Abstract

Enforcement problems are frequently acute in illegal transactions, such as bribery. However, if a government official and a member of the public share informal social or economic ties, this may enable them to enforce bribe transactions by “linking the games”. As a result, official’s incentives to engage in corruption may be affected by the social structure of the society in which they are embedded. We show that governments wishing to deter parochial corruption will usually prefer to punish only the official receiving the bribe, and not the bribe-payer.

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Parochial Corruption

1 Introduction

In the corruption literature, a distinction is often made between “market” corruption, in which rents are allocated competitively to whichever firm or citizen pays the highest bribes, and “parochial” corruption, “a situation where only ties of kinship, affection, caste, and so forth determine access to the favors of power-holders” (Scott 1972:88). Economists have extensively studied market corruption\(^2\), but have paid little attention to parochial corruption, although examples of parochial corruption are abundant in the case study literature.

Why do officials give preferential treatment to kinsmen? Straightforward altruism or affection is undoubtedly part of the story, but cannot be a full explanation, at least in cases where bribes are paid; for why would an official care who pays the bribe? Another possibility is that a corruptible official can more easily identify potential bribe-payers, or vice versa, among his family and friends. However, in general, bribe opportunities are likely to be quite clear to the participants, especially given that someone wishing to pay or receive a bribe has a strong incentive to make this fact known.

This paper argues that enforcement problems inherent in bribe transactions can help to explain why parochial corruption occurs. For obvious reasons, the

\(^2\) In the “rent-seeking” literature surveyed by Nitzan (1994), for example, rent-seeker’s allocations are simply a function of their rent-seeking expenditures. This can be interpreted as a model of market corruption.
parties to a bribe transaction cannot rely on formal third-party enforcement. Therefore, unless a simultaneous exchange is possible, enforcement problems arise: an official, having received a bribe, has little incentive to do whatever favor he was bribed to perform - or a bribe-payer, having obtained a favor, may then refuse to pay the agreed-upon bribe. Unless these enforcement problems can be overcome, bribe transactions will not occur.

Sometimes, perhaps, enforcement may be possible through repeated interaction. For example, an official may be able to build and maintain a reputation for doing what he has been bribed to do. However, in many situations the probability of repetition is low, and the need for secrecy may impede such reputation-building. Leaving aside repeated interaction, then, how can a one-shot bribe transaction be enforced?

This paper explores the possibility that bribe contracts may sometimes be enforced by linking the bribe transaction to another game. For example, suppose that an official and a member of the public are members of a community whose members engage in some mutually beneficial informal interaction. This existing relationship may then enable them to make a bribe transaction potentially self-enforcing by strategically linking the games. So, for example, an official who failed to provide a service for which a bribe had been paid might be punished by or expelled from his kinship network.

We derive two main results. First, we reveal a fundamental asymmetry between punishment of the official and punishment of a bribe-payer. The government can reduce the potential gains to the bribe-transacting parties by increasing the expected punishment of either party. However, increasing the official’s punishment has an important additional benefit: it makes it harder for the parties to enforce the bribe transaction. The same is not true for punishment of the bribe-payer. This surprising result is not sensitive to the setup of the game, but arises from an unavoidable asymmetry inherent to the bribe transaction.
Second, we provide one answer to the puzzle of why corruption often leads to inefficient outcomes (it is often argued, for example, that the most efficient firms will be willing to pay the highest bribes to obtain a government contract). In our model, the inefficiency does not result from bribery per se (which is simply a transfer payment), but from unequal access to the bribe-paying market. Officials can enforce bribe transactions with those in their kinship groups, but not with strangers. Therefore, some potential bribe-payers have an “inside track”, and an official may choose an inefficient contractor because he is unable to enforce a bribe transaction with a more efficient contractor.

This paper lies at the intersection of two large and diverse literatures: that on corruption (see Jain 2001 for a survey), and that on “social capital” (surveyed by Durlauf and Fafchamps 2004).

Empirical studies have shown that social capital and related variables such as “trust” (Knack and Keefer 1997) and ethnic heterogeneity (Easterly and Levine 1997) are correlated with measures of corruption. However, the connections remain unclear. In particular, the role of social capital is ambiguous. Tanzi (1994) and others have claimed that social capital increases corruption, while Putnam (1993) and others have argued the opposite.

