

Bribery, Punishment, Norms and Reciprocal Relationships: Evidence from US and Pakistan

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Abstract

This paper contributes to the corruption literature by implementing bribery in the laboratory as a repeated three person sequential game, consisting of a firm, a government official and a citizen. In contrast to the design of Abbink et al (2002) and Cameron et al (2009a), our design fixes the value of the bribe that the firm can offer and the favor that the government official can grant, allowing us to focus on variable citizen punishment. The experiment consists of two treatments, one with citizen punishment and one without. In both treatments, the firm moves first and decides whether to initiate a bribe, the government official is given the choice of accepting or rejecting, and, in the Punishment treatment, the citizen is able to punish either or both of the two other players. Experimental sessions were conducted in the US and in Pakistan, which have very different levels of corruption. Differences in punishment levels between the firm and the official serve as a measure of the “blame” put on the parties engaged in a corrupt act. We show that in the U.S., the citizens punish the firms slightly less than the government officials across all rounds where successful bribes have occurred, while in Pakistan the firms are punished significantly more than the officials. Overall, firms in Pakistan are punished more than officials, and punishment has virtually no effect on the bribes offered. In the U.S., punishment is shown to lower both the proportion of bribes offered and accepted. Officials in both cultures are sensitive to punishment with U.S. officials slightly less resistant. We conclude that the presence of strong corruption norms along with client patron relationships in Pakistan mean that officials are not seen as accountable for corruption, so that the blame for bribery is attributed to the initiators of bribes.

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1. Introduction

The topic of corruption has received a wealth of empirical evaluation for the past two decades, and has been shown to have a negative impact on economic growth (Mauro 1995, Svensson 2005), political stability and judicial effectiveness (Treisman 2000, Burki 1999), democratization (Lipset 1960), education (Shleifer and Vishny 1993), income inequality (Jong-Sung and Khagram 2005), etc. Clearly the negative impacts of corruption on the economic, political, and social spectrum are clear. One of the primary components of corrupt relationships is the presence of reciprocity (Abbink et al 2002). Reciprocity is necessary for bribery to be a successful strategy in relation to corrupt acts, since a corrupt transaction is not an enforceable contract. We conduct a laboratory study in the US and Pakistan in order to assess the effect of sanctions on corruption and reciprocity norms in corrupt activity. We run a 2 X 2 design varying the institution (presence or absence of the option to punish) and the setting (individualist v. collectivist cultures with differing experiences on corruption). Experiments are conducted at the University of Texas at Dallas in Dallas, TX (hereafter UTD), and the Institute for Business Administration in Karachi, Pakistan (hereafter IBA). To use the typology laid down by Harrison and List (2004), our study is classified as a “framed field experiment:” we utilize a nonstandard subject pool (Pakistani students), and introduce context into the instructions.

The general definition of corruption is given as “the use of public office for private gain.” (Jain 2001) Bribery is a specific type of corrupt activity that typically benefits a public official and a private firm at the expense of the general citizenry. Bribery and corruption have been given experimental analysis in the past. Abbink et al. (2002) experimentally show that the presence of reciprocity is enough to establish long term bribery relationships that are largely unaffected by negative externalities. Abbink et al. (2002) also show that the presence of exogenous punishment

threats can dampen these relationships. Abbink (2004) further demonstrates that severing the reciprocal link (via staff rotation) can dampen the instance of corrupt acts. However, Barr and Serra (2008) find that corruption depends on culture (i.e. pervasiveness of corruption in the home country) as well as on reciprocity considerations. Cameron et al (2009) conduct bribery experiments in four countries to show that while variations in bribe initiations and acceptances are largely the same; levels of altruistic punishment (viewed as an indicator for the violation of a civic norm) differ significantly across samples. Fisman and Miguel (2007) conduct a natural field experiment involving diplomats from 149 countries with parking violations over the 1997 – 2005 period to show a strong correlation with existing national-level cross country data. Their results indicate that corruption (as a social norm) becomes internalized to the extent that behavior is affected even when removed from the original environment.

Clearly, corruption and bribery depend on both reciprocal considerations driven by individual levels of trust and reciprocity¹, as well as on the social history of the environment within which individuals are operating. One further point to note is that much theoretical work in the past (Lui 1986, Andvig and Moene 1990, Sah 1991, Tirole 1996 and Mishra 2006) focus on multiple equilibria in the corruption context, i.e. that the prevalence of perceptions of corruption are self reinforcing, leading to high and low corrupt equilibrium outcomes. One of the primary drivers of corrupt activities assumed by these models is the current proportion of corrupt bureaucrats. The greater the perception of corrupt bureaucrat prevalence, the smaller the search costs incurred by individuals seeking favors. Thus, reciprocity alone cannot explain the persistence of corruption over time, i.e. civic norms and expectations of corrupt behavior are also a part of individual decision-making.

¹ For cross cultural evidence of the strong correlation between civic norms and trust (as measured by the World Values Survey), see Knack and Keefer (1997).

In addition, corruption persists in societies with low levels of individual and institutional trust. When trust and reciprocity among strangers is low, norms of corruption and interpersonal networks can substitute for these mechanisms. Rose-Ackerman (1999: 106) states that “societies with strong interpersonal relationships may have little notion of formal agency-principal relationships and the obligations they impose.” Evidence from post-communist countries underpin the importance of patron-client networks as impediments to nation-building (Rose-Ackerman 1999: 107). Thus, gift giving and bribes substitute for formal notions of duty, leading to the development of bribe expectations in order to function, culminating in a strong corruption norm. The natural question to ask is how individual behavior changes with respect to environmental shifts, and what norms are triggered that lead to such outcomes? Furthermore, with regime shifts, are there sustainable changes to be found in outcomes, and how do these relate to the overall environment?

In this study we explore some of the factors that underlie high societal levels of corruption. We study the impact of sanctions on bribe initiation and bribe-taking behavior in two distinct settings. We chose the US and Pakistan as locations for our study, due to (1) higher degrees of trust and reciprocity towards strangers in the US, (2) higher concerns of social efficiency in the US, and (3) (significantly) lower level of corruption in the US. Our focus is primarily on cross cultural comparisons of strategic punishment behavior.

To elaborate on these distinctions, first, high corruption (and subsequently, weak rule of law) is prevalent in Pakistan². Using the distinction provided by Heidenheimer (2002: 143-147)³

² Pakistan has been consistently ranked close to the highest quartile in the world for corrupt countries over the past decade in the Governance matters dataset (compiled by the World Bank). See Kauffmann et al (2008) for details.

³ Heidenheimer (2002) provides four distinct types of political obligation relationships, based on prevalence of western defined corrupt relationships, and on citizen tolerance for behavior defined as corrupt. These are (1)

and described in detail by Burki (1999: 183-185), Pakistan is classified as an example of a traditional patron-client-based system. This is understood as “[t]ies to powerful protectors are strong, identification with the general community still quite weak. Through the patron-client relationships... a strong sense of reciprocal obligation develops.” Furthermore, Hofstede (1984) classifies Pakistan as a strongly collectivist nation, meaning that while trust among strangers is much weaker, trust among the collective group is strong, providing an incentive for individuals to seek out (and develop relationships) with patrons with less regard for the overall community.

By way of contrast, the US has consistently ranked in the lower quartile of corruption rankings for the same period. In addition, given strong institutions and rule of law, in addition to individualistic moniker (under the Hofstede rubric), trust among strangers is higher in the US. Secondly, using Heidenheimer’s (2002) framework, the civic-culture-based system is one where “citizens do not feel they need to work through an influential intermediary in order to get the benefits of the laws and administrative programs. They have developed strong community-regarding norms... political leaders are not bound by reciprocity agreements.” This informs our analysis of the methods with which subjects in each setting view their relationships and takes appropriate action. Finally, we study corruption in these two settings that are far apart, but not outliers on the global rankings. We posit that punishment mechanisms are implemented in the corruption context based on individual reciprocity levels and patron client relationships that vary by culture. We explain how reciprocity would affect sanctioning decisions of individuals within the context of the game, leading to differences in bribe acceptances and bribe initiations, finally

kinship based system, (2) traditional patron-client-based system, (3) modern boss-follower-based system, and (4) civic-culture-based system.

culminating in differential levels of bribery outcomes observed. Consistent with theory⁴ and prior case evidence⁵, we show that individuals in corrupt societies are unable to successfully implement sanctioning mechanisms in a way that reduces bribery and yields greater welfare. We explain that this result is due to complex patron-client relationships, rather than simple accountability or reciprocity considerations.

This paper, then, presents a framed field experiment to study the impact of reciprocity and corruption norms towards bribery across cultures. The focus is on bribery because it is by far the most common form of corruption, particularly at the grass-roots level of society. Thus, subjects at any level are familiar with (and may even have engaged in) the practice of bribery, making the institution for the subjects simpler to understand. Second, we believe that an experiment is by far the most powerful method for causal inference, particularly when dealing with a concept that has no incentive for respondents to reveal their true preferences. We conduct the experiment with two treatments, one with the ability for citizens to punish and one without, in two settings, high and low corruption cultures.

We seek to provide insight into the causes of corruption and ask, is higher corruption in Pakistan attributable to a weak rule of law (and thus, an internalized norm of corruption), or does corruption thrive because of differences in punishment behavior driven by reciprocal considerations? Furthermore, we investigate the role of the citizen as a principal who is willing to punish the agents for corrupt behavior. Given that there are two parties to a corrupt exchange – the official and the firm -- we ask, which is the citizen more likely to punish? The principal agent model predicts that it necessarily would be the government official, since he is the agent of

⁴ See Lui (1986), Andvig and Moene (1990), Sah (1991), Tirole (1996) and Mishra (2006) on theoretical work on the persistence of corruption.

