The Effect of Social Norms on Bribe Offers

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We report a sequential bribery game to disentangle the effect of descriptive social norms among public officials on bribe offers by firms. Participants who knew that they were interacting with a partner from a group with a majority of corrupt (as opposed to honest) partners offered twice as many bribes. This effect of norms occurred independently of strategic considerations and the possibility of being sanctioned. Indeed, the effect of sanctions was not significant. These findings highlight a causal connection from perceptions of bribery to actual behavior. (*JEL* C91, D73, K42)

1. Introduction

Certain types of corruption, such as bribery, are considered a legal offense across the world. Nonetheless, there are large cross-country differences in the apparent incidence of corrupt activities, as illustrated by the individual countries' scores on the Transparency International Corruption Perception Index (CPI). This index is a measure that is based on surveys of analysts, business people, and experts in countries around the world and captures the perception of corruption in the public sector in the respective country (Transparency International 2014). Two commonly accepted observations emerge from the ranking of countries. First, there is a general tendency that less developed countries tend to be more corrupt than more developed ones and hence rank higher in terms of corruption. But second, perhaps more interestingly, even among countries with similar levels of development, there are still substantial differences in their level of corruption.[1]

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1. For instance, New Zealand, with a 2016 per capita GDP of 39,427 USD, is ranked 2nd in the 2016 edition of the CPI while Italy with a 2016 per capita GDP of 38,328 USD is ranked

An obvious candidate to explain the differences in corruption between economically and politically similar countries is a difference in culture, or, more specifically, social norms that prevail toward corruption. Social norms define what is seen as appropriate or acceptable behavior within a society. Perhaps in a society in which corruption is pervasive it is also more acceptable. Testing this in the field is hard, as there would always be a chicken-and-egg problem: Does pervasiveness lead to acceptability or the other way round? Laboratory experiments can help overcome this problem, since the environment is controlled and induced changes in treatments must be the cause, not the effect of observed changes in behavior. So far, attempts have been made to identify the influence of culture more broadly, either by conducting a bribery game in different countries (Alatas et al. 2009; Cameron et al. 2009; Banuri and Eckel 2012b, 2012c, 2015; Li et al. 2015), or with international participants from different countries of origin (Barr and Serra 2010). Note that this technique allows to keep the institutional environment constant, as it is controlled by the experimenter by setting the rules of the game. While some of the studies do find a link between coming from a higher corruption background and engaging in corruption in the experiment, the differences are nowhere near big enough to explain the differences in corruption we see between different countries. It seems that just being from or living in a corrupt society is not enough to make people corrupt, and the existing studies are inconclusive about the effect of social norms on bribery.

In this study, we take a different path by *creating* the social norms in the laboratory. We design a simple bribery game between a firm and an official and interpret corruption as a situation in which the firm and the official can make choices to increase their own payoff at the expense of a third party. In particular, by offering a private payment to the official, the firm makes sure that she stands to benefit at the expense of this third party. This kind of act, often conducted to acquire personal benefit, is what constitutes corruption.

The officials play the game in two stages with different firms in each stage, with no feedback after the first stage. The first stage is just a mechanism to identify honest and corrupt officials. The officials are then regrouped such that one subpopulation contains predominantly corrupt and the other mainly honest officials. The officials are then paired and matched with completely new firms in the second stage. These firms are told, truthfully, that they are paired with an official from a corrupt or honest pool. This novel approach allows us to control what participants believe about the pervasiveness of bribery in their population—because they actually *know* it. Further, we can apply this approach to subjects from

60th. Portugal, with a 2016 per capita GDP of 19,813 USD is ranked 29th while Greece with a 2016 per capita GDP of 18,104 USD is ranked 69th. Similarly, Costa Rica, with a 2016 per capita GDP of 11,825 USD is ranked 41st while Argentina with a 2016 per capita GDP of 12,449 USD is ranked 95th.

the same pool. Thus, we can randomize subjects into treatments properly. This is not possible if cultural origin *is* the treatment, as in the cross-cultural studies mentioned above.

We address the question of whether a *descriptive* social norm affects bribe offers. A descriptive social norm is based on what people actually do, that is, one's perception of common behaviors in society (Bicchieri 2006), as opposed to an injunctive social norm that describes what people ought to do. Injunctive norms are one's perception of whether an action or behavior would be approved or disapproved by others in society. Social information has been crucial in the evolution of humans, and researchers argue that we have developed adaptive mechanisms to best deal with social information (e.g., see Morgan and Laland 2012). One such mechanism involves a conformity bias through which people tend to follow the majority (Henrich and Boyd 1998). In the context of corruption, observing others in society being corrupt may provide information about the profitability of that course of action. Therefore, if corruption is seen as common, people may become more prone to corruption.

