

D'Adda, Giovanna; Drouvelis, Michalis; Nosenzo, Daniele

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Norm elicitation in within-subject designs: Testing for order effects

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Giovanna D'Adda,
Michalis Drouvelis and
Daniele Nosenzo
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Suzanne Robey
Centre for Decision Research and Experimental Economics
School of Economics
University of Nottingham
University Park
Nottingham
NG7 2RD
Tel: +44 (0)115 95 14763
Fax: +44 (0) 115 95 14159
suzanne.robey@nottingham.ac.uk

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

12 March 2015

Giovanna D'Adda^{*}, Michalis Drouvelis^{**} and Daniele Nosenzo^{***}

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.

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

JEL Classification Numbers: C91

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^{*} Department of Management, Economics and Industrial Organization (DIG), Politecnico di Milano.

^{**} Department of Economics, University of Birmingham.

^{***} School of Economics, University of Nottingham.

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 choice, where individuals are assumed to care exclusively about their own material gain (e.g., Fehr and Fischbacher, 2004; López-Pérez, 2008; Allcott, 2011; Nikiforakis et al., 2012; Gächter et al., 2013; Krupka and Weber, 2013; Reuben and Riedl, 2013). A recent development in experimental economics has allowed researchers to move toward a more objective approach to the identification and measurement of social norms. Krupka and Weber (2013) have introduced a norm-elicitation task that allows an incentive-compatible elicitation of subjects' normative judgments of what constituted appropriate behavior in a given decision context. 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 in the situation (i.e. the social norm), rather than their own personal views of appropriateness.¹

The Krupka-Weber elicitation method has been recently used to explain individual behavior in a variety of decision settings, including dictator games (Krupka et al., 2012; Krupka and Weber, 2013; Erkut et al., 2015), gift-exchange games (Gächter et al., 2013), and oligopoly pricing games (Krupka et al., 2012).² These applications are based on *between-subject designs* whereby the group of subjects who are asked to identify the social norms that apply to the decision situation under study differ from the group of subjects who make choices in that situation and whose behavior the researcher intends to explain using the elicited norms.

However, *within-subject designs* (where norms and behavior are elicited from the same group of subjects) may offer a number of advantages over between-subject designs for testing the explanatory power of social norms. First, within-subject designs allow to control for the effects

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

of idiosyncrasies in the subject pools used for the measurement of norms and behavior. Cultural, socio-economic, and demographic factors can all have systematic influences on normative judgments 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 offer the opportunity to address questions that may not be answered with a between-subject design. For example, in a within-subject design a researcher may examine whether subjects who behave in violation of a given norm of conduct, 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.

However, one serious obstacle to the use of within-subject designs for the elicitation of social norms 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 such "moral hypocrisy" and self-serving biases in fairness judgments (e.g., Konow, 2005; Croson and Konow, 2009; Rustichini and Villeval, 2014). 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 asking subjects to 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 the next section we describe an experiment where we test these order effects in the elicitation of norms. We focus on norms that regulate corrupt behavior. We use a version of the bribe game introduced by Cameron et al. (2009) to study subjects' propensity to offer and accept

bribes, and to sanction corrupt behavior. We use the Krupka-Weber method described above 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 bribe game. In another treatment we elicit behavior in the bribe game before eliciting norms of corruption.

We report our results in Section 3. 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. As we discuss in more detail in Section 4, this result is in line with recent findings from Erkut et al. (2015), who find that norms of dictator giving elicited from "impartial spectators", who have not played the game, are similar to those elicited from "stakeholders", who played the game before reporting their views. We also find little evidence that eliciting norms affects subsequent behavior in the bribe game. This result is at odds with the findings reported by Krupka and Weber (2009), and more in line with the mixed findings reported by Bicchieri and Chavez (2010) in the context of an ultimatum game.

