah. 2014. Hierarchy, coercion, and exploitation: An experimental analysis. *Journal of Economic Behavior & Organization* 97, 155–168.

Ostrom, E. 2000. Collective action and the evolution of social norms. *The Journal of Economic Perspectives* 14(3), 137–158.

Veselý, Š. 2015. Elicitation of normative and fairness judgments: Do incentives matter? *Judgment and Decision Making* 10(2), 191–197.

ONLINE SUPPLEMENTARY MATERIALS

A. EXPERIMENTAL INSTRUCTIONS

Below we report the instructions used in the experiment. The instructions were used in the BehaviorFirst treatment, In the NormFirst treatment the order of Part 1 and Part 2 was inverted.

PRELIMINARY INSTRUCTIONS

Welcome! You are about to take part in a decision-making experiment. This experiment is run by the "Birmingham Experimental Economics Laboratory" and has been financed by various research foundations. Just for showing up you have already earned £2.50. You can earn additional money depending on the decisions made by you and other participants. It is therefore very important that you read these instructions with care.

It is important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your following of these rules.

We will first jointly go over the instructions. After we have read the instructions, you will have time to ask clarifying questions. We would like to stress that any choices you make in this experiment are entirely anonymous. Please do not touch the computer or its mouse until you are instructed to do so. Thank you.

This experiment consists of two different parts, PART 1 and PART 2. In each part you will be asked to make one or more decisions and will have a chance to earn money. The amount of money you will earn in each part of the experiment will depend on your decisions and may depend on other participants' decisions. The total amount you will earn from the experiment will be the sum of the earnings you make in the two parts of the experiment. You will be informed about your earnings from the two parts of the experiment only at the end of the session. Therefore, in PART 2, everyone will make their decisions without knowing any outcome from PART 1. Attached with these preliminary instructions, you find the instructions for PART 1 of the experiment. You will receive new instructions for PART 2 once everyone in the room has completed PART 1.

PART 1

General Instructions

In PART 1 of today's experiment, participants are divided into groups of three. You will therefore be in a group with 2 other participants. You will be presented with a real-life-like situation where you will be randomly assigned to the role of the Manager of a Firm, a Government Official, or a Citizen. Your role will be randomly assigned to you by the computer and will be shown to you on the computer screen. We ask you to assume the role assigned to you as described later and to make decisions in the same way you would if you were in the situation presented. You will not know who the other participants in your group are.

The money that you make in PART 1 will be called payoffs. Payoffs are denoted in experimental currency units, or ECUs. At the end of this session, these ECUs will be converted into cash using the following exchange rate: for the Firm the exchange rate is 6 ECUs = £1, for the Official it is 5 ECUs = £1 and for the Citizen it is 4 ECUs = £1.

The situation you will be facing is the following. The Firm has to decide whether it wants to offer the Official a bribe or not. The Official has to decide whether to accept the bribe or not. The Citizen has two choices: to punish the Firm and/or the Official for offering and accepting the bribe respectively, or not to punish them. We will now provide you with detailed instructions for each role.

Detailed Instructions for Firms

In today's experiment, if you are a Firm, you have to decide whether to offer the Official a bribe or not. If you decide not to offer a bribe, then the participants get the following amounts: the Firm gets 60 ECUs, the Official gets 30 ECUs, and the Citizen gets 80 ECUs. If you choose to offer a bribe, then you have to choose how much to offer. You incur a cost of 2 ECUs for offering this bribe regardless of whether the Official accepts it or not. You can choose to offer an amount B, where B can be a whole number in between 4 and 8, i.e., B = (4, 5, 6, 7, 8).

Detailed Instructions for Officials

In today's experiment, if you are an Official, at the moment you make your decision, you do not know yet the decision taken by the Firm in your group. Therefore, you need to make a decision for each possible choice that can be made by the Firm in your group. That is, for any possible amount of the bribe (B) that the Firm can offer, you have to decide whether to accept the bribe or not. Depending on the Firm's choice, one of your decisions will become payoff relevant at the end of the experiment. If you decide not to accept the bribe, then the Firm gets 58, the Official gets 30, and the Citizen gets 80 ECUs. If you accept the bribe, then, conditional on the Citizen's actions, the payoffs can be of two types. If the Citizen decides not to punish, then the following payoffs occur: Firm gets $60 - 2 + 3B$, Official gets $30 + 3B$, and Citizen gets $80 - 7B$, where B is the amount of bribe offered by the Firm. If the Citizen decides to punish, then the following payoffs occur: Firm gets $60 - 2 + 3B - 3P_F$, Official gets $30 + 3B - 3P_O$ and the Citizen gets $80 - 7B - (P_F + P_O)$, where P_F and P_O denote the amount of punishment chosen by the Citizen