⁵ For example, see Dininio (2008) for a case analysis of cities in Venezuela and Bolivia.

the public, and the firm is simply engaging in profit maximization (and may be blameless). However, is this necessarily true? If so, then the principal agent model is directly relevant, corruption does not thrive because there is a lack of information as to who is accountable for the offense. Thus, we could rule out the alternative explanation that corruption is prevalent because of a lack of accountability. Citizens know that once corruption (bribery, in our case) is caused by government officials' willingness to accept bribes, rather than firms' willingness to pay them. This outcome is particularly relevant for developing countries, wherein ordinary citizens may not recognize the importance of their vote, leading to citizen beliefs that they are unable to exercise control over their representatives.

2. Literature Review

Several streams of theoretical research are relevant to this study. First is the extensive research on trust and reciprocity (Rabin 1993, Berg et al. 1995, Hoffman et al. 1998, Hayashi et al. 1999, Bowles and Gintis 2002, Cox 2004, Falk and Fischbacher 2006, Falk et al 2008). Reciprocity can be positive, as when a public official produces a favor for a firm in response to a bribe, or negative, as when a citizen chooses to invest resources in punishing the firm or the official. Berg et al. (1995) initiated a large stream of research in analyzing trust and reciprocity experimentally. Falk and Fischbacher (2006) show how both consequences of an action and intentions of an actor play a role when individuals evaluate a kind (or unkind) action in order to express reciprocity. Thus, underlying intentions (or evaluations thereof) play a role in individual behavior when deciding to reciprocate an action. We argue that these intentions are influenced by environments from which actors make decisions on appropriate responses. The environment faced by these individuals includes shared norms of trust and corruption as posited above for our particular study. This is a particularly important consideration for our study, since corruption

(and perceptions thereof) stretches far beyond simple inequity aversion, to incorporate concepts such as civic duty and patron-client relationships. Furthermore, even when evaluating fairness, intentions play a role (Falk et al 2008). Thus, what is perceived to be a fair outcome does not necessarily depend on monetart equivalence alone, which accounts for variations in behavior that are discussed in this study. Hence, an individual accepting a bribe may be considered as fair (from the perspective of the citizen) given a different societal structure (in high corruption areas). Thus, the acceptance of a bribe may not be considered an unethical action, whereas the offering of a bribe may be morally reprehensible, depending on how one views the intentions of the bribe initiator. Bowles and Gintis (2002) argue that community governance (as opposed to the more commonly used term of ‘social capital’) provides some respite from market and state failures (such as noted by Ostrom 1997), but relies heavily on nepotism / cronyism in order to operate (which may lead to corrupt outcomes). However, how individuals view their “community” and build relationships is directly relevant to our distinctions between high and low levels of trust found in individualist and collectivist societies. Another important point to note is the issue of tightly knit communities based on some form of group cohesion. This yields exclusionary behavior that shifts focus away from the community at large in order to preserve the primary group, yielding community failures. Thus, if relationship-building is allowed between two individuals (by fostering trust and reciprocity), barriers to entry into the group arise if a third party is unable to provide resources demanded by the individuals in question. This is directly relevant to how a citizen may be perceived in differing cultures based on the model described below.

Second is research on principal-agent models (Grossman and Hart 1983, Holstrom and Milgrom 1991, Guesnerie and Laffont 1984, Sappington 1991, Rose-Ackerman 1978, Klitgaard 1988,

Gambetta 2002). This research explores conditions under which a principal is able to control an agent's actions on his behalf. In this case the principal is the citizenry, and the agent the public official.⁶ This work shows that an inability to perfectly monitor or incentivize the agent can result in behavior that fails to maximize the principal's objective. The framework of corruption can be thought of as a relationship similar to principal's and agents in firm behavior. Specifically, government officials are viewed as agents of the principal (i.e. the public). Thus, corruption can then be analyzed under the incentives framework, in that how can the public appropriately incentivize government agents to maximize public welfare. Gambetta (2002) views this relationship with a third party, arguing that the simple 2-individual principal-agent framework is inappropriate under this context. The third party (he argues) is the corrupter, which provides the appropriate disincentives for maximizing welfare. He provides a theoretical prediction on the pervasiveness of corruption, arguing that the perceptions of corruption increase the likelihood of an individual engaging in a corrupt action.

The third stream of research investigates problems associated with rent-seeking, when individuals invest in capturing monopoly returns, "rents", at the expense of productive activity (Tullock, 1967, Allard 1988, Appelbaum and Katz 1987, Nitzan 1991, Baik and Lee 1997). In policy terms, this can relate to bribery and related illegal activities by public officials often have control over a resource and are in a position to confer the rents associated with that resource on the highest bidder.⁷ This stream of research implies that through the monopoly control governments have on their resources, they can allocate in terms of maximizing welfare, as well

⁶ Rose-Ackerman (1975 & 1978) and Klitgaard (1988) present the principal agent model of corruption, but with the the high-level official as the principal, and the low-level bureaucrat as the agent. In our case, similar reasoning applies, except that the public is seen as the principal.

⁷ Ades and Di Tella (1999) present a model linking rents and corruption. Allard (1988), Appelbaum and Katz (1987), Nitzan (1991), Baik and Lee (1997) (among others) extend the model to examine conditions of rent dissipation, i.e., when the sum of the bribes offered to the official exceeds the value of the rent.

as to provide resources to the highest bidder for income / political influence maximization, which can either be welfare-enhancing, or welfare-reducing depending on the situation. However, even in cases of welfare-enhancing, the persistence of corruption argument implies that each “corrupt” action taken in isolation may enhance welfare, but the spillover effects may ultimately yield in actions that reduce welfare overall (such as the weakening of political institutions and so forth).

The extent and effects of corruption have been difficult to measure empirically. National officials engaged in corrupt practices have no incentive to report their own extra-legal affairs. This is further complicated by the fact that corruption can have a positive or negative effect on economic activity, as discussed above. Over time, however, a number of datasets have been assembled to address this question.⁸ The most comprehensive measure is that from Transparency International, known as the Corruption Perceptions Index (CPI) (Transparency International 2008). This index compiles data from various secondary sources, to create a “poll of polls” in order to generate the perceived level of corruption within a given nation, and touches on all forms of corruption. Over the past decade, empirical work in studying corruption has grown at a rapid pace. Starting with Mauro (1995), who studied the relationship between corruption and economic growth using the CPI, various studies have looked at the relationship between corruption and democratization, religion, colonialism, and other historical factors (Treisman, (2000; Jain, 2001). An important challenge in the empirical literature is the need to disentangle causal relationships: does corruption inhibit growth, or does low growth spur corruption? Experimental methodology has the potential to shed light on causal mechanisms.

The experimental literature on corruption includes two main sets of experiments. Abbink (2002, 2004) and Abbink et al (2002, 2004) conducted some of the first experiments in this area,

⁸ E.g., organizations such as Business International, International Country Risk Guide, Transparency International, and the World Bank, among others (Ahmed 2001)

studying the effects of reciprocity, fairness, salaries, staff rotation, and high levels of risk, on bribery. The bribery game that developed in Abbink et al (2002) explores key aspects of corruption, and inspired our own design. This study includes several variations on a simple game. In the first, which closely resembles the investment game of Berg, et al (1995), only the firm and official are involved in a two-person transaction, with the firm initiating the bribe and the official providing a favor at some cost. In a second treatment, the game is expanded to include externalities -- small external damages caused by the favor, impacting all other subjects in the session. In a third treatment, they study the effects of punishment, where bribery is detected with a low probability, and if detected results in “sudden death”. Here punishment is implemented using a lottery; there is no “punisher”. In all treatments, the stage game is repeated for thirty rounds. In a second study, they explore the effects of framing in the context of the bribery game, and show that no systematic differences in bribing behavior are found when “loaded” language (bribe, etc.) is used (Abbink, et al., 2006). As noted earlier, Abbink (2002) studied the impact of fair salaries on corruption, i.e. he manipulates the initial endowment of government officials to proxy for salary increases. He notes that there was no shift in individual behavior, indicating that salary increases in isolation cannot be expected to reduce instances of bribery and corruption (i.e. reciprocity norms overcome the differences due to the shift in salaries).

Cameron et al. (2009) and Alatas et al (2009a, 2009b) also conduct a series of experiments on bribery. In Cameron et al (2009) they report results of an experiment conducted across four countries – two with high corruption levels and two with low -- in order to elicit systematic differences in the propensity to engage in and punish corrupting behavior. Their corruption game involves three players, a firm, a government official, and a citizen. The citizen’s

role is to punish corrupting behavior. They find that while the level of corruption remains the same across the four cultures (Australia, India, Indonesia, and Singapore), the levels of punishment are different, with Australian subjects being the least tolerant of corruption, relative to the other nations. They conduct two treatments, one with a welfare enhancing bribe and one with a welfare reducing bribe. They find that subjects in India are more likely to initiate bribes as compared to with Australia, Singapore, and Indonesia (there were no significant differences on bribe initiation among the other three countries). They do find large differences in the propensity to punish behavior, indicating that tolerance for corrupt practices varies by cultural context. They also find differences in treatments, but only in Australia, noting that limited experience with bribery may be driving these results. Alatas et al (2009a) implement a similar design with Indonesian students and public servants (in training). They find that public servants are less likely to engage in corrupt acts, which they attribute to recent institutional changes. Alatas et al (2009b) and Rivas (2006) study the difference between gender on corruption behavior and show that women are less corrupt than men. Jacquemet (2005) studies the effect that corrupting third parties have on the principal agent relationship discussed earlier.