Much of this ambiguity results from the lack of a generally accepted definition of social capital. In this paper, we use the term “social structure” rather than “social capital” to highlight the fact that in our model, different kinds of social capital may have different effects. Greif (1994) demonstrated the effect of differences in social structure on economic performance, distinguishing between an “integrated” social structure, in which individuals have a large number of weak informal connections within fluid, overlapping groups, and a “collectivist” social structure in which people tend to have a smaller number of strong informal connections concentrated within close-knit groups. In this paper, we show that in a collectivist society, parochial corruption will be
harder for the government to prevent, and that when it occurs, the resulting inefficiency will be greater. In line with Tanzi’s view, therefore, the analysis in this paper suggests that strong social connections can help people to conspire to engage in corruption. However, also in keeping with Putnam’s view, we show that parochial corruption will generally be less damaging, and easier to prevent, in an integrated or “civic” society.

The idea that there are different forms of social capital which may have different effects is found in several recent papers including Narayan (1999) and Kumar and Matsusaka (2004). In more recent work Putnam (2000) usefully distinguishes between “bonding” social capital (strong ties within groups) and “bridging” social capital linking individuals from different groups.

This paper contributes to a recent strand of literature which investigates the connections between informal networks and corruption. Lambert-Mogiliansky (2002) model shows how business networks may facilitate corruption. In that paper, the official is not himself a member of the network. Rather, the network members enforce bribe payments promised to the official because the official may otherwise retaliate against the whole network. Kingston (2004), however, provides a model in which business networks, and informal networks more generally, can reduce corruption. The idea is that corruption often poses a collective action problem in which the citizens or firms dealing with a corrupt government official each have an incentive to pay bribes to try to get preferential treatment, but would all benefit from an agreement not to pay bribes. A network among the potential bribe-payers can be used to enforce non-bribing agreements (or implicit anti-bribery norms) to the benefit of all members. Unlike in the present paper, however, the official is not a member of the network, and there is no enforcement problem in bribe transactions (so, in effect, that paper investigates the effect of social structure on “market” rather than “parochial” corruption).
The theoretical literature on corruption has largely focussed on the principal-agent problem between the government and an official rather than on the interaction between an official and a bribe-payer. However, many authors have informally discussed parochial corruption, and several including Rose-Ackerman (1999:97), Lambsdorff (2002:233) and della Porta and Vannucci (2005) have argued that personal ties may be used to enforce bribe transactions. Lambsdorff and Teksoz (2005) provide several case studies of situations in which corruption transactions were enforced by linking them to existing relationships. This paper aims to formally model this effect.

This paper is organized as follows. Section 2 presents a model which shows how parochial corruption can occur as a consequence of enforcement problems in bribe transactions. Section 3 explores the implications for optimal anti-corruption policies, in particular the asymmetry between punishment of the bribe-payer and -payee. Section 4 considers how differences in social structure might affect the incidence of parochial corruption in different societies, and the efficiency consequences. Section 5 concludes.

2 Model

This model uses the idea of strategic linkage (Bernheim and Whinston 1990): when the same individuals encounter each other in several different games, they can make their actions in one game contingent on their opponents’ actions in another game, thereby pooling the incentive constraints across games. In this section, we first describe a bribery game. Then we describe a social exchange game. Finally we consider the linked games.

Consider a bribe transaction between a government official and a contractor. Both players are risk-neutral. The official can award a contract which confers a rent $R$ on the contractor. If a bribe transaction is successfully completed, this
is discovered with probability $p$, in which case, the official and contractor suffer penalties of $f_o$ and $f_c$, respectively, which might be interpreted as reflecting the cost of embarrassment, fines, imprisonment, loss of future earnings, etc., which result.\footnote{We need not assume the presence of an honest “monitor”: the “punishment” can be interpreted as a bribe paid to keep the monitor quiet.} Let $\hat{f}_o = pE(f_o)$ and $\hat{f}_c = pE(f_c)$ denote the expected penalties suffered by the official and contractor respectively. Initially, we will treat $\hat{f}_o$ and $\hat{f}_c$ as exogenous (later, we will introduce the government as a strategic player which can affect these variables).

If there is no enforcement problem between the official and contractor, then the only impediment to completion of the bribe transaction is for the official and contractor to be able to agree on a bribe amount. The official will be unwilling to accept a bribe which is less than his expected punishment, $\hat{f}_o$. The maximum a contractor is willing to pay is $R - \hat{f}_c$.