2. EXPERIMENTAL DESIGN

All sessions of the experiment consisted of two parts. In one part we elicited subjects' normative views of corruption using the norm-elicitation task introduced by Krupka and Weber (2013, hereafter KW). In the other part subjects played a version of the bribe game adapted from Cameron et al. (2009, hereafter CCEG).

The norm-elicitation task was used to elicit subjects' perceptions of the appropriateness of engaging in corrupt behavior and punishing bribery. Normative judgments were elicited using the KW method for measuring social norms. Subjects were described a scenario involving an act of corruption (a firm manager offering a bribe to a public official to obtain advantages for their firm) and an act of punishment of corrupt behavior (by a citizen blowing the whistle on the bribe exchange between the manager and the public official). Subjects were then asked to judge whether the actions in the scenario were "socially appropriate" and "consistent with moral or proper social behavior", or "socially inappropriate" and "inconsistent with moral or proper social behavior". Subjects received a monetary reward if their appropriateness judgments matched the judgments provided by others. 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.³

We used the KW task to 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 “very socially inappropriate”, “somewhat socially inappropriate”, “somewhat socially appropriate”, or “very socially appropriate”. At the end of the experiment subjects were randomly paired with one other participant in the session. For each action, subjects received a payment of 0.5 GBP if their appropriateness judgment of the action matched that of the other person in the pair.

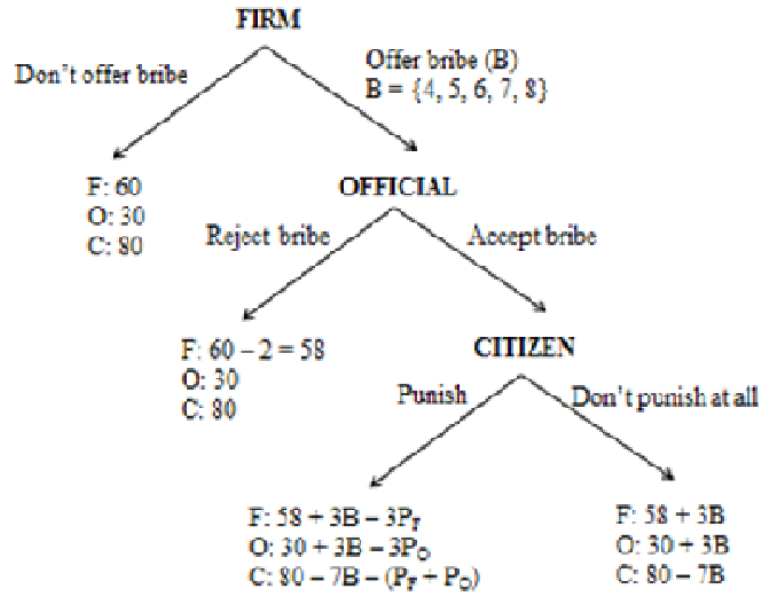
In the other part of the experiment subjects played a version of the three-person bribe game introduced by CCEG.⁴ At the beginning of the game subjects are randomly matched in groups of three. Within each group subjects are randomly assigned to one of three possible roles: firm, public official, or citizen. The game is played as shown in Figure 1.⁵

³ 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 successfully coordinate. See KW for a discussion on this point. A similar approach has also been used by Xiao and Houser (2005) and Houser and Xiao (2011) to obtain incentive-compatible classifications of natural language messages.

⁴ Our game is a version of the welfare-reducing bribe game used by CCEG, where the combined gains from bribery to the firm and the official are lower than the negative externality accruing to the citizen. Thus, in this game corruption is not justified by any efficiency motive.

⁵ 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.

Figure 1 – The bribe game



The firm moves first and decides whether to initiate a corrupt act, by offering a bribe to the official. If the firm decides to offer a bribe, she 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 or not. 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. The citizen moves last. She observes the firm's and official's decisions and is given the opportunity to blow the whistle 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 punishment amounts $P_F = \{0, 1, 2, 3, 4, 5, 6\}$ and $P_O = \{0, 1, 2, 3, 4, 5, 6\}$, respectively. Punishment is costly for the citizen as the total amount punished $P_F + P_O$ is subtracted respectively 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. In particular, for each possible bribe amount that the firm may offer, officials indicated whether or not they would accept that bribe. Similarly, for each possible

bribe amount, citizens indicated their punishment choices in case the official accepted that bribe. 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 the computation of payoffs.