for the Firm and the Official, respectively. The payoffs indicate that the bribe B offered by the firm gets **multiplied by 3**, if you decide to accept the bribe but this in turn will reduce the citizen's payoff **by 7 times** the amount of the bribe. If the Citizen decides to punish, the amount of punishment also gets **multiplied by 3**.

Detailed Instructions for Citizens

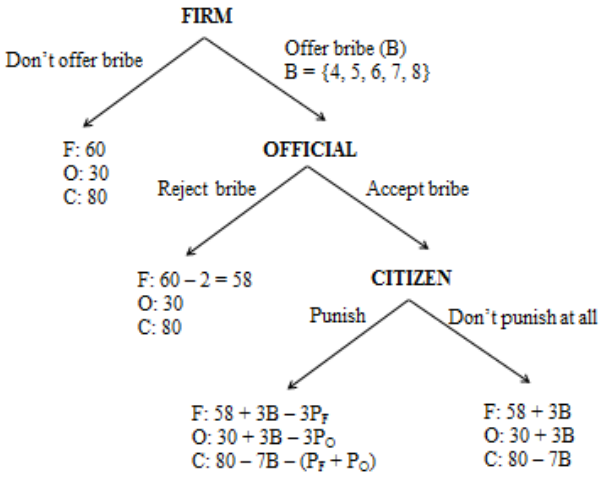
If you are a Citizen in today's experiment, at the moment you make your decision, you do not know yet the decisions taken by the Firm and the Official in your group. Therefore you need to make a decision for each possible bribe amount that can be offered by the Firm and accepted by the Official in your group. That is, for any possible amount of the bribe (B) that the Firm could offer and the Official could accept, you have to decide whether to punish them or not. If the Firm offers a bribe and the Official accepts it, one of your decisions will become payoff relevant at the end of the experiment. If the Firm and the Official in your group have offered and accepted a bribe respectively, your payoff automatically gets reduced by **7 times** the amount of the bribe, B. This is the harm you suffer as a result of the act of bribery. You can punish the Firm, the Official or both of them if you wish. If you choose to punish the Firm, then you can choose a whole number in between 1 and 6, i.e., P_F = (1, 2, 3, 4, 5, 6) as the amount of the punishment. If you choose to punish the Official, then you can choose a whole number in between 1 and 6, i.e., P_O = (1, 2, 3, 4, 5, 6) as the amount of the punishment. If you decide to punish the Firm but not the Official, then the corresponding value of P_O will be 0. Similarly, if you decide to punish the Official but not the Firm, then the corresponding value of P_F will be 0. Each monetary amount of punishment that you choose will be **multiplied by 3,** and the corresponding payoffs of the Official and the Firm will be reduced by this tripled amount. **Your payoff will be reduced by the sum of the amount of punishment you have chosen to assign to the Firm and the Official.** The exact payoffs will be: Firm gets $60 - 2 + 3B - 3P_F$, Official gets $30 + 3B - 3P_O$, and Citizen gets $80 - 7B - (P_F + P_O)$. If you decide not to punish, then the payoffs will be: Firm gets $60 - 2 + 3B$, Official gets $30 + 3B$, and Citizen gets $80 - 7B$.

If you are a Citizen, you will see the following screen, where you need to enter your decisions.

Each row of the table you see in the screenshot represents one possible bribe amount which can be offered by the Firm and accepted by the Official. For each possible bribe amount, you have to enter the following decisions in the space provided: a) whether you want to punish the Firm and, if so, by how much, and b) whether you want to punish the Official and, if so, by how much. For instance, the first row of the table represents the case where the Firm decides to offer a bribe of 4 and the Official accepts. In the space provided on that row, you need to enter whether you want to punish the Firm and/or the Official by selecting "yes" or "no" in the corresponding cells. If you answer "yes" to either or both of these two questions, then you need to enter the amount of punishment you want to assign for the Firm and/or the Official in each of the two corresponding large boxes. If you answer "no" to either or both of these questions, then you need to leave empty the corresponding large box. Similarly, you also need to enter your decisions for the cases where the Firm decides to offer a bribe of 5, 6, 7 and 8 and the Official accepts, represented in the second, third, fourth and fifth row of the table, respectively.