**Remark 1.** *In order to satisfy both parties participation constraints, any bribe paid, $b$, must be in the range*

$$\hat{f}_o \leq b \leq R - \hat{f}_c$$

However, in many situations, either or both parties to a bribe transaction will have an opportunity to cheat, for example because a simultaneous exchange is not possible. We can model the “bribery game” which occurs in this case as shown in Figure 1. First, someone (without loss of generality we will assume it is the official) specifies the amount of the bribe to be paid, and the order of play (whether the bribe is to be paid before or after the contract is awarded). An enforcement problem inevitably arises, because whichever player moves last in the bribery game has an incentive to defect: if the contract has already been awarded, the contractor has no incentive to pay a bribe; conversely, if the contractor has already paid a bribe, the official can avoid the possibility of punishment by awarding the contract to a contractor who has not paid a
chooses bribe amount, \( b \)

chooses order of play

\[ \text{Award} \rightarrow (b - \hat{f}_o, R - \hat{f}_c - b) \]

\[ \text{Renego} \rightarrow (b, -b) \]

\[ \text{Renego} \rightarrow (0, 0) \]

\[ \text{Renego} \rightarrow (0, R) \]

\[ \text{Renego} \rightarrow (0, 0) \]

Payoffs to (Official, Contractor)

Fig. 1. One-shot bribery game

bribe. Therefore, there is no way the official can build the game to enable an equilibrium in which he receives a bribe.

Remark 2. In a one-shot bribery game, no bribes are paid in equilibrium.

Although a one-shot bribe transaction cannot be enforced, if the game is repeated, players may have an incentive to build reputations for honoring their commitments. In this case, by the Folk Theorem, bribe transactions can be enforced if the players are sufficiently patient. Although this is undoubtedly an important means of enforcement in many settings, it is not our focus in this paper (see Pechlivanos (2005) for a model in which bribe transactions are enforced through repeated interaction). To highlight the role of strategic linkage, therefore, we will focus on the case in which both parties to a bribe transaction expect that the bribe transaction is a one-shot occurrence. In the Appendix 4, it is shown that even in the case of a repeated bribe transaction, strategic linkage always relaxes the incentive constraints, so qualitatively, all of the following argument goes through.

\[ \text{Available online at www.amherst.edu/~cgkingston/appendix.pdf} \]
We next describe the social exchange game. All players are members of social groups within which they interact as follows. Each period, each player simultaneously chooses one of two possible actions which affect the welfare of the other group members, cooperate $(c)$ or defect $(d)$. A player’s payoffs are $n^c x - y$ if she chooses $c$, and $n^d x$ if she chooses $d$, where $n^c$ is the fraction of the other group members who chose $c$ in that period, $x$ represents the value of the aggregate benefit that a cooperator confers on the other group members, and $y$ is the individual cost of cooperation (net of any benefits the individual receives from her own cooperation). Assume that $x > y > 0$; that is, cooperation is efficient but there is a short-run incentive to defect. All group members observe the choices made by all others within their social group. For simplicity, we assume that the benefits to group membership are not excludable, and individuals cannot be expelled from their group.

The social exchange game may be taken to represent a variety of repeated interactions within groups, in which individuals have a short-run incentive to defect, but benefit from group membership if all group members cooperate. For example, villages and kinship groups in developing countries frequently constitute “solidarity networks” whose members provide each other with mutual “insurance” through the voluntary exchange of flexible loans, gifts and favors which, when reciprocated, increase each member’s welfare.\footnote{See, eg., Fafchamps (1992) and Coate and Ravaillon (1993).} Enforcement of cooperation within the group is informal: if the players adopt a “norm” of punishing defections, each player can have an incentive to cooperate.

**Lemma 1.** A subgame-perfect equilibrium in which all agents choose $c$ in each period can be sustained in the social exchange game if and only if

$$S(\delta) := \frac{\delta x - y}{1 - \delta} \geq 0$$

where $\delta$ is the discount rate and $S(\delta)$ is the “slack” from the social exchange game.
Proof. Consider a grim trigger strategy according to which all cooperation within the group ceases following any defection. If all group members adopt this strategy, a defector will gain \( y \) in the current period, and will suffer a net loss of \( x - y \) in each future period. Therefore, cooperation is sustainable if 
\[
\frac{\delta}{1-\delta}(x - y) \geq y
\]
which yields (1). Conversely if (1) does not hold, no strategy can sustain cooperation in equilibrium.