We have two between-subject treatments where we varied the order in which the two tasks are performed. In our “**NormFirst**” treatment, subjects first participated in the norm elicitation task and then played the bribe game. In the “**BehaviorFirst**” treatment the order of tasks was reversed: subjects first played the bribe game and then participated in the norm elicitation task. 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 on outcomes from the first part.

The normative judgments collected in the NormFirst treatment are elicited from subjects who had not previously participated in a game that reproduces the scenario they were asked to evaluate. Thus, the NormFirst treatment gives us a benchmark impartial measurement of social norms regulating corrupt behavior. In contrast, subjects in the BehaviorFirst treatment submitted their normative judgments after having made choices in the bribe game. As discussed above, this may bias their judgments of appropriateness, e.g. by inducing subjects to modify their responses to justify the actions they have taken in the game. Our experiment allows us to measure the extent of such judgment biases by comparing the norms elicited from the “impartial spectators” in the NormFirst treatment with those elicited from subjects who had previously played the bribe game in the role of firm, public official or citizen in the BehaviorFirst treatment.

Subjects in the NormFirst treatment participated in the bribe game after having been asked to think about the social appropriateness of offering and accepting bribes as well as punishing corrupt behavior. As discussed above, focusing subjects on normative considerations may increase norm compliance and distort behavior relative to a case where subjects’ attention has not been drawn to the norm. Thus, to measure the extent to which participation in the norm elicitation task affects subsequent behavior, we compare subjects’ choices in the bribe 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.

Overall, 204 subjects participated in the experiment, 102 subjects (= 34 groups) in each treatment. Of these, 33% were students of economics, finance, or management, and 51% were females. The experiment was computerized using the software z-tree (Fischbacher, 2007) and subjects were recruited using ORSEE (Greiner, 2004). All sessions were conducted at the Birmingham Experimental Economics Laboratory of the University of Birmingham. At the beginning of a session, subjects received preliminary instructions that were read aloud by the experimenter.⁶ Subjects then received instructions for part one, which were also read aloud. After the experimenter had dealt with any questions in private, part one of the experiment began. Once every participant had completed the first part of the experiment, subjects received instructions for part two. These were again read aloud and any questions were dealt in private by the experimenter. At the end of part two, subjects completed a brief questionnaire collecting basic demographic and socioeconomic information. Each session lasted approximately 1 hour, and subjects earned, on average, £19.94 including a show-up fee of £ 2.50.

3. RESULTS

3.1 The effect of game play on elicited norms

In this sub-section we examine whether making choices in the bribe game affects subjects' subsequent normative judgments about offering and accepting bribes and punishing corrupt behavior. Figure 2 shows the average appropriateness ratings elicited from subjects in the BehaviorFirst and NormFirst treatment. In the former case, we distinguish between ratings elicited from subjects who took the role of firm, public official, or citizen in the bribe game.⁷ In the latter case, this is not needed because subjects had not participated in the bribery game when norms were elicited (and thus, assignment to specific roles had not taken place yet). Table 1 reports the full distributions of ratings collected in our treatments.

⁶ The experimental instructions are reproduced in the Supplementary Material.

⁷ Mean ratings were constructed by converting responses into numerical scores using the same scale used by KW: “very socially inappropriate” = -1, “somewhat socially inappropriate” = -1/3, “somewhat socially appropriate” = 1/3, “very socially appropriate” = 1.