3. The Bribery Model

We extend the bribery game put forth by Abbink et al. (2002) and Cameron et al. (2009). Consider a firm seeking preferential treatment from a government official at the expense of the citizenry. Each player in the game – the firm, the official and the citizen – receives equal initial endowment E . We diverge from previous studies in keeping the endowments equal at the start in order to remove fairness considerations on the part of the subjects. We assume the firm initiates

the bribe (i.e. first-mover), choosing whether or not to offer a bribe, which consists of a transfer of a (fixed) amount B from the firm to the official.

The official observes whether a bribe was initiated, and must then choose whether to do a favor V for the firm. The favor generates a benefit to the firm of V_f , at a cost of V_g to the government official, and imposing an external cost of V_c on the citizen. Note $V_c > V_f > B > V_g$: the external cost to the citizen from the favor exceeds the benefit to the firm, making the favor inefficient; the benefit to the firm of the favor is greater than the bribe (otherwise the firm has no incentive to initiate the bribe); and the bribe exceeds the cost to the government official of granting the favor. If the official chooses not to engage in the dishonest action, the bribe B is confiscated: the firm loses the full amount of the offered bribe and B is forfeited by the official.

We conduct two treatments, a “No Punishment” treatment (baseline) where the citizen is simply a passive observer whose earnings are impacted by the actions of their firm and official counterparts, and a “Punishment” treatment, where the citizen is given the ability to punish at a cost. In the Punishment treatment, the citizen observes the actions of both the firm and the official, and can then choose to punish either the firm or the official at a cost of P per unit of punishment. P_f denotes the punishment of the firm, and P_g the punishment of the official. Each unit of punishment reduces the earnings of the target by $m \cdot P$.

We repeat the game for 20 rounds with fixed partners so that subjects develop reputations over time. It is important for the citizens to be in fixed groups so that we observe non-altruistic (i.e. strategic) punishment.

Our design differs from previous studies by implementing third party strategic punishment that can differ for the firm and the official. This allows us to tease out perceptions of who is responsible for the corruption. We fix the bribe and benefit levels, making the choices for

both firms and government officials discrete. Since our interest is primarily in punishment behavior and bribe outcomes, bribe bargaining mechanisms (as implemented in Abbink et al. 2002 and Cameron et al. 2009) are not our concern. Punishment parameters we set are based on pilot experiments so as to produce variability in behavior. Specifically, we used a multiplier of 2 so that the total tokens spent on punishment can reduce entire earnings for firms / government officials over all rounds of the game. Therefore, the highest any player can earn in a given round is 80 tokens. Citizens can spend their entire punishment allocation in this case to reduce the player earnings back to the initial endowment level of 50. Furthermore, for successful bribery outcomes, citizens can spend their entire punishment allocation in order to reduce the earnings of the other players back to initial endowment levels and still have a single token remaining to allocate for further punishment. In this fashion, we implicitly attempted to induce maximum level punishers to differentially allocate their final tokens. Subjects were free however, to allocate whatever punishment level (below 15 tokens) they felt was appropriate.

It is easy to show that under the usual assumption of payoff maximization, it is a Nash equilibrium of the stage game for the firm to bribe, the official to grant a favor, and the citizen not to punish. No player has an incentive to unilaterally deviate from this set of strategies. Similarly, in the repeated game, this outcome is a Nash equilibrium of the final stage, and so the game unravels.

The experiment has four distinct outcomes: First, if no bribe is offered and no favor given, then this is the “no bribe / favor” outcome, which is also the socially efficient outcome. Second, if a bribe is not offered, but a favor is given, we label this as the “bribe solicitation” outcome. Third, if a bribe is made but a benefit is not given, this is referred to as the “bribe

rejected” outcome. Finally, if both a bribe and a favor are given, this is called the “successful bribery” outcome.

Each player is endowed with $E=50$ tokens at the beginning of each round.⁹ The bribe level is fixed by design at $B=10$ tokens: if the firm decides to send a bribe, a transfer of $B=10$ tokens takes place between the official and the firm. If the official provides a favor, the firm is given $V_f = 30$ tokens while the citizen’s account is reduced by $V_c = 35$ tokens. This captures the social inefficiency of bribery since the benefit to the firm is less than the harm to the citizen. Furthermore, by providing a favor, the government official incurs a cost of $V_g = 2$ tokens, which is the “costs of dishonesty.” If the firm does not offer a bribe, the government official may still choose to grant a favor in order to, in effect, solicit bribes for subsequent rounds from the firm. The government official incurs the costs of granting the favor, while the firm obtains the full benefit of the dishonest option. For the “No Punishment” treatment, the round ends after the government official's decision. After 20 rounds, the game ends and subjects are paid for all tokens accumulated throughout the session.

The “Punishment” treatment differs only that, in every round of the game, the citizen can choose to spend up to 15 tokens from his account to punish the firm, the official, or both. The multiplier on the punishment is $m = 2$; for every token spent on punishment, we reduce the earnings of the player in the corresponding role by 2. Because the game is repeated with fixed partners, it is possible to build and maintain reputations. The expense to the citizen is the “cost of punishment”, which can be understood to be monitoring costs, risks associated with exposure, etc. The game tree for the punishment treatment is given below:

⁹ Such a construct affects ecological validity because of the equality in endowments for each role; however this design choice was made to mitigate any fairness considerations on the part of citizen respondents.

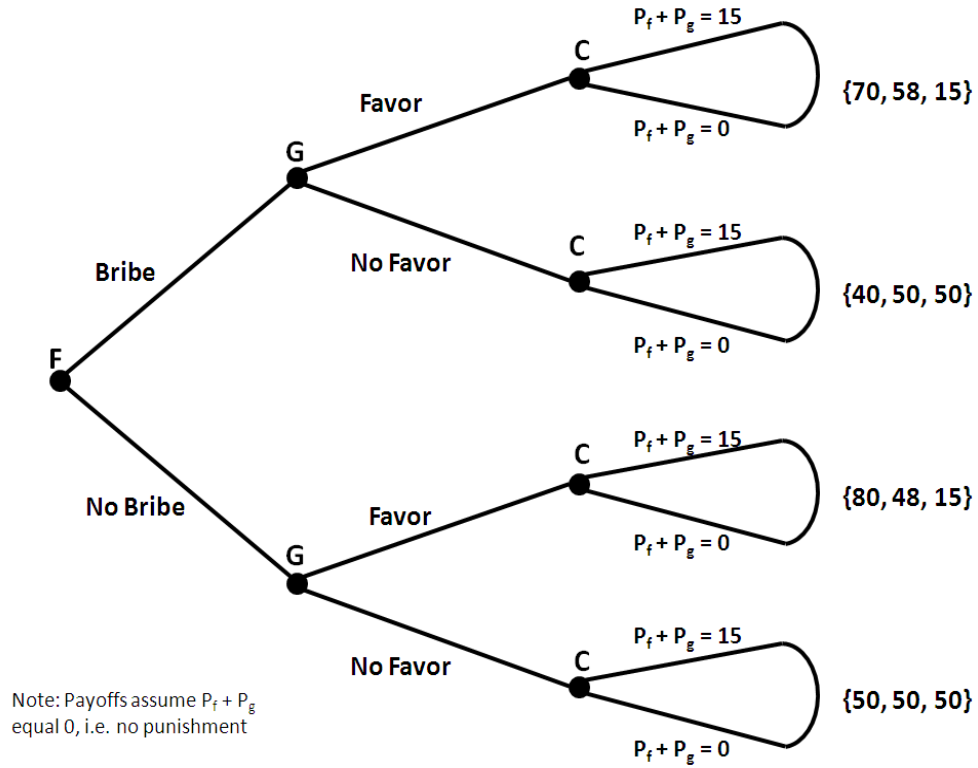


Figure 1: Punishment Treatment Game Tree with Payoffs

This design of the bribery game has a number of key features worth mentioning. First, similar to Abbink et al (2002), we allow the government official to solicit bribes for future rounds by signaling corrupt behavior. Second, by determining the bribe level exogenously, we can exclude any bargaining behavior between the firm and the official, thus making the experiment simple to understand and use, particularly since we are primarily interested in outcomes and citizen behavior. Third, the punishment structure we have chosen is linear, such that each additional dollar spent in punishment reduces the payoffs by the same marginal amount, again for simplicity. Other experimental designs have used a quadratic cost structure, which (while it has other benefits) we feel unnecessarily complicates the experiment. Fourth, we chose to use multiple rounds (20) (like Abbink, et al, 2002, but unlike Cameron, et al, 2009) for this experiment rather than a one-shot setting in order to induce strategic decisions from the

players, accounting for decisions made in each round for current and future gains. Fifth, the payoffs are designed in such a fashion so that the overall payoffs to each firm-official-citizen group are maximized when no bribery occurs (as mentioned earlier). This is to ensure that if any single player deviates, there is a social inefficiency that is incurred.

4. Hypotheses

In this section we will derive our hypotheses for each role based on expectations of other players' strategies and social norms. We will address each role in turn and make predictions based on positive and negative reciprocities and persistence of corruption.