In a bribery situation, there are two main groups of actors, the firms and the public officials. Social norms concerning bribery may emerge in either of these groups, or both. The norm in one group can affect not only the peers in that group, but also the other group. For instance, if there is a strong norm that accepting bribes is common among officials, firms may respond to this by bribing more often. In our study, we mainly focus on the influence of information about the typical behavior of officials on the firms' propensity to bribe.

Societal norms can drive bribery through (at least) two channels. First, there is a direct effect—in a society in which bribes are not common, firms may feel disinclined to offer them because this would violate the norm. Second, there is an indirect channel. In noncorrupt societies, firms may feel discouraged to offer bribes because they fear that a bribe offer would upset the official and he or she would impose sanctions on the briber. This punishment could be informal, like causing embarrassment, or formal if the official reports the bribery attempt and prosecutes the firm. In the real world, both channels are intricately interwoven, and it is hard to say which factor actually discourages people from offering bribes in societies that have little corruption. This study attempts to disentangle the two channels. We add treatments in which we give the official the opportunity to punish the firm for offering a bribe. Applying this treatment to the groups with the honest and corrupt officials, we can examine whether fear of punishment deters bribe offers, and if so whether it has a stronger effect when the majority of officials are honest.

Our results confirm a causal connection between the descriptive social norm and participants' behavior: the probability of a participant offering a bribe more than doubled when paired with a probably corrupt partner than when paired with a probably honest partner. This effect was observed in treatments both with and without sanctions. This means that the effect

of the social norm concerning the partner occurred even when strategic considerations against offering a bribe were not at stake. Last, we did not find a significant effect of the sanctioning possibility. In our setting, the effect of descriptive social norms dominated the effect of punishment expectations. Our findings suggest that the awareness about the corruptibility of the officials, what we refer to as social norms related to the officials, can corrupt firms even when it does not affect the actual expected cost of corruption.[2]

Our paper contributes to the extensive literature on corruption. Within this literature, our research is most closely related to the papers that focus on the interconnection between culture, social norms, and corruption. Despite the well-established literature on corruption and the fact that the connection between culture and corruption has long been noticed, it was not until CPIs were constructed in the 1990s that this relationship was investigated more systematically (Treisman 2007). Empirical research on culture and corruption has traditionally focused on finding reliable associations between cultural variables, such as religion, generalized trust and inequity, measured through polls and surveys, and different levels of perceived corruption across societies (e.g., Treisman 2000; Paldam 2001; Lambsdorff 2007; Seleim and Bontis 2009). Besides these empirical studies, other authors have approached the analysis of culture and corruption from a purely theoretical perspective (e.g., Tirole 1996; Bisin and Verdier 2001; Hauk and Saez-Marti 2002). For instance, Hauk and Saez-Marti (2002) postulate a model in which they combined the economic incentives present in corrupt versus noncorrupt environments with a mechanism for the transmission of norms between generations. In their model, they contemplate the endogenous divergence of values, and suggest that such an effect could be triggered by an acute intervention of increased monitoring and sanctioning. Their results support the notion that countries with similar anticorruption laws might, nonetheless, reach contrasting equilibria and thus very different states of corruption, through the dynamic interaction between norms and incentives.

More recently, experiments have been used as a complementary source of empirical information to study corruption (see Abbink 2006; Banuri and Eckel 2012a for reviews). In particular, authors working with bribery experiments have relied on two broad strategies to address the study of culture and social norms. On the one hand, scholars have conducted experiments with subjects from different cultural backgrounds, as referenced above. On the other hand, framing variations have been used in an attempt to affect which norms become salient in a game. Several studies have varied the way the experimental instructions were worded, either in

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2. Instances of firms from uncorrupt countries paying bribes to officials in corrupt countries could be explained as a response to the local social norm. In the real world it is of course impossible to clearly attribute this behavior to social norms and not other factors, such as an expectation of detection and punishment.

the context of a bribery situation or as an abstract game (Abbink and Hennig-Schmidt 2006; Barr and Serra 2009; Banerjee 2016). Banerjee (2015) went beyond the comparison of abstract versus loaded wording in the instructions of the game, and attempted to generate different expectations by framing a Harassment Bribery Game (Abbink et al. 2014) as an Ultimatum Game (Güth et al. 1982). Banerjee showed that the contrasting frames elicited different social norms as evaluated by an independent group of participants and that participants' actual monetary decisions systematically varied as a function of those norms. It is important to note that this strategy of varying the framing of a game to induce different norms, despite being effective and interesting, is only indirect and may introduce confounds, thus producing results that may need to be interpreted with caution. More specifically, differences in the framing of games can affect decisions not only through changes in the perception of norms, but also through effects on other beliefs (e.g., see Dufwenberg et al. 2011), preferences, or affective responses (e.g., see Sarlo et al. 2013).

The rest of the paper is organized as follows. Section 2 describes the experimental design and procedures. The results are presented in Section 3. Section 4 concludes.