Figure 2 – Mean appropriateness ratings across treatments

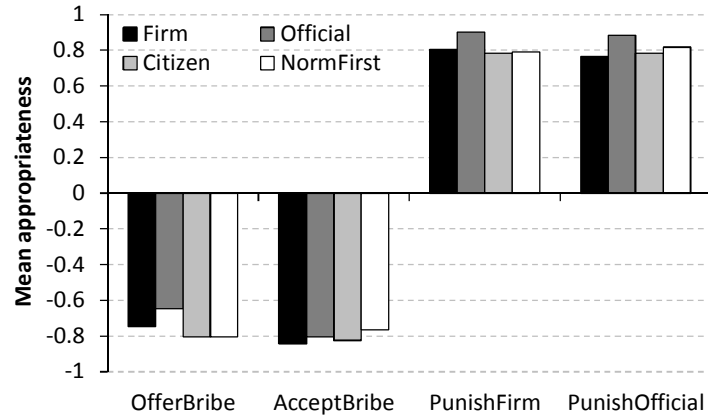


Table 1 – Appropriateness ratings across treatments

Action	Firm					Official				
	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%

Action	Citizen					NormFirst				
	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 elicited ratings are remarkably similar across treatments. Both the impartial normative judgments elicited in the NormFirst treatment and those elicited in BehaviorFirst show that a large majority of subjects think that offering and accepting bribes is very socially inappropriate. Whistle blowing and the punishment of corrupt behavior are instead viewed as very socially appropriate decisions 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.⁸ 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 bribe 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.

We further analyze the ratings using regression analysis to control for differences in observable characteristics of the subjects. Table 2 reports ordered logit regressions of the normative ratings of the four actions evaluated by subjects. Among the independent variables, we include three dummy variables for subjects in the BehaviorFirst treatment who took the role of firm, public official, and citizen, respectively. Thus, subjects in the NormFirst treatment are used as the reference category. The regressions also include control variables for subjects' gender ("1 if female"), age ("Age"), field of study ("1 if economics, business, or finance"), political orientation ("Right political orientation"), and experience with corruption ("Corruption experience").⁹ Results are displayed as factor changes in the odds of rating an action as more socially appropriate. Note that a factor change greater than 1 implies a positive effect on the odds, whereas a factor change smaller than 1 implies a negative effect.

The regressions confirm that normative ratings are by and large unaffected by previous experience with play in the bribe game. In eleven out of twelve cases we do not detect statistically significant differences between ratings in the NormFirst and BehaviorFirst treatments.

⁸ See Moir (1998) for a discussion of the randomization test.

⁹ Political orientation was measured asking subjects where they viewed themselves on the political spectrum on a scale from 1 (= left of the political spectrum) to 7 (= right of the political spectrum). Experience with corruption was measured as the number of times subjects had heard about corruption (either in the news or through personal experience) over the previous year.

The regressions confirm that the only exception occurs for public officials, who rate the action of offering a bribe as less inappropriate than the impartial spectators of the NormFirst treatment. The regressions also reveal an interesting difference between normative ratings of male and female subjects. Females seem to hold relatively weaker norms against corruption than males. They rate the actions of offering and accepting bribes as less socially inappropriate than men. Moreover, women view the actions of punishing corrupt behavior as less socially appropriate than men. In all cases the effect is statistical significant at the 5% level.

Table 2 - Regression analysis of normative ratings

	OfferBribe	AcceptBribe	PunishFirm	PunishOfficial
BehaviorFirst - Firm	1.70 (0.75)	0.80 (0.39)	1.04 (0.51)	0.66 (0.30)
BehaviorFirst - Public Official	3.10*** (1.25)	1.15 (0.55)	2.15 (1.20)	1.46 (0.74)
BehaviorFirst - Citizen	1.34 (0.66)	1.06 (0.51)	0.73 (0.31)	0.60 (0.26)
1 if female	1.95** (0.65)	2.37** (0.87)	0.45** (0.15)	0.51** (0.17)
Age	0.85 (0.09)	0.83 (0.10)	1.03 (0.14)	1.11 (0.14)
1 if economics, business, or finance	0.92 (0.34)	0.48 (0.22)	1.95 (0.82)	1.25 (0.48)
Right political orientation	1.20 (0.14)	1.13 (0.14)	0.97 (0.12)	0.92 (0.11)
Corruption experience	0.98 (0.14)	0.81 (0.13)	0.87 (0.12)	0.87 (0.13)
Pseudo-R ²	0.05	0.05	0.06	0.04
N	204	204	204	204