The grim trigger strategy considered in the proof is extreme; all cooperation permanently breaks down after any defection. To add realism we might wish to consider more “forgiving” punishments in which (assuming it is possible) only a defector is excluded from a group, while the remaining (cooperating) members continue to cooperate, or in which cooperation resumes after a finite punishment phase. Our concern here, however, is not with how the social exchange game itself is played, but with how the slack from this game affects the bribery game. Considering more complex punishment regimes would introduce some additional complexity, so for the sake of simplicity, we restrict our attention to the grim trigger strategy. See, for example, Kandori (1992) for a model of forgiving punishments in a community enforcement context.

We now consider what happens when the two games are strategically linked. Suppose that an official and a contractor, who are members of the same social group, have an opportunity to engage in a mutually beneficial one-shot bribe transaction. It is natural to suppose that, being aware of the enforcement problem inherent in bribery, they might “stake their reputations” in the social exchange game on their behavior in the bribery game. So, for example, an official who failed to honor a promise to award a contract to a member of his social group who had paid him a bribe might cause a breakdown of cooperation in the social exchange game within his social group (or more realistically, lose status, or be ostracized from his social group). Suppose therefore that the two games are played simultaneously, according to the timeline depicted in Figure
2. Proposition 1. A one-shot bribe transaction between an official and a contractor who is a member of his social group can be enforced through strategic linkage with the social exchange game if and only if both of the following two conditions hold

\[
\hat{f}_o \leq S(\delta) \\
\hat{f}_o + \hat{f}_c \leq R
\]  

(2)  

(3)

Proof. First suppose (3) does not hold. Then, by Remark 1, there is no bribe amount which can satisfy both parties participation constraints. If (3) does hold, suppose the official and contractor, and the members of their social group, adopt a strategy according to which defection in either game leads to a permanent breakdown of cooperation in both. With this enforcement regime, if a player intends to defect in the bribe transaction game, it is better to simultaneously defect in the social exchange game also. If the bribe is paid before the contract is awarded, the official can gain \( \hat{f}_o \) by defecting in the bribe transaction, and \( y \) by defecting in the social exchange game, so the condition for bribery to be sustainable is

\[
y + \hat{f}_o \leq \frac{\delta}{1 - \delta}(x - y)
\]
which becomes (2). If instead the bribe is paid after the contract is awarded, the contractor can gain \(b + \hat{f}_c\) by defecting in the bribe transaction, and \(y\) by defecting in the social exchange game. The condition to sustain cooperation is therefore

\[ y + b + \hat{f}_c \leq \frac{\delta}{1 - \delta} (x - y) \]

or

\[ b + \hat{f}_c \leq S(\delta) \]

Since \(b \geq \hat{f}_o\) (by Remark 1), this is a stronger condition than (2). Therefore, a bribe transaction can always be enforced if (2) holds by having the official move second. If (2) does not hold, however, a bribe transaction cannot be enforced no matter how the transaction is arranged.

It is important to note that condition (2) does not depend on which player moves first in the bribery transaction: no matter how the transaction is organized, it is the official’s expected punishment which defines the minimum amount of slack from the social exchange game which is required in order for a bribe transaction to be enforceable. Thus, because of the enforcement problem, there is a fundamental asymmetry between punishment of the official and the contractor. Both kinds of punishment can reduce the expected gains to the parties from entering into a bribe transaction, but punishing the official also presents the parties with an unavoidable enforcement problem: if the official moves last, he can avoid punishment by defecting; if instead the contractor moves last, he stands to gain (at least) the bribe amount; but to satisfy the official’s participation constraint, this bribe amount in turn must be larger than the official’s expected punishment.\(^6\) We expand further on this finding in section 3, where we show that because of this asymmetry, in many cases the government should choose not to punish bribe-payers at all.