2. The Bribery Game

In this study, we evaluate the relative effects of social norms and sanctions in a laboratory bribery game. We circumvent the issues prevalent in most cultural investigations as summarized above by inducing the inception of social norms in the laboratory. We approach the study of social norms in a bribery experiment by using a new technique to manipulate descriptive social norms about the typical behavior of officials (see Bicchieri and Xiao 2009 for a similar approach applied to fairness norms in a Dictator Game). In this section we first describe the bribery game and, second, the treatments and procedures.

Figure 1 shows the decision tree for the bribery game implemented in our study. We used a game in which a participant in the role of a firm could offer a (predetermined) private payment to a participant in the role of a public official who could accept or reject the offer.[3] Collusion between firm and official (i.e., offer and acceptance) earned both parties some extra money at the expense of a nongovernmental conservationist organization called *Tellus*.[4] If the firm did not offer the payment or if the official rejected the offer, the firm, the official, and Tellus, each, received AR$30. In contrast, if the corrupt deal was consummated, the firm and the official

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3. The procedural fact that the bribe offer entailed no cost to the firm was a simplification chosen to avoid risk preferences playing any role in the treatments without sanctions.

4. Participants were informed that Tellus is a conservationist organization concerned with the protection of the natural environment. This nonprofit civil organization was created in 1982 at the Universidad Nacional del Sur (Bahía Blanca) and is a well-known and respected environmental charity on campus.
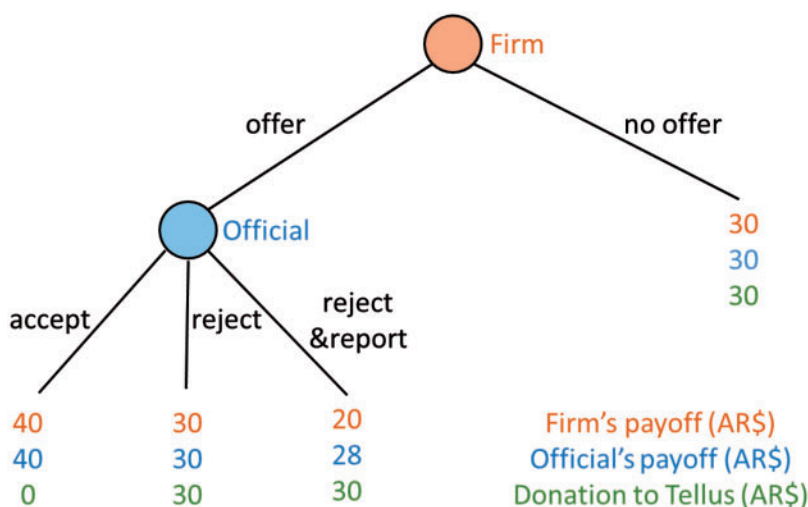
Figure 1. Full Decision Tree of the Bribery Game Used in the Experiment. The "Reject & Report" Option Was Only Available in the Treatments with Sanctions.

received AR$40 each, whereas Tellus received nothing. This represents the inefficient negative externality of bribery, such that a corrupt act leads to a decrease in social welfare.[5] Due to the actions of the firm and the official, the conservationist charity misses out on donations and a damage or negative externality is imposed on society (see also Lambsdorff and Frank (2010) for a bribery game in which the negative externality involves a nonprofit organization). The private payment can be therefore defined as a bribe that the firm offers the official, which if accepted benefits both parties and harms a third party. Last, the treatment with the sanction possibility implied that, in the case a private payment was offered, officials could reject it and apply a AR$10 sanction to the firm by incurring a cost themselves (i.e., by paying AR$2).[6]

2.1 Treatments

The experiment had a 2×2 design in which we systematically varied the descriptive social norm and the possibility of firms getting sanctioned by the official for offering a private payment. Our experiment consisted of altogether three stages, the preliminary stage, the initial stage, and the main stage. Figure 2 sketches the timeline of the experiment and the treatments. In the preliminary stage we divided the firms into five groups, which we subjected to different pre-experimental conditions in order to make more effective use of their participation. These variations did not

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5. In this version of the game a selfish rational agent had no strategic reasons for not offering or not accepting the private payment.

6. Sanctions were costly so as to minimize errors or random responses.

Preliminary stage: Norm elicitation

Firms estimate descriptive norms for firms	Firms estimate descriptive norms for officials	Firms estimate injunctive norms for firms	Firms estimate injunctive norms for officials	Control – no estimation of norms

Initial stage of the experiment

Firms play bribery game with randomly matched officials
Firms are paid and leave the laboratory. Officials stay for the main stage