Note: Ordered logit regressions, robust standard errors in parentheses. Subjects in the NormFirst treatment are used as the reference category. Results are displayed as factor changes in the odds of rating an action as more socially appropriate. Factor changes greater than 1 imply a positive effect on the odds, while factor changes smaller than 1 imply a negative effect. Significance levels: * 10%; ** 5%; *** 1%.

3.2 The effect of norm elicitation on game play

In this sub-section we examine whether asking subjects to report their views about norms of corruption affects their subsequent behavior in the bribe game. To do so, we compare the behavior of subjects in the NormFirst treatment with that of subjects in the BehaviorFirst treatment, who made choices in the bribe game without being previously asked to think about the social appropriateness of their actions. Figures 3, 4 and 5 summarize the behavior of firms, public officials, and citizens in the two treatments of the experiment.

Starting with the behavior of firms, 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 ($p = 0.595$). Figure 3 shows the mean bribe amount offered by firms between the two treatments. Firms offered on average a bribe of 5.29 to public official in BehaviorFirst and 4.78 in NormFirst. This difference is not statistically significant according to a Fisher's randomization test ($p = 0.583$).

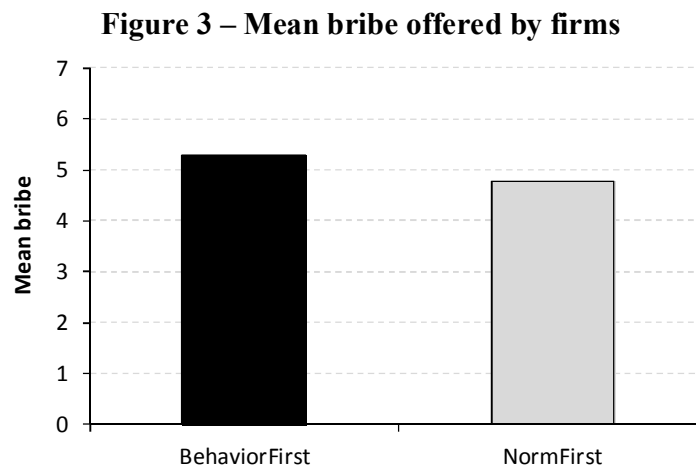


Figure 4 shows the proportion of public officials who were prepared to accept a bribe of a given amount. In both treatments, the acceptance rate increases in the amount offered as a bribe: only about half of the public officials were willing to accept the lowest bribe amount of 4, but about 80% were 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 public officials accepting the bribe in BehaviorFirst and NormFirst (χ^2 tests, all $p \geq 0.329$).