4.1 The Decision to Punish

First, we begin with the decision to punish on the part of the citizens. Since citizens cannot punish in the baseline condition, we will deal exclusively with the Punishment treatment for this section. Gächter et al. (2005) show that citizens are willing to engage in costly punishment across cultures for the sake of norm enforcement, and that punishment is an indicator of culture-specific norms. Since firms can earn the highest amounts (in absolute terms), they are more resistant to sanctions, especially in the case of the bribe solicitations and successful bribery outcomes. Therefore, theoretically it is more efficient to punish the government officials. Due to norms of corruption, we would expect punishment to be directed more towards the firm rather than the government official in Pakistan. The reasoning for this is two-fold. First, due to a shared norm of corruption, bribery is seen as a routine part of the government official's job; especially in light of lowered salaries for government officials (hence fairness norms coming into play).

However, we can rule out the salaries explanation both by design (since everyone starts with an

equal initial endowment), and by Abbink's (2004) study. This would lead to the shared norm of corruption being engaged such that since the firm (as client) is initiating the bribe, government officials (as patrons) have to reciprocate the transfer. This reciprocation is justified by the citizen in terms of the prevalence of corruption, i.e. it is viewed as the duty of the official to reciprocate given that [s]he has been offered a bribe. Thus, citizens would feel that the official is being coerced into accepting, and hence would mobilize against the firms. This yields our first hypothesis:

- H1: Citizens will punish firms at a higher rate in Pakistan as compared to officials and punish government officials at a lower rate in Pakistan (as compared to the US) due to shared norms of corruption.

In addition, one may understand the absence of utilizing the enforcement mechanism as a “reward” for good behavior. Even though punishment is costly, individuals may engage in repeated punishment for “good” outcomes (i.e. no bribery), which would then serve as continual enforcement. With respect to our game, since the situation is repeated over time with static partners, reputation formation is prevalent such that subjects may choose to continue sanctions over multiple periods for a single instance of bribery. We would expect subjects to continue enforcement across periods for sake of payoff equivalency, as well as to continue enforcement regimes with smaller reductions in sanction levels. Furthermore, within the context of a single round, the maximum earnings of the citizen is higher (50 tokens) as compared to when government officials implement the dishonest action (15 tokens). Thus, the proportional cost of a single token spent on punishment is lower ($1/50$) when subjects do not encounter bribery, as compared to when they do ($1/15$). Thus, even though the upper bound of punishment is set at 15 across all rounds, enforcement may be viewed as “cheaper” since subjects have a higher number

of tokens overall. Thus, any tokens spent on punishment in rounds that yield a “good” outcome may be viewed as a continuation of punishment activity from previous rounds. Reductions in punishment, then, serve as a “reward” mechanism for good behavior. Therefore, we would expect Pakistani subjects to continue higher levels of punishment (as compared to US) even in the presence of favorable outcomes. This yields our second hypothesis:

- H2: Citizens will continue enforcement (i.e. reward less) in the presence of favorable outcomes in Pakistan as compared to the US.

Given these two hypotheses, we next turn to government official’s decisions in the next section. Since the punishment mechanism does not apply to both treatments, we will first discuss the punishment mechanism under the No Punishment treatment, and then how our above hypotheses influence government official behavior in the Punishment treatment.

4.2 The Decision to Accept Bribes

Trust and trustworthiness (reciprocity) are higher in the US (particularly towards strangers) than in Pakistan. Thus, when a firm initiates a bribe, US subjects have an incentive to reciprocate (independent of payoff maximization). However, since norms of corruption are lower (and thus a higher degree of civic responsibility is required), this norm would formulate a disincentive to accept the bribe.

In Pakistan, low levels of trust and trustworthiness would reduce the level of favors. In addition, since norms of corruption are higher (than in the US), the patron-client relationship provides an incentive for the government official to accept the bribe. Thus, there is a direct relationship between the firm and the government official; however, no such relationship exists

between the official and the citizen that is not driven by civic awareness and distastes for bribery.

In sum, high levels of corruption predict a high level of reciprocation in Pakistan that is dampened by reduced trust and trustworthiness. In the US, high levels of trust and trustworthiness predict high levels of reciprocation that are dampened by low levels of corruption.

Since these norms are working in opposite directions, Cameron et al. (2009) show that the propensity to accept bribes (in a one shot setting) is different for Australia and Indonesia (lower) and India and Singapore (higher). Since Indian society has the greatest cultural significance with data from Pakistan, we would expect a higher acceptance rate in Pakistan as well. Finally, preferences for income maximization would not be expected to vary across cultures, i.e. the income maximization incentive holds for both the US and Pakistan. Thus, we expect favors to larger or ambiguous when comparing across cultures, depending on which norm has a stronger effect.

With the threat of sanctions, assuming citizens are willing to punish, the added risk of reduced payoffs is higher for official (as compared to citizens). Since $V_f > B$ each token spent on punishment reduces the payoff to the firm (for a successful bribery event) by a factor of:

$$\frac{E - B + V_f - MP_f}{E - B + V_f} > \frac{E + B - V_c - MP_g}{E + B - V_c}$$

$$\Rightarrow \frac{MP_f}{E - B + V_f} < \frac{MP_g}{E + B - V_c}$$

$$\Rightarrow \frac{P_f}{35} < \frac{P_g}{26}$$

Thus the government official $\left[\frac{P_g}{26}\right]$ is more sensitive to punishment than the firm $\left[\frac{P_f}{35}\right]$. Hence, we expect officials in both settings to reduce the proportion of accepting bribes at a higher rate than firms. Depending on how sensitive they are to risk, officials in Pakistan would accept less bribes across treatments, but still be higher than their US counterparts due to corruption norms¹⁰. Furthermore, given that we expect individuals to sanction firms at a higher rate than officials in Pakistan, as well as offer lower rewards for honesty (i.e. hypothesis 2); the incentives for choosing the honest option for government officials are further dampened. This yields our third hypothesis:

- H3: Higher levels of corruption norms will cause a comparatively lower reduction in bribe acceptance in Pakistan for the Punishment treatment.

In the next section, we will consider the decision situation for the firms. It is important to note that since sanctions are observable by both parties (i.e. subjects have complete information), the decision to initiate a bribe can depend on both the sanction level of the firm itself, as well as that of the government official.

4.3 The Decision to Initiate Bribes

Finally, let us consider the decision of the firms to initiate bribes. In terms of the baseline treatment, since there is no threat of punishment, the choice largely depends on what the firm expects the official to do. For the purely income-maximizing individual, based on backward induction, the decision is clear. However, since there is a greater degree of trust in the US, there

¹⁰ This is because corruption norms are higher, and each individual in the group ascribes to the patron-client relationship, the acceptance of a bribe is not viewed as a violation of moral standards of corruption, and thus the official is not treated as severely as the firm.

is an incentive to initiate a bribe. Consequently, since there is a lower corruption norm, there is a strong incentive *not to initiate a bribe*.

In Pakistan, these incentives are reversed. Since there is a lower degree of trust (and subsequently, a lower degree of reciprocity) this serves as a disincentive for initiating a bribe. However, since there is a higher corruption norm, there is an added incentive to initiate a bribe. Once again, the overall levels are ambiguous for the baseline treatment, but based on Cameron et al. (2009) findings, we would expect Pakistani subjects to initiate bribes at a slightly higher rate, but if the levels are equivalent, then these differing incentives serve to explain why no significant variation is found.

Next, we turn to the decision to initiate bribes under the punishment treatment. Largely the incentives remain the same, except now citizens are equipped with an institution that allows them to engage in costly punishment. Assuming that citizens are willing to punish, there is an added risk due to potentially reduced payoffs and thus the proportion of bribes initiated would be reduced. In the US, this sanction mechanism is viewed as a reinforcement of low corruption norms, and thus US firms would reduce their level of bribe initiation. In Pakistan, however, since corruption norms are stronger, this would have a reduced impact. We do not expect firms to be sanctioned at a higher rate in Pakistan for successful bribes, but we do expect firms to be rewarded less (i.e. for sanctions to continue) when not initiating a bribe. Furthermore, since we expect government officials to be punished at a lower rate, this would dampen the impact of sanctions on expected reciprocity, yielding a lowered disincentive to bribe initiation.

- H4: Higher levels of corruption would cause a comparatively lower reduction in bribe initiation in Pakistan for the punishment treatment.

To reiterate, we expect the presence of sanctions to work in opposing ways in Pakistan, i.e. reduce bribe initiations due to payoff alteration, and increase initiation due to reciprocal considerations. This would yield an ambiguous effect on bribe initiations that would simply be higher than in the US, but have an ambiguous effect across treatments in Pakistan.

Taking these hypotheses as given, the next section discusses how these effects interact to yield expected outcomes overall.

4.4 Overall Outcomes

The above hypotheses allow us to generate hypotheses on the outcomes of the game. First, the introduction of sanctions themselves allows citizens to alter the final payoffs for both firms and government officials. This provides a disincentive for both firms and officials to engage in bribery, yielding our first overall hypothesis:

- H5: The introduction of sanctions will significantly decrease the proportion of successful bribery outcomes in both settings.

Similarly, we would expect sanctions to significantly increase the proportion of good outcomes in the US¹¹, but given hypothesis 3 and 4 above, we would expect sanctions to increase the proportion of bribe rejections in Pakistan¹².

- H6: The introduction of sanctions will significantly increase the proportion of no bribery outcomes in the US, and bribe rejections in Pakistan.

¹¹ Since both bribe initiations and acceptances are reduced due to the effect of sanctions reinforcing low corruption norms.

¹² Bribe solicitations are largely ignored in this analysis since the probability of occurrence is expected to be very low.