Main stage of the experiment

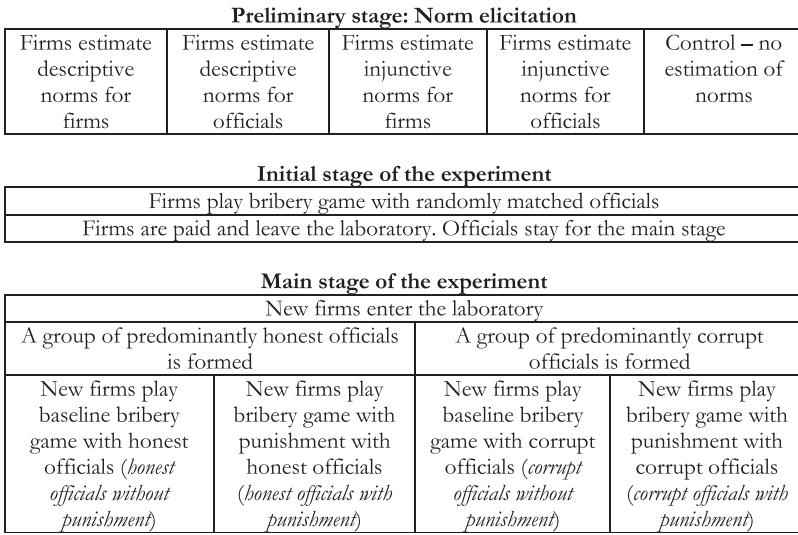| New firms enter the laboratory			
A group of predominantly honest officials is formed		A group of predominantly corrupt officials is formed	
New firms play baseline bribery game with honest officials (*honest officials without punishment*)	New firms play bribery game with punishment with honest officials (*honest officials with punishment*)	New firms play baseline bribery game with corrupt officials (*corrupt officials without punishment*)	New firms play bribery game with punishment with corrupt officials (*corrupt officials with punishment*)

Figure 2. Timeline and Treatments of the Experiment.

interfere with the main goal of the initial stage which was to classify officials as either honest or corrupt. The conditions used a protocol to solicit the estimation of norms, in the spirit of Krupka and Weber (2009). The details and the results of this elicitation are described in Supplementary Appendix S2. Note that with respect to the main experiment this manipulation is completely sterile, that is, any behavioral effect that any of these conditions could have on the firms would not affect the interpretation of the main experiment in any way. This is because there is no interaction between the first firms and the new firms, no feedback that the officials receive about the first firms' actions, and the officials do not take part in the preliminary stage.

In the initial stage, firms and officials played the sanction-free game (see Figure 1) with the goal of classifying officials as either honest or corrupt according to their decisions. Firms could either offer or not offer the private payment. Officials had to decide whether or not to accept a bribe, should it be offered, without knowing whether it had been offered. That way we could collect decisions also from officials who did not receive bribe offers; a feature that we needed for the classification of officials in the main stage. Officials were classified as either honest or corrupt depending on whether they rejected or accepted the offer by the firm, respectively. While we use the terms honest and corrupt in the paper for ease of description, we used nonemotive terms in the instructions. Specifically, while subjects were assigned the roles of Firms and Officials, we did not use morally loaded terms such as "corruption" or "bribe," the bribe was instead referred to as a "private payment."

New firms entered the experiment for the main stage and were matched with either a "probably corrupt" or a "probably honest" official from the initial stage. These firms did not know their partner's decision from the previous stage with certainty and were informed that they had been paired with an official randomly drawn from a group of officials comprising more than 80% of participants who had accepted (rejected) the private payment in a previous round of a similar game played with other firms.[7] This systematic intervention allowed us to have independent treatments in which the descriptive social norm was varied using a deception-free protocol. The social norms were varied as firms would anticipate officials to be more corrupt in one group than the other.

To vary the possibility of sanctions, we had independent sanction-free treatments (with the exact same game used in the initial stage) and treatments in which the official could not only accept or reject the payment from the firm, but also reject the payment and apply a monetary sanction to punish the firm (reduce firm's payoff by AR$10) by incurring a cost herself (of AR$2). As in the initial stage, officials had to make their decision as if they had been offered a private payment, though they did not know their partners' decision at that time of choice.

Note that in the treatment without punishment the firm does not need to guess the official's behavior. If the firm prefers the honest outcome, it is a (weakly) dominant strategy to not offer a bribe and thus implement her preferred outcome. If the firm prefers the corrupt outcome, she can offer a bribe, and the worst that can happen is that the official rejects, and the same outcome is implemented that would have occurred had the firm not made the offer. Thus, our design elicits how the firms' preferences are affected by the knowledge about a social norm, without strategic considerations. It is only in the treatment with punishment in which a strategic element on the side of the firm is introduced.

A unique aspect of our design is that officials' decision to be corrupt or to be honest in the initial stage determined the social norm, which was, therefore, not exogenously imposed. However, this implied that it was not under our control to balance the sample sizes for the treatments in which we varied the descriptive social norm. We did two pilot sessions before we started collecting the data reported in the paper, to select game parameters that would likely provide balanced sample sizes. Our goal was to determine parameters such that we obtained a roughly equal number of honest and corrupt officials. In these pilots, we found that subjects were very likely to be corrupt. Data from our experiment suggests, however, that corruption levels are lower than those observed in the pilots.[8]

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7. The officials were not told about the group they were in because we preferred to have their decision environment unchanged from the initial stage.