Figure 4 – Proportion of public officials accepting bribes

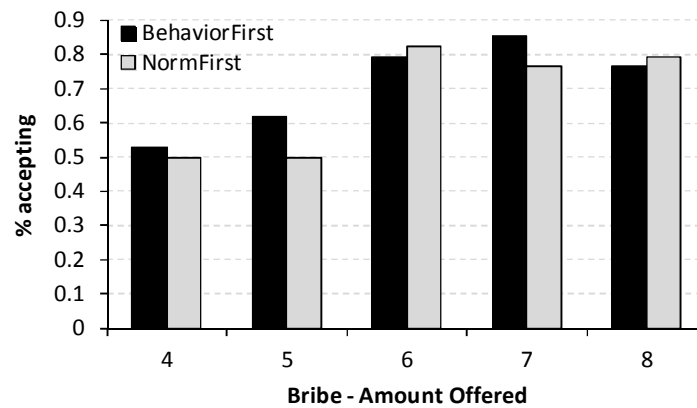
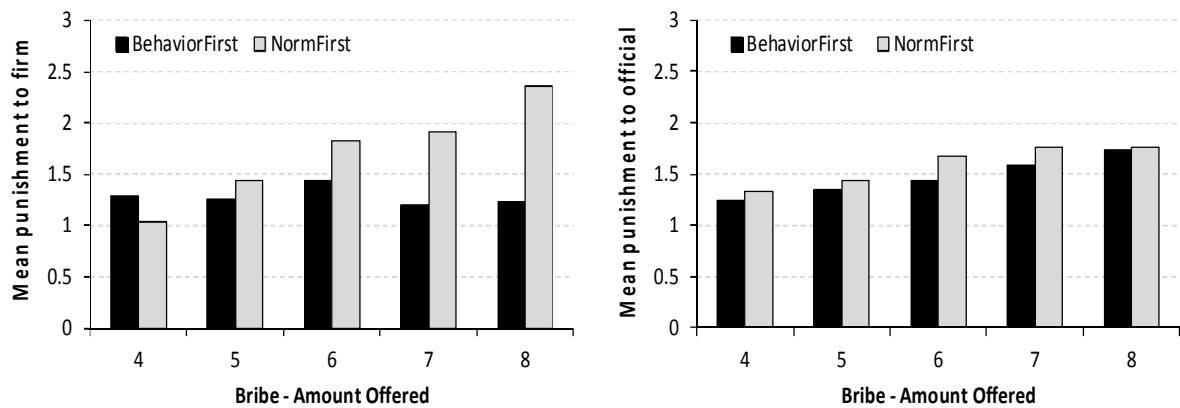


Figure 5 shows the average punishment that citizens meted out against firms (left panel) and public officials (right panel). Starting with citizens' punishment against firms, in BehaviorFirst this averages between 1.2 and 1.4 depending on the bribe offered, although there is no clear monotonic relation 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. We analyze differences in punishment behavior between treatments using Fisher's randomization tests. When firms offer a bribe of 4, 5, 6 or 7 we do not detect any significant differences between punishments in the BehaviorFirst and NormFirst treatments (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 the multiple testing.

Turning to citizens' punishment against public officials, Figure 5 shows that in both treatments there is a weakly positive correlation between punishment and bribe amount. Figure 5 also shows that punishment behavior is very similar across treatments. In fact, using Fisher's randomization tests we do not detect any statistically significant differences in punishments between treatments for any bribe amount (all $p \geq 0.689$).

Figure 5 – Mean punishment assigned by citizens to firms (left) and public officials (right)



We further examine these effects using regression analysis. Table 3 reports results of OLS and Logit regressions of the amount offered as bribe by firms (model I), public officials' acceptance of bribes (model II), and citizens' punishment decisions (models III and IV). In all models we include a dummy variable taking value 1 for observations collected in the NormFirst treatment and 0 otherwise. Thus, subjects in the BehaviorFirst treatment are used as the reference category. In models II, III and IV we observe, for each participant, a collection of acceptance or punishment decisions, one for each possible bribe amount offered by the firm. Thus, in these models we interact the treatment dummy with dummy variables measuring the bribe offered by the firm. In all models we also include controls for gender, age, field of study, political orientation, and experience with corruption.