When comparing across cultures, it follows that we expect US subjects to initiate less bribes and accept less bribes, hence causing a greater proportion of no bribery outcomes in the US as well as a smaller proportion of successful bribes over the entire game. Thus:

- H7: Under the punishment treatment, the proportion of successful bribes in Pakistan will be larger and the proportion of no bribery outcomes will be smaller when compared to the US.

Finally, given our expectations, we would expect to find that the overall payoffs of the US citizens to significantly increase in the presence of sanctions. However, for Pakistani citizens, the expected greater expenditure on sanctions, coupled with smaller reductions in bribe initiation and bribe acceptance (due to dampened impacts on corruption norms) would yield an insignificant increase in welfare. This implies that Pakistani subjects are largely unable to use the punishment mechanism to their advantage indicating the persistence of corruption due to reciprocity norms.

- H8: Punishment significantly increases the payoffs (welfare) of the citizens in the low corrupt setting, but does not increase payoffs (welfare) of the citizens in the high corruption setting.

In the following sections we will test our hypotheses using experimental data collected in both cultures.

5. Experimental Procedures

The experiment was conducted with 93 undergraduate students at the University of Texas at Dallas and 90 undergraduate students at the Institute for Business Administration in Karachi Pakistan. All sessions were conducted in English, with just the payoffs changing from USD to PKR in Pakistan. Each session conducted was comprised of subjects that were randomly assigned to the role of firm, government official, or citizen. The roles for each subject remained

the same throughout the session. As subjects arrived at the lab, they were asked to pick a number from 1 to 30 which assigned them to a computer terminal with a specific role that was outside the knowledge of both the participants and the experimenters. Great care was taken to ensure that subjects did not know whom they were paired with throughout the session. Computerized experiments were a great way to handle this process, since it was not necessary for subjects to sit in groups according to their role (as conducted by Cameron et al).

Abbink et al. (2006) notes that no significant difference was found when using neutral versus loaded language for the bribery experiment. His earlier games included neutral language; however, Cameron et al. (2009) chose to use loaded language for their experiments. The concern with using loaded language is that the results may become confounded by moral considerations on the part of the subjects. On the other hand, it is important to make the subjects aware of the institution that they are operating in so that the results are externally relevant. To this end, we decided that using completely neutral language and completely loaded language fall short of the mark. Hence, we employed a hybrid form of instructions that are provided in appendix A. Key aspects of the instructions included replacing the words “bribery” and “dishonesty” with the terms “private payments” and “private benefits”. Once the subjects were seated and ready to begin, we read the instructions aloud, repeatedly asking for any questions, and followed it up with a short verbal example. It was imperative that the subjects understand the full range of the consequences of their actions in order for us to gain the most mileage from our data, particularly for the early rounds, wherein some nominal amount of learning takes place.

Each session lasted for 20 rounds, at the end of which subjects were asked to fill out a short survey containing questions about their demographic and socioeconomic status, as well as with questions relating to the experiments themselves. Subjects were given a show up fee of

5 dollars in the U.S. and 100 Rupees in Pakistan, and were paid at the end of the session based on their cumulative earnings. The exchange rate for the tokens was 1 USD for 100 tokens in the U.S. and 40 PKR for every 100 tokens in Pakistan, such that for the most conservative response (no bribe, no dishonesty and no punishment) for each treatment, each subject would earn (50 tokens for 20 rounds multiplied by 0.1) 10 USD. The game was completely computerized using the z-Tree application developed by Fischbacher (1999).

6. Results

6.1. Citizen Punishment Behavior

In order to analyze the effects of sanctions on bribery outcomes, we will first address differences in the number of tokens allocated to punish overall, firms, and finally, government officials based on corrupt outcomes. Table 1 summarizes these results¹³. We find that there is a significant difference between total tokens spent on punishment overall. We find that the Pakistani subjects spend more tokens overall (approximately 1 token on average) in order to punish their counterparts. When decomposing the results based on individual outcomes, however, we find that the higher level of punishment is driven by tokens allocated when there is no bribe (approximately 1.6 tokens on average). This indicates a preference, on the part of the Pakistani subjects, of keeping the punishment mechanism in place even when punishment is unnecessary. In cases of successful bribe outcomes, punishment is lower in Pakistan overall (approximately 2 tokens on average) as expected. Thus, behavior indicates weaker sanctions in the corrupt culture

¹³ Note that two sample t-tests with equal variances were used to generate the p-values in comparing token levels across the two societies. For comparison between firm and government punishment levels, paired t-tests were utilized.

when bribes are realized, but also weaker rewards in the corrupt culture when bribes are not realized. This provides a crowding out effect for good outcomes since both sanctions and rewards in Pakistan are dampened.

	Average Tokens Spent on Total Punishment				
	Overall	No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
U.S.	3.550	0.944	8.692	4.018	8.056
(Obs.)	(300)	(160)	(13)	(55)	(72)
Pakistan	4.613	2.545	7.619	4.679	6.045
(Obs.)	(320)	(110)	(21)	(78)	(111)
p-Value	<i>0.018</i>	<i>0.001</i>	<i>0.622</i>	<i>0.474</i>	<i>0.030</i>

Table 1: Average Tokens Spent on Punishment for the Punishment Treatment

Next, we decompose the overall punishment allocations by tokens allocated to firms and government officials. As previously stated, this implies how individuals sanction bribe initiators and bribe acceptors. First, taking bribe initiators, we find that tokens spent overall in Pakistan are higher (as expected). This result is primarily driven by the difference in token allocation under the “good” outcome (i.e. no bribery) wherein Pakistani subjects are more likely to allocate higher levels of punishment on firms than government officials. This corroborates the evidence presented using the overall levels above. Table 2 summarizes the results.

	Average Tokens Spent on Firm Punishment				
	Overall	No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
U.S.	1.917	0.575	4.154	2.873	3.764
(Obs.)	(300)	(160)	(13)	(55)	(72)
Pakistan	2.563	1.355	3.952	2.513	3.532
(Obs.)	(320)	(110)	(21)	(78)	(111)
p-Value	<i>0.039</i>	<i>0.015</i>	<i>0.890</i>	<i>0.636</i>	<i>0.731</i>

Table 2: Average Tokens Spent on Firm Punishment for the Punishment Treatment

When analyzing the tokens spent on punishing government officials, however, there are two noteworthy differences driving behavior. Overall punishment allocations do not significantly differ across cultures. However, no bribe punishment allocations remain higher in Pakistan

(providing similar results as indicated above), but punishment allocations for government officials in the bribe succeeded outcome is significantly lower (by almost 2 tokens).

Furthermore, punishment allocation for bribe rejections is *higher* in Pakistan as compared to the US by almost 1 token. This indicates that while US subjects are rewarding bribe rejections by dropping the level of punishment for government officials, subjects in Pakistan do not follow suit. We note that this is due to a violation of the reciprocity norm (i.e. reneging on the relationship between patron and client, rather than a reinforcement of corruption norms). Table 3 summarizes the results.

	Average Tokens Spent on Government Punishment				
	Overall	No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
U.S.	1.633	0.369	4.538	1.145	4.292
(Obs.)	(300)	(160)	(13)	(55)	(72)
Pakistan	2.050	1.191	3.667	2.167	2.514
(Obs.)	(320)	(110)	(21)	(78)	(111)
p-Value	0.116	0.001	0.568	0.031	0.009

Table 3: Average Tokens Spent on Government Punishment for the Punishment Treatment

The next two tables (4 and 5) analyze the differences in punishment allocations towards the firms and government officials in the US and Pakistan respectively. This sheds some light as to why differences in allocations are observed. We note that the primary difference observed in the US between firm and government official punishment allocations is driven by the no bribe outcome, and most importantly, by the bribe rejected outcome. In general, subjects are equalizing punishment levels, but are rewarding government officials for rejecting bribes. In Pakistan, however, subjects maintain equalizing levels of punishment for all outcomes except in cases of bribe successes. When a bribe succeeds, Pakistani subjects are sanctioning government officials at lower rates than they are with firms. Again, this drop in sanctions provides government officials with a lowered incentive to discontinue corrupt behavior. Furthermore,

there is no real reward mechanism implemented for a bribe rejection, which thus yields a higher probability to accept a bribe, once a bribe has been initiated by a firm. Thus, given that a bribe is initiated by a firm, US subjects provide larger incentives for government officials to reject bribes. Given that a firm does not initiate a bribe, both US and Pakistani subjects lower sanction levels on government officials (though at a lower rate in Pakistan) as disincentives toward bribe solicitation.

	Average Tokens Spent on Firm Vs. Government Punishment - US				
	Overall	No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
Firm	1.917	0.575	4.154	2.873	3.764
Government	1.633	0.369	4.538	1.145	4.292
(Obs.)	(300)	(160)	(13)	(55)	(72)
p-Value	0.295	0.247	0.833	0.010	0.543

Table 4: Average Tokens Spent on Firm Vs. Government Punishment in US

	Average Tokens Spent on Firm Vs. Government Punishment - Pakistan				
	Overall	No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
Firm	2.563	1.355	3.952	2.513	3.532
Government	2.050	1.191	3.667	2.167	2.514
(Obs.)	(320)	(110)	(21)	(78)	(111)
p-Value	0.038	0.552	0.807	0.539	0.035

Table 5: Average Tokens Spent on Firm Vs. Government Punishment in Pakistan

Thus we note that hypotheses 1 and 2 are supported by the data. Citizens punish the firms at a higher level in Pakistan (as compared to officials). Furthermore, citizens punish government officials at a lower rate in Pakistan as well, due to stronger corruption norms. Hypothesis 2 is also supported by the data given the overall higher level of sanctions observed in Pakistan when bribery is not present.