8. The pilots were conducted using classroom experiments with low-powered incentives (a few randomly chosen subjects were paid for their decisions). Interestingly, we observed more corrupt behaviour in this setting than in the actual experiment, although the temptation to be

In sum, we had four independent treatments to assess whether a firm's decision to offer a private payment to the official could be affected by variations in the descriptive social norm and/or the possibility of being sanctioned. Treatments were as follows: Playing the game knowing that (1) most officials were *honest* and they *could punish* bribe offers (hereafter referred to as *Honest Officials With Punishment*, $n = 45$); (2) most officials were *honest* but they *could not punish* bribe offers (hereafter referred to as *Honest Officials Without Punishment*, $n = 45$); (3) most officials were *corrupt* but they *could punish* bribe offers (hereafter referred to as *Corrupt Officials With Punishment*, $n = 25$); and (4) most officials were *corrupt* and they *could not punish* bribe offers (hereafter referred to as *Corrupt Officials Without Punishment*, $n = 25$).

Once participants made their decisions in the main stage, they completed socio-demographic and postdecision questionnaires. In these questionnaires, participants were asked to estimate the percentage of firms that would offer the private payment, and the percentage of officials that would accept it (we provided no incentives for accuracy). With this information on beliefs, we were able to assess whether participants correctly estimated the average behavior in their treatment. In addition, participants also responded about instances of corruption that they had personally experienced or that they had heard from the media or other sources.

2.2 Experimental Procedures

The experiment was conducted at the Universidad Nacional del Sur, Bahía Blanca, Argentina. Corruption is rampant in Argentina; the country is ranked 95 out of 176 in the 2016 CPI. Hence we expected participants to be familiar with the issue. We ran 11 sessions with 426 participants in total. Two hundred and eighty six subjects participated in the initial stage of the experiment, 143 played in the role of firms and 143 played in the role of officials. In the main stage, we had 140 new participants in the role of firms, who formed pairs with 140 of the officials who played in the initial stage.[9]

Participants were recruited from a subject pool which included undergraduate and graduate students from the Universidad Nacional del Sur and other university-level institutions from Bahía Blanca. No participant had taken part in similar experiments before. Subjects participated only once, in one of three possible roles: (1) firms for the initial stage; (2) public

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selfish should have been weaker in the former than the latter case. This led us to having more observations in the treatments with honest than corrupt officials in the main stage of the experiment.

9. We had to leave three officials out of their respective sessions because the number of firms in the main stage did not match up with the number of available partners from the initial stage. This occurred in the fifth session (two officials discarded) and in the tenth session (one official discarded). Excluded officials were paid according to their and their partner's decisions in the initial stage plus a bonus of AR$10 for not being able to participate in the main stage.

officials for the initial and the main stages; or (3) firms for the main stage. Participants in the role of firms played the game once, whereas participants in the role of officials played it twice (one corresponding to the initial stage and the other to the main stage), though they did not receive any feedback in between stages. Separate recruitment emails were sent for the three roles. In the email invitation, we did not mention their role, we only informed them about the duration of the session (1 h for firms and 2 h for public officials) and the range of possible earnings (AR$30–40 for firms in the initial stage, AR$58–80 for officials, and AR$20–40 for firms in the main stage).[10]

The experiment was run using paper and pencil. On arrival, participants' identities were checked and each participant was randomly allocated a seat. Each session was divided into two parts, namely the first and the second hour corresponding to the initial stage and the main stage, respectively. Each part began with a brief introduction in which we, first, emphasized that no deception was involved in the experiment. Second, we told participants that there were two roles and that each participant had a fixed role which had been randomly determined. We also mentioned that everyone was paired with a person of the other role, though no one would know whom she/he was interacting with either during or after the session (there were alphanumerical codes in experimental booklets through which participants of different roles were associated according to a predetermined list). They were also told that, with their decisions in the session, each of them could affect their own and their partner's monetary earnings. Last, we specified that the decisions of each pair of participants affected how much money we would donate to a nonprofit conservationist organization called Tellus. After that, we handed out the booklets for that stage, which included detailed instructions, control questions, and a sheet where they could make their choices.[11] We checked participants' responses to control questions before they could make their decisions to ensure that they understood the instructions, and once a participant made his or her decision, the booklet was collected. Firms then completed a socio-demographic questionnaire, whereas officials only completed the questionnaire after making their decisions in the main stage.