Figure 1 describes the general set-up and summarizes the structure of the experiment.

Figure 1: The Structure of the Experiment



Control questionnaire

To make sure everyone understands the instructions, please complete the questions below. In a couple of minutes someone will come to your desk to check your answers. Once everybody answers the following questions correctly, PART 1 of the experiment will start. (The decisions and payoffs used for the questions below are simply for illustrative purposes. In the experiment decisions and payoffs will depend on the actual choices of the participants.)

1. Suppose that the Firm has decided to make a bribe of 6. The Official has decided to reject the bribe if the Firm offers a bribe of 5, 6 and 7 and to accept the bribe if the Firm offers a bribe of 4 and 8. The Citizen has decided to punish neither the Firm nor the Official.

a) What is the payoff of the Firm? _____

b) What is the payoff of the Official? _____

c) What is the payoff of the Citizen? _____

2. Suppose that the Firm has decided to offer a bribe of 8. The Official has decided to reject the bribe if the Firm offers a bribe of 4 and 5 and to accept the bribe if the Firm offers a bribe of 6, 7 and 8. The Citizen has decided to choose 1, 3 and 4 as the amount of punishment for the Firm if it offers a bribe of 4, 5 and 6, respectively. The Citizen has decided not to punish the Firm if it offers a bribe of 7 and 8. The Citizen has decided not to punish the Official.

a) What is the payoff of the Firm? _____

b) What is the payoff of the Official? _____

c) What is the payoff of the Citizen? _____

3. Suppose that the Firm has decided to offer a bribe of 5. The Official has decided to reject the bribe if the Firm offers a bribe of 4 and 7 and to accept the bribe if the Firm offers a bribe of 5, 6 and 8. The Citizen has decided to choose 1, 3 and 4 as the amount of punishment for the Official if the Firm offers a bribe of 5, 6 and 7, respectively. The Citizen has decided not to punish the Official if the Firm offers a bribe of 4 and 8. The Citizen has decided not to punish the Firm.

a) What is the payoff of the Firm? _____

b) What is the payoff of the Official? _____

c) What is the payoff of the Citizen? _____

PART 2

In PART 2 of today's experiment, we will ask you and all other participants to evaluate different possible choices an individual might make. Specifically, we will describe a choice that an individual might have made, and you should decide whether making that choice would be "socially appropriate" and "consistent with moral or proper social behaviour" or "socially inappropriate" and "inconsistent with moral or proper social behaviour." By socially appropriate, we mean behaviour that most people agree is the "correct" or "ethical" thing to do. Another way to think about what we mean is that, if someone were to make a socially inappropriate choice, then someone observing this behaviour might get angry at the person who made the choice for acting in that manner.

In each of your responses, we would like you to evaluate what constitutes socially appropriate or inappropriate behaviour. To give you an idea, consider the following example.

Someone is at a local cafe. While there, the person notices that someone has left a wallet at one of the tables. How appropriate would it be to take the wallet for yourself?

Very socially inappropriate	*Somewhat socially inappropriate*	*Somewhat socially appropriate*	*Very socially appropriate*
☐	☐	☐	☐

If this were the situation we asked you about in the study, you would indicate the extent to which you believe taking the wallet would be "socially appropriate" and "consistent with moral or proper social behaviour" or "socially inappropriate" and "inconsistent with moral or proper social behaviour". Recall that by socially appropriate we mean behaviour that most people agree is the "correct" or "ethical" thing to do.

For example, suppose you thought that taking the wallet was *very socially inappropriate*. Then, you would indicate your response by selecting the first box.

For each choice you make, we will compare your response to the response of **one other randomly selected participant to this session**. **If you give the same response as** the one provided by the selected other participant**, then you will receive an additional £0.50**. This amount will be paid to you, along with your other earnings, at the conclusion of the experiment.

For instance, in the example situation above, if your response had been "somewhat socially inappropriate," then you would receive an additional £0.50 if this was also the response provided by a randomly selected other participant in today's session. Otherwise you would not receive any additional money for this question.

Are there any questions about this task? Once we continue, you will see detailed descriptions of the choices you are to evaluate and instructions on how to proceed.