Next, we look at the citizen's decision to punish in the two punishment treatments (table 6 below). The model is specified using a dummy variable for whether a bribe was offered in the current round (Bribe), whether a favor was given in the current round but not a bribe (Favor), an

interaction term with the above two dummies (indicating whether the both a bribe and a favor were given in the current round), and the period variable (ranging from 1 to 20 for the round itself) to capture period effects. We utilize random effects models for this analysis. In the Punishment treatments, U.S. subjects increased spending on punishment if the firm offered a bribe in isolation, and if a favor was given in isolation¹⁴, but the tokens do not increase with a successful bribery transaction (as compared to a favor given in isolation). Furthermore, there are no period effects, indicating that subjects maintain levels of punishment throughout the game. In Pakistan, however, the situation is different: firm punishment marginally increases with a bribe in isolation (because the citizen is not adversely affected if a bribe is rejected), but a strong significant positive effect is realized when official's offer a favor. Furthermore, Pakistani subjects are reducing their levels of firm punishment over time due to the resistance to punishment by the firms. This further indicates that since citizens are not adversely affected by bribes alone, their punishment does not dampen a firm's incentive to offer a bribe.

	(1) USA-P	(2) Pakistan-P
Dep Var. Firm Punishment		
Bribe	2.222*** (0.000)	0.898 (0.093)
Favor	3.414*** (0.001)	2.775** (0.001)
Bribe Success	-2.138 (0.076)	-1.276 (0.200)
Period	-0.0255 (0.469)	-0.108** (0.001)
Constant	0.790 (0.168)	2.469*** (0.000)
Observations	300	320
r2_w	0.155	0.127
r2_b	0.143	0.0100
r2_o	0.147	0.0879

p-values in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 6: Random Effects Models for Citizens Firm-Punishment Decisions

¹⁴ We can rationalize this result as a preemptive warning to firms to not initiate a bribe in the next round.

For the citizen's decision to punish the government official (table 7 below) the model is specified and analyzed using the same variables and regressions as above. Across the two punishment treatments, if a favor is offered in isolation, this significantly increases the level of punishment (although it is noticeably higher in the U.S. setting). Furthermore, we again note the period effects of declining punishment in the Pakistan Punishment treatment indicating that Pakistani subjects are reducing their sanctions over time. Finally, in the Pakistan punishment condition, if a bribe is successful, this reduces the tokens allocated in punishing the official.

	(1) USA-P	(2) Pakistan-P
Dep Var. Government Punishment		
Bribe	0.853 (0.063)	0.604 (0.160)
Favor	3.847*** (0.000)	2.233** (0.001)
Bribe Success	-0.266 (0.787)	-2.023* (0.012)
Period	-0.0486 (0.092)	-0.108*** (0.000)
Constant	0.757 (0.094)	2.609*** (0.000)
Observations	300	320
r2_w	0.332	0.0896
r2_b	0.0583	0.0938
r2_o	0.262	0.0839

p-values in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 7: Random Effects Models for Citizens Government-Official Punishment Decisions

The above regressions suggest that the reason Pakistani subjects are unable to constrain corruption as effectively as their U.S. counterparts is the notion of mobilizing resources to constrain corruption only when officials provide a favor. U.S. subjects, on the other hand, punish whenever any instance of bribery occurs. Thus, US subjects provide both sanctions (in cases of adverse outcomes) and rewards (in cases of favorable outcomes) that allow them to constrain corrupt outcomes in a significant fashion. The outcome results are discussed in detail below, but overall, these results provide evidence for raising public awareness regarding the negative effects of corruption in conjunction with the ability to impose and enforce sanctions whenever bribery is

witnessed. Furthermore, the willingness of US subjects to provide greater rewards (in the presence of better outcomes) allows them to provide greater disincentives for engaging in corrupt behavior by both the firms and officials.

As mentioned earlier, Pakistani society is different from the U.S. in terms of its collectivist nature (Hofstede 1984); in addition to norms of trust and corruption. Furthermore, due to lower salaries of government officials in Pakistan, as well as a significantly weaker rule of law and enforcement mechanism, corruption is seen as a necessary evil that is to be tolerated as a method of getting things done. In this fashion, corruption is tolerated as long as it does not cause sufficient noticeable damage to the public. In the U.S., by contrast, government is viewed as an organization, held accountable if damage is occurred, with little thought given to the initiator. This is one of the primary reasons for institutionalizing lobbying, in that state capture activity is legitimized and can be punished for getting out of hand. For this reason, we hypothesized that the official is held accountable at a higher level than the initiator of the bribe. The analysis above shows this to be the case in the US, as the average amount of tokens spent on punishing the firm is around 3.76 tokens and is lower than the average amount spent on punishing the government official is around 4.29 for all successful bribery transactions. In Pakistan, however, the average tokens spent on punishing the firm is around 3.53, while on the government official is lower, at 2.51. This difference is significant ($p\text{-value} = 0.0352$) indicating that government officials enjoy a greater level of sympathy from the Pakistani citizens due to the nature of patron-client relationships. We know that the fair salaries argument is not at play here since the initial endowments for all the roles are equal (and from evidence provided by Abbink et al. 2002), thus we suggest that it is the collectivist and clientelist nature of Pakistani society that causes this difference, i.e. the government official is coerced into taking the action by the firm, hence the

firm is more accountable. Finally, we note that the tokens spent on punishing the firm are slightly lower, but statistically similar in the U.S. and Pakistan ($p\text{-value} = 0.7311$), but average tokens spent on the government official is significantly lower in Pakistan ($p\text{-value} = 0.0046$).

6.2 Corruption Outcomes

This section will discuss the results of our experiment with respect to outcomes. As mentioned, the 2 X 2 factorial design allows us to investigate the effects of setting (low versus high trust and corruption norms) and sanctions on bribery outcomes and overall subject welfare. With respect to overall results, this section will first address the effects of sanctions on the proportions of bribes sent and favors given overall. Next, we address the effect of the treatment on the four distinct outcomes of the game. Third, we investigate the effect of changing the environment on outcomes for each of the two treatments. Fourth, we will address the effects of the treatment on the welfare (i.e. overall payoffs) of the subjects by role. Finally, we will address the determinants of the decision to offer a bribe and a favor.

Overall, the proportion of rounds where a bribe was sent in the US (over all rounds) in the No Punishment treatment was 60%. In the Punishment treatment condition, this proportion was reduced to 42.33%. A two-sample proportions test shows the difference to be significant at the 0.001 level ($p\text{-value} = 0.000$). For favors given, we study the overall effects independent of whether a bribe was offered. The No Punishment treatment proportion is 52%, while the Punishment treatment shows this proportion to be around 28.33%. The proportions test shows a statistically significant difference at the 0.001 level ($p\text{-value} = 0.000$). In Pakistan, however, while the proportion of payments sent in the No Punishment condition remains roughly the same (60%), the Punishment condition shows this proportion to be 59%, with the proportions test

showing the difference to not be significant (p-value = 0.8155). For favors given in Pakistan, the No Punishment treatment yields a proportion of 57.5% while the Punishment treatment gives this proportion to be 41.25%. This difference is statistically significant at the 0.001 level (p-value = 0.0001). Figure 1 shows these overall results.