At the end of the session, firms and officials were matched according to the alphanumerical codes in their experimental booklets to determine their payoffs in the game. Importantly, only firms were paid at the end of the initial stage, and they left the classroom 15 min before the firms for the main stage came in. Officials were paid for both stages after the end of the main stage. For payment purposes, each participant was given a closed envelope

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10. The conversion rate at the time of the experiment (2013–14) was around US$1 = AR$7. The money earned for 1 h participation was approximately equivalent to the price of a lunch combo at the university cafeteria.

11. The instructions are available in Supplementary Appendix S1.

with the details of the decisions affecting his/her earnings (own and partner's decisions) and the corresponding cash inside. Sessions took approximately 45 min for firms and 105 min for officials. After the session, we made an online bank transfer to Tellus, and then emailed the transfer receipt to the participants of the corresponding session as we had promised.

3. Results

We report results from the main stage of the experiment, the findings from the preliminary stage are discussed in Supplementary Appendix S2. We start by reporting the actions of the firms. Figure 3 shows the proportion of firms who offered a bribe as a function of treatment in the main stage. As can be seen in the figure, there was a higher proportion of bribe offers when firms participated with an official from a group of *corrupt* officials, as compared to firms facing an official from a group of *honest* officials (*Fisher's exact test*, two tails, $p = 0.002$). While the proportion of bribe offers was higher when there was no punishment option, as compared to when officials could exert this option, the difference was not statistically significant (Fisher's exact test, two tails, $p = 0.21$).

A *Probit* regression with a dummy variable, corrupt officials group, for the group with predominantly corrupt officials (1 for treatments with Corrupt officials, 0 for treatments with Honest officials), corroborates the effectiveness of social norms in influencing bribe rates (coefficient = 0.81, standard error [SE] = 0.32, $p = 0.01$; see Model 1 reported in Table 1). Also, the regression showed no significant effect of a punishment dummy variable (1 for treatments with the punishment option, 0 for treatments without punishment; coefficient = -0.28, SE = 0.29, $p = 0.33$) or of the interaction of the punishment dummy with the corrupt officials group dummy (coefficient = -0.12, SE = 0.46, $p = 0.80$; see Model 1 in Table 1). The effect of social norms on bribe offers was robust to the inclusion of several controls in the analysis, such as participants' gender and subjective relative economic status, whether they were enrolled in an economics/business/accountancy degree, or whether they reported having experienced corruption personally (all these variables were nonsignificant in the analysis, all p values > 0.30; see Model 2 in Table 1).

In the postdecision questionnaire, 15% of firms mentioned having witnessed or experienced corruption directly in their lives. We assessed whether this type of experiences had any effect on the game play. From those with direct experiences of corruption, 30% offered a bribe in the experiment, compared to 35% of bribe offers in the group of those who reported not having had a direct corruption experience in their lives (Mann–Whitney U test, $Z = 0.36$, $p = 0.72$). This suggests that the participants' estimation of the descriptive norm relating to corruption outside the lab was not driving our main result which can therefore be attributed to the inducement of descriptive norms in the lab. Furthermore, almost 95% of participants in the role of firms reported thinking that the
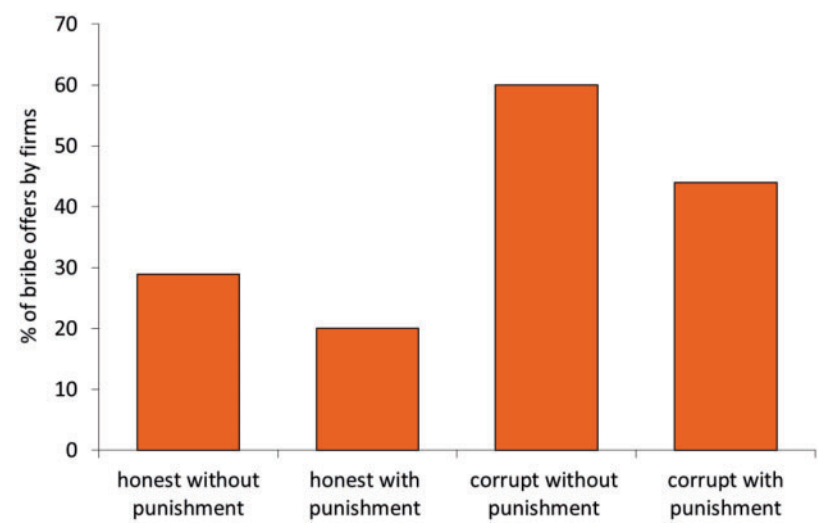
Figure 3. Proportion of Firms That Offered a Private Payment to the Associated Official in the Main Stage.