\(^6\) To see this another way, consider what happens as \(\hat{f}_o \to 0\): the official can move last and the enforcement problem disappears. But as \(\hat{f}_c \to 0\), the same is not true; whichever party moves last can still save an amount equal to at least \(\hat{f}_o\) by defecting.
2.1 Discussion

One implication of Proposition 1 is that for a given value of \( \hat{f}_o \), bribe transactions will only be enforceable between individuals who share sufficiently strong informal ties \( |S(\delta) \geq \hat{f}_o| \), such as close family members. Favoritism towards family members is abundantly noted in the case study literature. According to Bardhan (1997:1330),

It is widely recognized that in developing countries . . . allegiance to kinship-based or clan-based loyalties often takes precedence over public duties even for salaried public officials. Under such circumstances use of public resources to cater to particularistic loyalties becomes quite common and routinely expected.

But how realistic is it to suppose that an official’s informal connections with potential bribe-payers are used to enforce bribes? Ultimately, this depends on the context. However, even an official with weak informal connections may find obligations to accept bribes and perform favors for kinsmen difficult to escape. In particular, if an individual’s relatives and family are considered punishable for his defection, they may in turn exert pressure on him to accept bribes and perform favors. Thus, ultimately, social pressure can be exerted through the whole web of relationships in which an individual is embedded. For example, Tanzi (1994:4) argued that “it is social intimacy that creates the environment that promotes corruption”, so that in an Indian village,

“Relatives and friends would simply expect preferential treatment . . . The [government employee] who refused to provide this help would be seen as breaking the prevailing moral code and would be ostracized.”

The implication is that it is not just the individual seeking a favor who will ostracize an official who refuses the favor, but his entire social group. A Ghanaian official also identified a fear of social punishment as a motivation for favoring
kinsmen, while specifying that even between kinsmen, bribes would still have to be paid:

I could always, or almost always, get my friends’ tenders considered first . . . Any smart man who has friends or family in the right place can get what he wants - if you do not forget to [bribe] proper . . .

And if I am posted to K____, I help my family and countrymen7 first, because they know me and would be angry if I did not. (LeVine 1989:365-7)

Similar examples are widespread in the case-study literature, but more systematic evidence also exists. Tonoyan (2005) finds in a cross-country regression what she calls the “dark side of trust”: controlling for other forms of trust, countries in which people have high trust in their friends are more likely to be corrupt. This finding appears to conflict with other cross-country studies which find that high levels of trust and social capital help to reduce corruption. We will expand on this apparent contradiction further in section 4.

3 Anti-Corruption Strategies

The parties to a bribe transaction take the punishment parameters, \( \hat{f}_o \) and \( \hat{f}_c \), as exogenous. In this section, we introduce the Government as a strategic player which may attempt to structure the game to reduce the level of corruption. This is in line with the strand of theoretical literature on corruption which focuses on the principal-agent relationship between the Government and an official. What is distinctive here is that we are primarily interested in how the Government’s optimal strategy may depend on the relationship between the official and a member of the public.

If punishment and detection of bribery is costless to the government, deterring

\footnote{Referring to people of the same ethnicity, or from the same village or area.}
corruption is trivial; the government simply sets \( \hat{f}_o \) and \( \hat{f}_c \) sufficiently high that \( \hat{f}_o + \hat{f}_c > R \). However, in general it will be costly for the government to monitor and/or punish those who engage in bribe transactions. These costs may arise from monitoring costs, exacerbated by the secrecy of the transactions; the legal difficulties of proving a case and obtaining a conviction; political constraints; solidarity among government officials, which can hinder investigations; and so on. We can therefore postulate a function \( c(\hat{f}_o, \hat{f}_c) \) which represents the cost to the government of achieving an expected level of punishment of \( \hat{f}_o \) and \( \hat{f}_c \) for the official and the contractor respectively. Assume that \( c(\cdot, \cdot) \) is continuous and strictly increasing in both its arguments.\(^8\)

By Proposition 1, to prevent bribery from occurring, there are two distinct kinds of anti-corruption policies which the government can pursue. First, it can try to set \( \hat{f}_o \) and \( \hat{f}_c \) such that \( \hat{f}_o + \hat{f}_c > R \), thus ensuring that bribery is never worthwhile. Alternatively, it can ensure that \( \hat{f}_o > S(\delta) \), thus ensuring that bribe transactions cannot be enforced (Proposition 1). If \( S(\delta) > R \), the second of these options is redundant: the enforcement problem disappears. If \( S(\delta) < R \), however, we can represent the government’s options as shown in Figure 3.