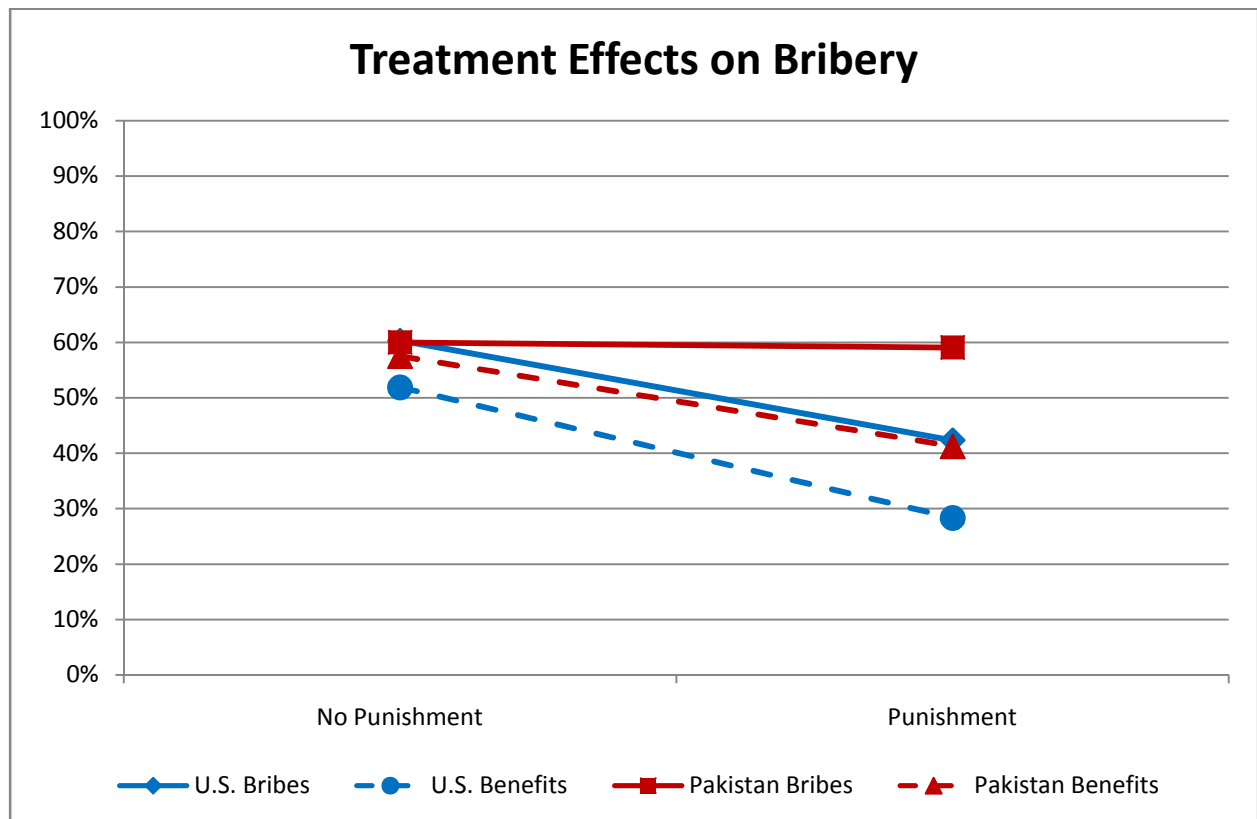


Figure 1: Treatment effects on bribery in the US and Pakistan

First, we find marginal support for hypothesis 4. In the baseline condition, government officials are reciprocating bribes at a higher rate in Pakistan (57.5%) as compared with the US (52%), however this difference is not statistically significant (p-value = 0.1675). However, this may be largely due to the high level of reciprocation / income maximization observed in both societies. Second, with regard to hypothesis 4, we observe a significant decrease in bribe acceptances for both cultures, indicating support for a greater reduction in bribe acceptances in the US.

In terms of bribe initiation, it is virtually identical in the baseline treatment across cultures ($p\text{-value} = 0.9378$). This is similar to the result found by Cameron et al. (2009) in all countries except India in terms of bribe initiation and acceptance. However, these results are not directly comparable since we implement a binary decision on both bribe initiation and bribe acceptance. Nevertheless, the insignificant differences between the two cultures in the baseline condition are useful in comparing treatment effects. First, punishment in the US reduces both the number of payments sent and the number of favors given. Punishment in Pakistan reduces just the number of favors given, but bribes sent are highly resistant to punishment, indicating support for hypothesis 6. Furthermore, while punishment reduces the proportion of favors in Pakistan, this reduction is smaller than the effects of punishment on payments and favors in the US.

Taking the U.S. setting and the No Punishment condition first, we see that the proportion of no bribery outcomes is 31.88% which increases to 53.33% for the Punishment condition. This increase is significant with the proportions test yielding a $p\text{-value}$ of 0.000. In Pakistan, for the No Punishment treatment, the no bribery proportion is 30.71%, while in the Punishment treatment, this proportion increases to 34.38%. However, this increase is not significant, yielding a $p\text{-value}$ of 0.3402.

For successful bribes, in the U.S. the overall proportion for the No Punishment treatment is 44.06% which drops to 24% for the Punishment condition. Again, this difference is significant, yielding a $p\text{-value}$ of 0.000. In Pakistan, the proportion of successful bribes is 48.21% in the No Punishment treatment, which drops to 34.69% in the Punishment treatment. This difference yields a $p\text{-value}$ of 0.0008 indicating a significant decrease in the proportion for the high corruption setting. Table 8 and 9 display these results:

	Treatment effects on game outcomes				
		No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
U.S.	No Punishment	0.319	0.078	0.163	0.441
(Obs.)		(320)	(320)	(320)	(320)
U.S.	Punishment	0.533	0.043	0.183	0.240
(Obs.)		(300)	(300)	(300)	(300)
p-Value		0.000	0.071	0.493	0.000

Table 8: Treatment effects on game outcomes in the US

	Treatment effects on game outcomes				
		No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
Pakistan	No Punishment	0.307	0.093	0.118	0.482
(Obs.)		(280)	(280)	(280)	(280)
Pakistan	Punishment	0.344	0.066	0.244	0.347
(Obs.)		(320)	(320)	(320)	(320)
p-Value		0.340	0.216	0.000	0.001

Table 9: Treatment effects on game outcomes in Pakistan

Again, our hypotheses are supported by the data. Hypothesis 6 indicated that punishment should have a beneficial effect on the no bribing outcome. We find that this is true for the low corruption setting (U.S.) but is only marginally true for the high corruption setting (Pakistan). This is partly explained by that fact that subjects in Pakistan maintain their levels of bribe initiation regardless of punishment. This causes the level of no bribery to be the same, but a substantial increase in bribe rejections is found (increase from 11.79% to 24.38% across treatments) yielding support for hypothesis 6. Finally, hypothesis 5 is supported by our data. The proportion of successful bribes significantly decreased in both settings, though the overall levels are higher in Pakistan.

The reasoning behind similar outcomes in the No Punishment treatment is that the effect of the environment on individual behavior in a “small stakes” setting is the same, i.e. individuals

are concerned with their payoffs, and while fairness and altruism considerations come into play, for the exact same decision situation and in our context, fairness and altruism impact decisions in the same way, with little variation. This variation may differ, but one might speculate that the variation is not enough to cause substantial differences when payoffs are not under threat of reduction.

First, in the No Punishment treatment we find support for some of Cameron's results. We find that the proportion of the no bribery outcome (31.88% in the U.S. versus 30.71% in Pakistan) is not statistically different ($p\text{-value} = 0.7598$) even though it is marginally smaller. Similarly, the successful bribery outcome is also not statistically different (44.06% in the U.S. versus 48.21% in Pakistan) with a $p\text{-value}$ of 0.3087. Again however, the data indicates that this is marginally higher in Pakistan. Even though Cameron et al. have the instance of punishment in their game, it is not the same as ours, i.e. it does not impact decisions ex post. Similarly, the bribe solicitations (7.81% U.S. and 9.29% Pakistan) and bribe rejections (16.25% U.S. and 11.79% Pakistan) outcomes are not significantly different from each other with $p\text{-values}$ of 0.5186 and 0.1177 respectively. With regard to hypothesis 8, we find that the proportion of no bribery outcomes in Pakistan is higher than the U.S. when sanctions are present (53.33% in the U.S. versus 34.38% in Pakistan) and the proportion of successful bribery outcomes are lower in the U.S. than in Pakistan (24% in the U.S. versus 34.69% in Pakistan) which are both statistically significant, yielding $p\text{-values}$ of 0.000 and 0.0035 respectively. Tables 10 and 11 display these results.

	Treatment effects on game outcomes				
		No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
U.S.	No Punishment	0.319	0.078	0.163	0.441
(Obs.)		(320)	(320)	(320)	(320)
Pakistan	No Punishment	0.307	0.093	0.118	0.482
(Obs.)		(280)	(280)	(280)	(280)
p-Value		0.760	0.519	0.118	0.309

Table 10: Setting effects of game outcomes for the No Punishment treatment

	Treatment effects on game outcomes				
		No Bribe / Benefits	Bribe Solicited	Bribe Rejected	Bribe Succeeded
U.S.	Punishment	0.533	0.043	0.183	0.240
(Obs.)		(300)	(300)	(300)	(300)
Pakistan	Punishment	0.344	0.066	0.244	0.347
(Obs.)		(320)	(320)	(320)	(320)
p-Value		0.000	0.223	0.067	0.004

Table 11: Setting effects of game outcomes for the Punishment treatment

Without the threat of sanctions, subjects in both settings have similar preferences for corruption. However, with sanctions, the subjects in the low corrupt setting use punishment more effectively, and with better outcomes. Furthermore, we can extend this argument to suggest that subjects with greater experience with corruption (i.e. Pakistan) are more likely to resist sanctions.

In order to study welfare effects, we look at the average earnings of citizens per round across the two settings and the two treatments. First, discussing U.S. subject earnings, figure 4 shows that sanctions cause the firm and the government to be worse off than in the No Punishment treatment, and that the average citizens' earnings per round increased from 31.84 to 36.53 tokens. This difference is statistically significant with a p-value of 0.0016. In Pakistan, average citizen earnings per round increased from 29.88 to 30.95 tokens. This difference is not significant and yields a p-value of 0.4776. This indicates that due to the resistance of embedded

corruption to sanctions, subjects in the role of citizens were not able to improve their condition even though both the firm and government official's roles' earnings dropped significantly. This indicates the nature of indifference to corrupt activity, i.e. subjects are spending their tokens on punishing the other players, but are unable to effectively increase their own welfare, causing them to reduce their sanctions over time, and effectively making them indifferent to corruption. Hence, we find support for the argument that sanctions alone are unable to effectively reduce overall corruption in highly systemic corruption societies.