Table 1. Coefficients (and SEs) Derived from Probit Regressions of Firms' Decisions to Offer (1; or not=0) a Private Payment to the Public Official

Dependent variables	(1)	(2)
Corrupt officials group (corrupt = 1; honest = 0)	0.81 (0.32)*	0.80 (0.33)*
Punishment possibility (=1; without = 0)	−0.28 (0.29)	−0.32 (0.30)
Corrupt Norm–Punishment interaction	−0.12 (0.46)	−0.08 (0.48)
Gender (women = 1; men = 0)		−0.22 (0.24)
Studies (economics, business and administration, and accountancy = 1; others = 0)		0.20 (0.25)
Personal experience with bribery (=1; without=0)		−0.11 (0.34)
Relative subjective economic status (worse off = 1; equal = 2; better off = 3)		−0.27 (0.27)
	N = 140	N = 140

*$p < 0.05$.

situation represented in the experimental game (a firm facing the possibility of bribing a public official) was common or very common in real life. We also asked participants (officials and firms from the main stage) to estimate the percentage of other firms and officials who believe that offering or accepting the private payment was socially appropriate. Overall a large majority believed that other firms (officials) would judge an offer (acceptance) of the private payment as inappropriate.[12] These findings

12. The question read "Estimate the percentage of Firms/Officials who believe that offering/accepting the $10-private payment was the appropriate thing to do." Firms' average responses to these questions were significantly below 50% (median estimation of other

suggest that participants did not see the game options as mere monetary allocation decisions.

The bribe acceptance by officials in the main stage followed an expected pattern. The average bribe acceptance rates were significantly higher in the group with corrupt officials (*Fisher's exact test*, two tails, $p = 0.000$) and higher, but not significantly so, when there was no punishment option (*Fisher's exact test*, two tails, $p = 0.38$). The specific acceptance rates were the following: 76% in the corrupt group, without punishment and 72% with punishment; 22% in the honest group without punishment and 11% with punishment. A Probit regression with Officials' decision of whether to accept or reject the private payment as dependent variable confirmed the significant effect of the social norm condition, and no effect of the possibility of punishment or of norm-punishment interaction (Model 1 in Table 2). These results remained qualitatively unchanged with the addition of several controls (see Model 2 in Table 2). As the officials make the decision to accept the bribe or not both in the initial stage and in the main stage, we could also examine the consistency of their behavior across stages. A large percentage of officials who accepted the bribe in the initial stage also accepted it in the main stage (72%) and those who rejected the bribe in the initial stage also rejected it in the main stage (84%).

About 34% of the officials were willing to incur a cost to report firms that offered a bribe. In the corrupt group, 20% of the officials incur a cost to report the firms that offer a bribe, whereas in the honest group, this frequency is much higher at 42% (Fischer's exact test, $p = 0.05$). Table 3 shows results from a Probit regression of Officials' decision whether to punish bribe offers in the condition with the sanction possibility. The regression shows a tendency towards significance of the social norm condition ($p = 0.06$), whereas control predictors remained nonsignificant (all p-values >0.20).

Finally, we were also interested in assessing participants' guesses of the others' decisions in the session. Table 4 shows the comparison of all participants' (postdecision) estimation of firms and officials' choices against the actual choices in each treatment. An over-estimation was recorded if the lower limit of the 95% confidence interval (CI) of the estimation was greater than the parameter of the actual behavior to be estimated. As shown in the table, there was a systematic overestimation of corruption both in terms of bribes offered and bribes accepted in treatments with honest officials. In contrast, estimations in treatments with corrupt officials were accurate, except for the overestimation of bribe offers in the treatment with punishment. Overestimation of bribe offers and acceptances were found in the initial stage as well. Whereas (mean ± 1 standard error of mean) 46% (± 4) of firms were estimated to offer the

firms' opinions: 30%; $p < 0.001$); median estimation of other officials' opinions: 20%; ($p < 0.001$, p-values one-sided, Kruskal–Wallis ANOVA by ranks). These results suggest that, overall, firms believed that most other firms and officials would judge an offer as socially inappropriate. Results for officials' beliefs follow a similar pattern.

Table 2. Coefficients (and SEs) Derived from Probit Regressions of Officials' Decisions to Either Accept (1) or Reject (0) the Private Payment from the Firm

Dependent variables	(1)	(2)
Corrupt officials group (corrupt = 1; honest = 0)	1.47 (0.34)**	1.69 (0.40)**
Punishment possibility (=1; without = 0)	−0.46 (0.32)	−0.46 (0.34)
Corrupt Norm–Punishment interaction	−0.33 (0.50)	−0.19 (0.55)
Gender (women = 1; men = 0)		−0.01 (0.26)
Studies (economics, business and administration, and accountancy = 1; others = 0)		0.27 (0.37)
Personal experience with bribery (=1; without = 0)		0.40 (0.34)
Relative subjective economic status (worse off = 1; equal = 2; better off = 3)	N = 140	−0.51 (0.25)* N = 140

*$p < 0.05$; **$p < 0.001$.