In order to deter parochial corruption, the government must choose a combination of \( \hat{f}_o \) and \( \hat{f}_c \) which lies in the shaded area. The government’s optimal strategy then depends on the shape of the function \( c(\hat{f}_o, \hat{f}_c) \), and in particular

\(^8\) We can assume little about the shape of \( c(\cdot, \cdot) \) in general. For example, it may be easier to punish an official than a bribe-payer, because the government has available additional punishments including dismissal, demotion, etc. However, if solidarity among government officials makes it harder to obtain evidence against officials, it may be easier to focus on punishing bribe-payers. It may be more difficult to punish both parties simultaneously for the same crime if, for example, one party is needed to testify against the other; or it may be politically difficult to punish one but let the other off the hook.
on the shape of its iso-cost curves. To illustrate, Figure 3 depicts three possible iso-cost curves. In cases (i) and (ii), the least-cost way of deterring parochial corruption is to ignore punishment of the contractor, and set $\hat{f}_o > S(\delta)$ (making a bribe transaction impossible to enforce). In case (iii), a combination of punishment for both official and contractor is the least cost way of preventing corruption (making a bribe transaction no longer worthwhile, even if it can be enforced).

**Proposition 2.** If

$$c(S(\delta), 0) \leq c(X, R - X) \quad \forall X \in [0, S(\delta)]$$  \quad (4)

then the least-cost way to eliminate corruption is to choose $\hat{f}_o = S(\delta)$ and $\hat{f}_c = 0$.

*Proof.* If (4) holds, it is less costly for the government to eliminate corruption by ensuring that bribe transactions are unenforceable ($\hat{f}_o > S(\delta)$) than by making the punishments outweigh the expected gains ($\hat{f}_o + \hat{f}_c > R$).  \hfill $\square$
Under what circumstances will (4) hold? For very valuable contracts (large values of $R$), legal obstacles or credit constraints may make it impossible, or at least very costly, to make punishments so severe that bribery is no longer worthwhile, and therefore the alternative option, making the bribe transaction unenforceable, becomes relatively more attractive. Likewise, (4) is likely to hold in situations where $S(\delta)$ is relatively low.

Proposition 2 and Figure 3 highlight the fundamental asymmetry between punishment of the official and the bribe-payer that we identified in the previous section, and suggest that in many cases, the government should punish only the official, particularly if $S(\delta)$ is small relative to $R$.

In some countries, bribe payers and payees are indeed treated asymmetrically, according to Rose-Ackerman (1999: 53-5), but there is no general pattern. Some countries, such as Taiwan, penalize only bribe-payees; others, such as Chile, penalize only bribe-payers; in the US, treatment of the two groups is symmetric. Rose-Ackerman (p.54) advocates that “actors should face expected penalties tied to their own benefits from corruption”, the idea being to choose a punishment large enough to make corruption no longer worthwhile; in effect, she advocates raising the expected punishments so that (3) no longer holds. The policy prescription proposed here, which focuses on making corrupt transactions more difficult to enforce, provides an alternative possible means of controlling corruption, although it should be noted that our result is specific to the case of parochial corruption. An additional benefit of only punishing one party is pointed out by Lambsdorff (2002:235): it enables the non-punished party to credibly extort the punished party ex post by threatening to expose the transaction, thus further undermining the parties ability to enforce the bribe ex ante. Better still, policymakers can grant immunity or rewards to whistleblowers to actively exacerbate the enforcement problem. This can easily be incorporated into our model; ultimately whistleblowing is simply another form of cheating in the bribe transaction, and just as com-
munities can enforce norms against failure to keep promises, they can enforce norms against whistleblowing.

4 The Effect of Social Structure

There is abundant evidence that the quality of government can be affected by differences in social structure, ranging from widespread anecdotal evidence to more systematic studies such as Putnam’s (1993) study of “civicness” in Italian regions, and cross-country studies which have found that variables like ethno-linguistic diversity and “social capital” are correlated with corruption indices. For example, Keefer and Knack (1997) find that “trust” reduces the level of corruption, but note that group membership has an ambiguous relationship with trust. In this section, we consider how social structure might affect the level of parochial corruption in a suitably modified version of our model.

Social structure in the developing world is often characterized as “segmented” or “collectivist” when compared with the more “integrated” and “individualist” social structure of the developed West (Greif 1994). A collectivist society can be viewed as one in which individuals carry out informal social and economic interactions mainly within distinct “social groups”, and as a result, interpersonal relationships within the groups are often long-lived and multifaceted. In contrast, in an integrated society, individuals interact with many others, but particular pairs of individuals interact relatively infrequently. Interactions are frequently short-lived and single-stranded, and group membership is more fluid than in a collectivist society.