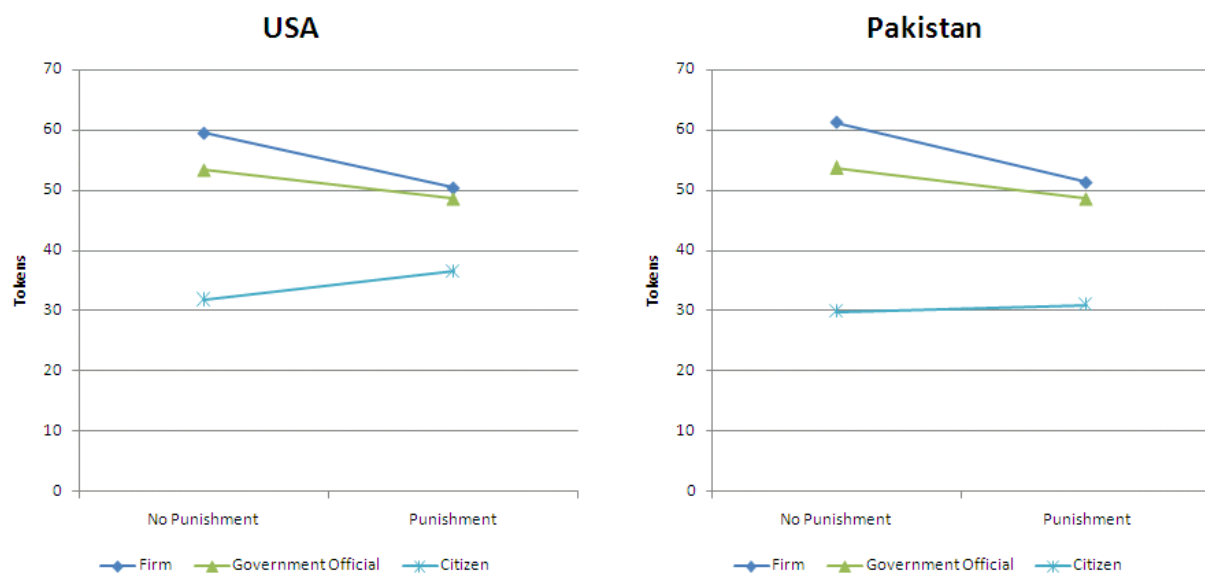


Figure 4: Average earnings per round for the three roles

6.3 Determinants of Bribery

This subsection studies the various determinants of offering a bribe and providing a favor. First turning to the bribe in the four treatments (shown in table 1 below), we note that the model is specified using a dummy variable for whether a bribe was offered in the previous round but not a favor (Bribe in Prev. Rnd), whether a favor was given in the previous round but not a bribe

(Favor in Prev. Rnd), an interaction term with the above two dummies (indicating whether the both a bribe and a favor were given in the previous round), and the period variable (ranging from 1 to 20 for the round itself) to capture period effects. For the punishment treatment, we included the number of tokens spent in punishing the firm (Firm Pun. In Prev. Rnd), and the tokens spent in punishing the government official (Govt Pun. In Prev. Rnd). Random effects logit models were used for estimation. First considering the No Punishment treatment in the U.S., we find that if a bribe was sent in the previous round but not reciprocated, this reduces the probability of offering a bribe in the current round. None of the other variables are significant however, suggesting that the subjects are offering payments in all cases except when a payment is not reciprocated in the previous round. By contrast, the No Punishment treatment in Pakistan shows that if a favor was given in the previous round without a bribe, this reduces the probability of sending a bribe in this round, indicating that subjects are not reciprocating bribe solicitations. However, if a bribe was sent and reciprocated with a favor, then the probability of sending a payment in the current round increases.

For the Punishment treatment in the U.S., the only significant effect is the one for the period variable, indicating that as the game progresses, subjects are reducing the level of bribes. This is true for the Pakistan Punishment treatment as well, except that the probability of sending a bribe is reduced if a payment was not reciprocated in the previous round, and the probability increases if a successful bribery transaction occurred. This suggests that the Pakistani subjects were strongly responding to the official's actions, more so than to punishment.

	(1) USA-NP	(2) Pakistan-NP	(3) USA-P	(4) Pakistan-P
Dep Var: Bribe				
Bribe in Prev. Rnd	-1.071* (0.021)	-1.084 (0.056)	0.663 (0.101)	-1.457*** (0.000)
Favor in Prev. Rnd	0.464 (0.420)	-1.657* (0.019)	1.392 (0.059)	-0.856 (0.115)
Bribe Succ. in Prev. Rnd	0.927 (0.203)	1.775* (0.041)	-0.320 (0.698)	1.848** (0.004)
Period	-0.0310 (0.246)	-0.000368 (0.989)	-0.0693** (0.006)	-0.0550* (0.014)
Firm Pun. In Prev. Rnd			-0.0758 (0.088)	0.00925 (0.807)
Govt Pun. In Prev. Rnd			-0.0248 (0.624)	0.0821 (0.104)
Constant	1.045 (0.176)	1.101 (0.139)	-0.0715 (0.872)	1.389*** (0.001)
lnsig2u				
Constant	1.882*** (0.001)	1.633** (0.002)	0.233 (0.700)	-0.650 (0.281)
Observations	320	280	300	320
BIC	334.0	313.6	374.7	444.8
ll	-149.7	-139.9	-164.5	-199.3

p-values in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 12: Random Effects Logit Models for Bribe Initiators

Turning to the government official's decision to provide a favor (table 2 below), the model is specified using a dummy variable for whether a bribe was offered in the current round (Bribe), whether a favor was given in the previous round but not a bribe (Favor in Prev. Rnd), an interaction term indicating whether the both a bribe and a favor were given in the previous round, and the period variable (ranging from 1 to 20 for the round itself) to capture period effects. For the punishment treatment, we included the number of tokens spent in punishing the firm (Firm Pun. In Prev. Rnd), and the tokens spent in punishing the government official (Govt Pun. In Prev. Rnd). Again, random effects logit models were used for estimation. The first thing to note is that providing a bribe strongly increases the probability of providing favors in all treatments. In the No Punishment U.S. treatment, a successful bribe in the previous round positively influences the probability of issuing favors, though the overall probability decreases with time. For Pakistani subjects in the same treatment, however, the only significant

determinant of offering a favor was whether a bribe was offered. Thus, in Pakistan, subjects in the official's role are simply reciprocating to the firm's decision. This is true in the Punishment treatment in Pakistan as well. For the U.S. Punishment treatment, the probability of favors given is reducing over time, however, but in Pakistan there are no observable period effects. Thus, regardless of treatment, the official's decision is strongly determined by the offer of a bribe and round effects, as opposed to Pakistan, where the only determinant is the bribe across both treatments.

	(1) USA-NP	(2) Pakistan-NP	(3) USA-P	(4) Pakistan-P
Dep Var: Favor				
Bribe	2.002*** (0.000)	2.810*** (0.000)	2.867*** (0.000)	2.196*** (0.000)
Favor in Prev. Rnd	-0.979 (0.101)	-1.144 (0.052)	-1.156 (0.249)	-0.0738 (0.910)
Bribe Succ. in Prev. Rnd	1.284* (0.035)	-0.196 (0.756)	0.935 (0.333)	-0.824 (0.204)
period	-0.0676* (0.010)	0.0453 (0.115)	-0.0711* (0.017)	-0.0175 (0.474)
Firm Pun. In Prev. Rnd			-0.00247 (0.961)	0.0193 (0.647)
Govt Pun. In Prev. Rnd			-0.0982 (0.117)	-0.0569 (0.257)
Constant	-0.401 (0.447)	-1.000 (0.080)	-1.718*** (0.000)	-1.277** (0.009)
lnsig2u				
Constant	0.381 (0.519)	0.483 (0.412)	-0.385 (0.560)	0.157 (0.763)
Observations	320	280	300	320
BIC	345.2	296.9	294.1	392.1
ll	-155.3	-131.5	-124.3	-173.0

p-values in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 13: Random Effects Logit Models for Bribe Acceptors

7. Conclusion

We have presented a bribery game that is a combination of the Abbink et al. (2002) and Cameron et al. (2009) games. We presented two treatments with and without punishment in low and high reciprocity \ corruption settings. Using our framework, we add to the body of knowledge in this

topic by analyzing punishment behavior at a deeper level than before, and may begin to nail down the systematic differences that allow corruption to thrive in one culture, but not in another. This will help us define and refine anti-corruption policies that are suited specifically to a nation's own unique environment and culture.

The results of the analysis indicate that our hypotheses are largely confirmed. We have shown that embedded corruption and trust mechanism interact to yield insignificant differences in individual behavior to engage in corrupt acts in the absence of institutional incentives deterring corruption. Furthermore, the results suggest that individual incentives allow the propensity to engage in corrupt behavior to be the same regardless of the embedded corruption environment due to greater degrees of trust and reciprocity prevalent in the US setting. Political relationships and corruption norms, however, cause subjects to be highly resistant to punishment (as well as to punish differentially) choosing to engage in corrupt behavior even under the threat of sanctions. Punishment, however, yields greater results in low corruption settings due to norm reinforcement of low corruption (due primarily to a civic-culture-based system, and greater awareness of laws and regulations as well as a stronger rule of law). Furthermore, citizens in the low corruption setting use sanctions to increase their overall welfare in a better fashion than in the high corruption setting. We also note that accountability in the U.S. for bribery rests primarily on the government official, even in the presence of fair salaries. We note that bribe initiation declines over time in both settings (when sanctions are present), but bribe acceptances (over time) are only reduced in the U.S. Furthermore, punishment of corruption declines over time in Pakistan, indicating that the resistance to punishment causes citizens to eventually reduce sanctions due to overall ineffectiveness. This suggests that while outcomes may be the same at the baseline, greater sanctions are required in highly corrupt areas. Furthermore, sanctions

themselves cannot reverse the trend for corruption. Civic awareness needs to be raised so that individuals can appropriately punish corruption and implement sanctions effectively. Above all, however, citizens must mobilize to reduce corruption even when they are not directly affected. In sum, we present the idea that embedded corruption (in isolation) causes justifications of bribe acceptance on the part of both the official and the community, which leads to the primary source of perpetual decline. Underlying social and political forces need to be given greater consideration. We show that corruption and reciprocity norms are sufficient for individuals to inappropriately divorce government individuals from government institutions. Thus, reciprocity considerations have an effect on both bribing and sanctioning behavior, causing corruption to seemingly become embedded.

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