Table 3 - Regression analysis of behavior in the bribe game

	I	II	III	IV
	Firms' bribe offers	Public officials' bribe acceptance	Citizens' punishment of firms	Citizens' punishment of public officials
	(OLS)	(Logit)	(OLS)	(OLS)
NormFirst	-0.49 (0.86)	0.98 (0.50)	-0.23 (0.45)	0.14 (0.49)
Bribe = 5	--	1.46 (0.54)	-0.03 (0.21)	0.12 (0.23)
Bribe = 6	--	3.56*** (1.74)	0.15 (0.31)	0.21 (0.31)
Bribe = 7	--	5.40** (3.60)	-0.09 (0.35)	0.35 (0.35)
Bribe = 8	--	2.99** (1.60)	-0.06 (0.36)	0.50 (0.39)
NormFirst * Bribe = 5	--	0.69 (0.33)	0.44 (0.27)	0.00 (0.30)
NormFirst * Bribe = 6	--	1.39 (1.01)	0.65 (0.41)	0.15 (0.46)
NormFirst * Bribe = 7	--	0.63 (0.58)	0.97** (0.44)	0.09 (0.47)
NormFirst * Bribe = 8	--	1.36 (1.09)	1.38** (0.52)	-0.06 (0.54)
1 if female	-1.65* (0.89)	0.47** (0.17)	0.23 (0.45)	-0.20 (0.43)
Age	0.52 (0.37)	1.07 (0.12)	-0.10 (0.08)	-0.07 (0.08)
1 if economics, business, or finance	0.18 (1.13)	1.34 (0.45)	-0.22 (0.49)	0.24 (0.55)
Right political orientation	-0.15 (0.33)	0.84 (0.12)	-0.13 (0.18)	-0.14 (0.16)
Corruption experience	0.35 (0.38)	1.04 (0.16)	-0.17 (0.19)	-0.00 (0.19)
Constant	-4.71 (7.14)	--	4.30** (1.65)	3.12* (1.81)
R ² / Pseudo-R ²	0.10	0.09	0.07	0.03
N.	68	340	340	340

Note: OLS and logit regressions, robust standard errors in parentheses (clustered at the individual level in models II, III and IV). Subjects in the BehaviorFirst treatment are used as the reference category. In model II results are displayed as factor changes in the odds of accepting the bribe (note that for this reason we omitted from the regression table the constant included in the mode). Factor changes greater than 1 imply a positive effect on the odds, while factor changes smaller than 1 imply a negative effect. Significance levels: * 10%; ** 5%; *** 1%.

The regressions confirm that, in most cases, choices collected in the NormFirst treatment are not significantly different from those collected in the BehaviorFirst treatment. The only exception occurs for citizens' decisions to punish firms when these offered a bribe of 7 or 8. In this case, the regressions show that citizens punish more heavily firms in the NormFirst than BehaviorFirst treatment. Both effects are significant at the 5% level.

Most of the control variables included in the regression have no explanatory power. The exception occurs for the gender dummy in the regressions of firms' and public officials' behavior. Women offer smaller bribes and are less likely to accept bribes than men. These results stand in contrast with the findings reported above about women's normative views of corrupt behavior. While women seem to find corrupt behavior less socially inappropriate than men, they tend to engage less often in this type of behavior. These conflicting results are puzzling, but perhaps not entirely surprising in view of the mixed evidence of gender effects in previous corruption experiments. CCEG, for example, find that women are less likely to offer bribes, but they do not find any differences between men and women in the acceptance of bribes. Moreover, Alatas et al. (2009a) analyze in more detail the gender differences in the CCEG experiment and find that CCEG results are mainly driven by the behavior of Australian subjects, whereas no gender differences are observed among subjects recruited in India, Indonesia and Singapore.¹⁰ They conclude that gender differences may be culture specific. Overall, our data, and the results from previous studies, suggest that there may not be a straightforward relation between gender and corrupt behavior.

4. CONCLUSION

In this paper we tested 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 considered 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 in judgment that lead them to adapt their view of what constituted appropriate behavior to justify

¹⁰ However, Alatas et al. (2009b) conduct a similar experiment among Indonesian public servants and students and do find that male subjects are more likely to bribe than females. They do not find any differences in the propensity to accept bribes.

their choices in the decision situation. On the other hand, eliciting normative judgments before subjects take 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 bribe 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 bribe game first and then report judgments of appropriateness in the Krupka-Weber task. In the other treatment, the order of the two tasks is reversed, i.e. subjects participate in the Krupka-Weber task first, and then play the bribe game.