If you have any questions at any time, please raise your hand and wait for the experimenter to come to you.

You will see how much you have earned from PART 2 at the end of the experiment.

Question 1:

Suppose that the manager of a firm would like a public official to award his/her firm a public contract, or grant it a permit or other benefit. How appropriate would it be for the manager to offer a bribe to the public official in such an instance?

Very Socially Inappropriate	*Somewhat socially inappropriate*	*Somewhat socially appropriate*	*Very socially appropriate*
☐	☐	☐	☐

Question 2:

Suppose that a public official is offered a bribe by the manager of a firm in exchange for awarding the firm a public contract, granting a permit or other benefit. How appropriate would it be for the public official to accept the bribe and grant the firm the contract, permit or other benefit?

Very Socially Inappropriate	*Somewhat socially inappropriate*	*Somewhat socially appropriate*	*Very socially appropriate*
☐	☐	☐	☐

Question 3:

Suppose that a citizen is aware of an episode of bribery, having observed or been informed of the exchange of money for favours between a firm and a public official.

A) How appropriate would it be for the citizen to punish the firm (for instance by reporting the bribe)?

Very Socially Inappropriate	*Somewhat socially inappropriate*	*Somewhat socially appropriate*	*Very socially appropriate*
☐	☐	☐	☐

B) How appropriate would it be for the citizen to punish the public official (for instance by reporting the bribe)?

Very Socially Inappropriate	*Somewhat socially inappropriate*	*Somewhat socially appropriate*	*Very socially appropriate*
☐	☐	☐	☐

B. Effect Size Computation

We report effect sizes based on Hedges' *g* statistic (Hedges, 1981). The effect sizes of eliciting norms after playing the game are based on three studies: the present paper, Barr et al. (2015) and Erkut et al. (2015). The effect sizes are based on the differences in appropriateness ratings measured either after or before a subject has played the game she is asked to evaluate. Table A.1 reports, for each action evaluated by subjects, the corresponding effect size. In the main text we report average effect sizes for groups of actions that are generally viewed as "fair" or "unfair". For papers with more than one treatment, in the main text we report effect sizes averaged across the treatments. The effect sizes reported in the main text are highlighted in the table.

Table A.1 – Effect sizes of eliciting norms after behavior

Study	*Treatment*	*Action*	*Comparison*	*Effect Size (Hedge's g)*
D'Adda, Drouvelis, Nosenzo (DDN)	n.a.	Firm offers bribe	Firm vs Impartial Spectator	0.13
			Official vs Impartial Spectator	0.36
			Citizen vs Impartial Spectator	0.00
			AVERAGE REPORTED IN MAIN TEXT	**0.16**
		Official accepts bribe	Firm vs Impartial Spectator	-0.18
			Official vs Impartial Spectator	-0.09
			Citizen vs Impartial Spectator	-0.13
			AVERAGE REPORTED IN MAIN TEXT	**-0.13**
		Citizen punishes firm	Firm vs Impartial Spectator	0.04
			Official vs Impartial Spectator	0.33
			Citizen vs Impartial Spectator	-0.02
			AVERAGE REPORTED IN MAIN TEXT	**0.11**
		Citizen punishes official	Firm vs Impartial Spectator	-0.14
			Official vs Impartial Spectator	0.19
			Citizen vs Impartial Spectator	-0.09
			AVERAGE REPORTED IN MAIN TEXT	**-0.01**
Erkut, Nosenzo, Sefton (ENS)	n.a.	Give 0 out of 10 in dictator game	Dictator vs Impartial Spectator	-0.10
			Recipient vs Impartial Spectator	-0.06
		Give 1 out of 10 in dictator game	Dictator vs Impartial Spectator	-0.21
			Recipient vs Impartial Spectator	0.09
		Give 2 out of 10 in dictator game	Dictator vs Impartial Spectator	0.11
			Recipient vs Impartial Spectator	0.19
		Give 3 out of 10 in dictator game	Dictator vs Impartial Spectator	0.06
			Recipient vs Impartial Spectator	-0.11
		Give 4 out of 10 in dictator game	Dictator vs Impartial Spectator	0.00
			Recipient vs Impartial Spectator	0.05
			AVERAGE REPORTED IN MAIN TEXT	**0.00**