Table 3. Coefficients (and SEs) Derived from Probit Regressions of Officials' Decisions to Either Punish (1) or Not Punish (0) the Firm for Offering a Private Payment

Dependent variables	(1)
Corrupt officials group (corrupt = 1; honest = 0)	−0.66 (0.35)*
Gender (women = 1; men = 0)	−0.08 (0.32)
Studies (economics, business and administration, and accountancy = 1; others = 0)	−0.17 (0.39)
Personal experience with bribery (=1; without = 0)	−0.25 (0.42)
Relative subjective economic status (worse off = 1; equal = 2; better off = 3)	0.29 (0.30)
	N = 70

*$0.05 < p < 0.10$.

Table 4. Comparison of the Estimations of Bribe Offers and Acceptances against Actual Overall Decisions in the Main Stage

Treatments		Firms' actual decisions	95% CI		Officials' actual decisions	95% CI	
Social norms	Punishment	Bribe offers (%)	Lower limit (%)	Upper limit (%)	Bribe accepted (%)	Lower limit (%)	Upper limit (%)
Honest officials	Without	29	42[a]	58	22	33[a]	48
	With	20	36[a]	51	11	35[a]	49
Corrupt officials	Without	60	59[b]	75	76	64[b]	81
	With	44	54[a]	72	72	58[b]	78

[a]Overestimation.
[b]Correct estimation.

private payment (95% CI: [37, 55]), only 32% of firms did so in the initial stage. In turn, 53% (±5) of the officials were estimated to accept the payment (95% CI: [43, 64]), but only 31% of them actually accepted it.

Interestingly, subjects' estimation of the corrupt officials' propensity to accept a bribe is largely correct, while they systematically overestimate the likelihood of previously honest officials to accept a bribe in the main stage. It seems that they do not necessarily expect an official who has been honest once to remain honest in the future, while they do expect that corrupt officials remain corrupt. In other words, building a reputation for honesty may require long periods of honest behavior, whereas one corrupt act is sufficient to build a reputation for corruption.

To summarize, our results show that firms respond to what they know about descriptive social norms among public officials, in both their own behavior and their expectation of others' behavior.[13] This effect of norms occurred independently of strategic considerations and the possibility of being sanctioned.

4. Discussion

In the present study, we evaluated the effect of descriptive social norms and the possibility of sanctions on bribe offers in a collusive bribery game. These two factors may covary within societies and therefore, it was crucial to use an experimental methodology to parse their consequences. Results showed that participants in the role of firms were sensitive to the information about public officials' typical behavior. When the official came from a mostly-corrupt group, the proportion of bribe offers made by firms was more than double relative to when the official came from a mostly honest group. In this context, we did not find a statistically significant effect of the possibility of sanctions.

To our knowledge, this is the first time that such a contagion effect is shown in the realm of corruption. This effect of descriptive social norms on bribe offers could be behind results in other bribery experiments that use cross-national samples. Whereas some studies have relied on varying participants' nationality to study social norms, many other factors could co-vary with people's country of origin, thus making it difficult to obtain clear cut conclusions from those data. The present study thus complements and improves previous research on bribery and social norms.

Though there is ample evidence that people are willing to punish behavior they disapprove of (Fehr and Gächter 2002), we find that fear of punishment is, at best, a mild deterrent to offer bribes. We find slightly lower rates of bribe offers when the punishment option is present, but the effect is not statistically significant. It is perhaps surprising that the

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13. In an additional treatment summarized in Supplementary Appendix S3 we also varied social norms among firms. Our manipulation however turned out to be too subtle and did not generate informative results.

addition of a material risk did not have a strong effect, the addition of information on norms, without adding any material risk, did. There may still be some effect (in both treatments there was an insignificant decrease in bribe offers), but it turned out to be too weak to be detected in our setting. Attempts to explain this finding have to be speculative at this point. We believe that the main difference between our setting and the ones in which punishment is usually studied (e.g., public good games) is that in those settings agents are punished for damages that they have inflicted (e.g., the failure to contribute to a public good). In our setting, however, the official is still in full control of the outcome of the transaction. If the official does not want the firm's preferred outcome, he or she can simply reject the offer and implement the exact same outcome that would have occurred without it. Thus, a bribe offer expands the official's action space and it seems that firms would not consider this as a punishable offense. Expectations based on corruption in the wider society may also add to the lack of effectiveness of punishment, as Argentina, where we conducted the experiment, is a country in which corruption is widespread. A more comprehensive exploration of the causes for an effect of punishment, or lack thereof, has to be the subject of future research.

To sum up and conclude, present results showed a significant effect of the descriptive social norm on bribe offers. Despite the information provided, overestimation of corruption was common and was also associated with a choice for bribery. Based on these findings, we conclude that the scientific study of corruption would benefit from a better understanding of the factors shaping people's beliefs about relevant descriptive norms. This knowledge could be used to avoid potential vicious cycles of feedback between people's overestimation of corruption and corrupt behavior itself, which may be particularly relevant in countries where perceived corruption is high.

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Supplementary material

Supplementary material is available at *Journal of Law, Economics, & Organization* online.

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