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 judgments of appropriateness before having played the game. This result is in line with the findings reported by Erkut et al. (2015), who also test whether the Krupka-Weber method is robust to judgment biases in the context of a dictator game experiment. We also find little evidence that focusing subjects on social norms of corruption affects their subsequent behavior in the bribe game. This result contrasts with the findings reported by Krupka and Weber (2009), who show that, in a binary dictator game, dictators behave more generously when they are asked to report their beliefs about norms of giving prior to making their choices.¹¹ On the other hand, and more in line with our results, Bicchieri and Chavez (2010) find mixed support for the hypothesis that focusing subjects' attention on fairness norms in an ultimatum game affects the amount proposers offer to responders.

Taken together, our results and findings from previous studies suggest that normative judgments elicited using the Krupka-Weber 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 in responses if norms of appropriate behavior are elicited after subjects have made a choice in the decision situation.

¹¹ Also related are the findings by Cialdini et al. (1990). They show that people are more likely to litter in clean, non-littered environments than in environments that contain one single piece of litter. Their interpretation is that the single piece of litter draws subjects' attention on the anti-littering norm and thus increases norm compliance.

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SUPPLEMENTARY MATERIAL – EXPERIMENTAL INSTRUCTIONS (NOT FOR PUBLICATION)

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.

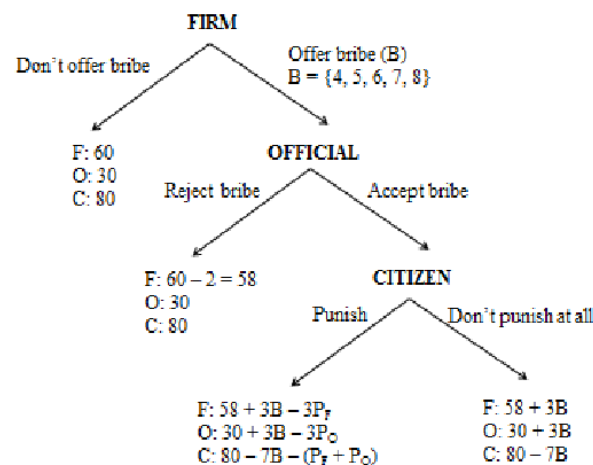
You are a Citizen.

	Do you want to punish the Firm?	If so, how much? (Enter a number between 1 and 6)	Do you want to punish the Official?	If so, how much? (Enter a number between 1 and 6)
Suppose that the Firm offered a bribe of 4 ECUs to the Official and the Official accepted the bribe.	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>
Suppose that the Firm offered a bribe of 5 ECUs to the Official and the Official accepted the bribe.	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>
Suppose that the Firm offered a bribe of 6 ECUs to the Official and the Official accepted the bribe.	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>
Suppose that the Firm offered a bribe of 7 ECUs to the Official and the Official accepted the bribe.	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>
Suppose that the Firm offered a bribe of 8 ECUs to the Official and the Official accepted the bribe.	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>	Yes <input type="radio"/> No <input type="radio"/>	<input type="text"/>

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?

<i>Very</i>	<i>Somewhat</i>	<i>Somewhat</i>	<i>Very</i>
<i>socially</i>	<i>socially</i>	<i>socially</i>	<i>socially</i>
<i>inappropriate</i>	<i>inappropriate</i>	<i>appropriate</i>	<i>appropriate</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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?

<i>Very Socially Inappropriate</i>	<i>Somewhat socially inappropriate</i>	<i>Somewhat socially appropriate</i>	<i>Very socially appropriate</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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?

<i>Very Socially Inappropriate</i>	<i>Somewhat socially inappropriate</i>	<i>Somewhat socially appropriate</i>	<i>Very socially appropriate</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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)?

<i>Very Socially Inappropriate</i>	<i>Somewhat socially inappropriate</i>	<i>Somewhat socially appropriate</i>	<i>Very socially appropriate</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

<i>Very Socially Inappropriate</i>	<i>Somewhat socially inappropriate</i>	<i>Somewhat socially appropriate</i>	<i>Very socially appropriate</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>