		Give 5 out of 10 in dictator game	Dictator vs Impartial Spectator Recipient vs Impartial Spectator	0.05 0.05
		Give 6 out of 10 in dictator game	Dictator vs Impartial Spectator Recipient vs Impartial Spectator	0.10 -0.06
		Give 7 out of 10 in dictator game	Dictator vs Impartial Spectator Recipient vs Impartial Spectator	0.00 -0.11
		Give 8 out of 10 in dictator game	Dictator vs Impartial Spectator Recipient vs Impartial Spectator	0.06 0.13
		Give 9 out of 10 in dictator game	Dictator vs Impartial Spectator Recipient vs Impartial Spectator	-0.02 0.15
		Give 10 out of 10 in dictator game	Dictator vs Impartial Spectator Recipient vs Impartial Spectator	0.00 0.20
			AVERAGE REPORTED IN MAIN TEXT	**0.04**
Barr, Lane, Nosenzo (BLN)	Nationality* Artificial*	Give 16 to in-group, 0 to out-group	Allocator vs Impartial Spectator	0.05 0.36
	Nationality* Artificial*	Give 14 to in-group, 2 to out-group	Allocator vs Impartial Spectator	-0.15 0.17
	Nationality* Artificial*	Give 12 to in-group, 4 to out-group	Allocator vs Impartial Spectator	-0.23 0.19
	Nationality* Artificial*	Give 10 to in-group, 6 to out-group	Allocator vs Impartial Spectator	-0.28 -0.05
	Nationality* Artificial*	Give 6 to in-group, 10 to out-group	Allocator vs Impartial Spectator	-0.44 -0.35
	Nationality* Artificial*	Give 4 to in-group, 12 to out-group	Allocator vs Impartial Spectator	-0.35 -0.21
	Nationality* Artificial*	Give 2 to in-group, 14 to out-group	Allocator vs Impartial Spectator	-0.26 -0.04
	Nationality* Artificial*	Give 0 to in-group, 16 to out-group	Allocator vs Impartial Spectator	-0.19 0.22
			AVERAGE REPORTED IN MAIN TEXT	**-0.10**
	Nationality* Artificial*	Give 8 to in-group, 8 to out-group	Allocator vs Impartial Spectator	-0.02 -0.25
			AVERAGE REPORTED IN MAIN TEXT	**-0.14**

* Nationality = social identity distinction between allocator and passive players based on nationality; Artificial = social identity distinction between allocator and passive players based on minimal group paradigm.

The effect sizes of eliciting behavior after the norm-elicitation task are based on four studies: the present paper, Krupka and Weber (2009), Bicchieri and Chavez (2010) and Barr et al. (2015). The effect sizes are based on the differences in behavior measured either after or before a subject has evaluated the game she is about to play. Table A.2 reports, for each behavior, the corresponding effect size. For papers with more than one treatment, in the main text we report effect sizes averaged across the treatments. The effect sizes reported in the main text are highlighted in the table.

Table A.2 – Effect sizes of eliciting behavior after norms

Study	*Treatment*	*Behavior*	*Effect Size (Hedge's g)*
D'Adda, Drouvelis, Nosenzo (DDN)	n.a.	Average bribe offered by firm	**-0.15**
		Average bribe acceptance by official	**-0.14**
		Average punishment by citizen to firm	**0.24**
		Average punishment by citizen to official	**0.07**
Krupka and Weber (KW)	n.a.	Average dictator giving	**0.80**
Bicchieri and Chavez (BC)	Full*	Average ultimatum offer	0.32
	Private*	Average ultimatum offer	0.26
	Limited*	Average ultimatum offer	0.60
		AVERAGE REPORTED IN MAIN TEXT	**0.40**
Barr, Lane, Nosenzo (BLN)	Nationality**	Average difference between payoff allocated to in-group and out-group	-0.07
	Artificial**	Average difference between payoff allocated to in-group and out-group	-0.24
		AVERAGE REPORTED IN MAIN TEXT	**-0.16**

* Full, Private, Limited treatments differ in whether or not Responder in ultimatum game knew that Proposer's offer could be the result of a coin flip; see Bicchieri and Chanvez (2010) for details. For the cases where the offer was made using a coin flip the expected value of the offer is used to compute the effect size. ** Nationality = social identity distinction between allocator and passive players based on nationality; Artificial = social identity distinction between allocator and passive players based on minimal group paradigm.