Consider a population of $P$ agents organized into $\frac{P}{N}$ “social groups” of size $N$. One agent is designated as a government official and the others are potential contractors. There is also an additional player called the Government, which is not a member of any group. During a particular period, the official must
award a government contract to some agent other than himself. As before, to focus on the role of strategic linkage, we will assume for simplicity that this is a one-time occurrence.

As before, in each period, players play a social exchange game within their groups. Each player simultaneously chooses either to cooperate (c) or defect (d). A player’s payoffs are \( n^c x - y \) if she chooses c, and \( n^c x \) if she chooses d, where \( n^c \) is the fraction of the other group members who chose c in that period. Within each social group, all players observe each others’ actions. We continue to assume that \( x > y > 0 \), and denote the slack from the social exchange games as \( S(\delta) = \frac{\delta x - y}{1 - \delta} \) as before.

Social structure is therefore reflected in \( S(\delta) \) (the strength of within-group ties), \( \frac{P}{N} \) (the number of groups in the population), and \( N \) (the size of the groups). For a given population size \( P \), the discussion above suggests that a “collectivist” society would tend to be characterized by small groups (small \( N \)) with frequent interactions and a high level of within-group cohesion (large \( S(\delta) \)).

Contractors have types \( t \) drawn independently from an arbitrary random distribution \( \Phi(t) \). A contractor’s type reflects her ability to perform the contract. The government’s payoff is \( t - c(\hat{f}_o, \hat{f}_c) \), where \( t \) is the type of the contractor to whom the contract is awarded (thus, the government prefers the contract to be awarded to high-type contractors). Formal rules (government policy) specify that the official should award the contract to the highest-type contractor from the population as a whole. Each player knows her own type, and the official observes all contractor’s types. The rent received by an contractor who is awarded the contract is \( R \).

\[9\] For simplicity, we will ignore integer problems by treating \( P/N \) as an integer for all values of \( N \).
We assume that the government cannot make punishment of the official or contractor directly contingent on the chosen contractor’s type, either because the type is nonverifiable, or because the government does not learn the contractor’s type until much later. For example, substandard construction may be difficult to detect, or may only become apparent years after the fact, when a building collapses or an irrigation canal falls apart; so that the government may not even observe (though it will attempt to maximize) its own true payoff. However, the government can monitor the official’s behavior in order to detect and punish bribe transactions.

The official’s primary concern is to maximize his bribe income, but we assume that if the official is indifferent between awarding the contract to one of several contractors, he chooses the contractor with the highest type.

The maximum value of the type among the contractors within a group of size $G$ is a random variable, the distribution of which depends on the distribution of types, $\Phi(t)$, and on $G$. Let us denote the expectation of this random variable by the function $E(\bar{t}_\Phi(G))$. For any distribution $\Phi(t)$, it is always true that $\frac{\partial}{\partial G} (E(\bar{t}_\Phi(G))) > 0$: that is, in larger groups the expected value of the highest type contractor is higher.

**Proposition 3.** Assume that (2), (3) and (4) hold. For a given population size $P$, the cost to the government of deterring corruption is increasing in $S(\delta)$ and the benefits are decreasing in $N$.

*Proof.* By Proposition 2, the government’s least-cost means of deterring corruption is to set $\hat{f}_o = S(\delta)$ and $\hat{f}_c = 0$. Since $c(\hat{f}_o, \hat{f}_c)$ is increasing in its arguments, this means that the minimum cost of deterring corruption is increasing in $S(\delta)$. If bribery occurs, the contract is awarded to the highest-type contractor with whom the official can enforce a bribe transaction (a member of the official’s social group; a straightforward bidding process among the contractors in the official’s social group will lead to this result). The govern-
ment’s expected payoff is therefore \( E(\bar{t}_\Phi(N - 1)) \), which is increasing in \( N \). If no bribery occurs, the official awards the contract to the highest-type contractor from the population as a whole. The government’s expected payoff is then \( E(\bar{t}_\Phi(P)) \). The net expected benefit to the government from an anti-corruption program is therefore

\[
E(\bar{t}_\Phi(P)) - E(\bar{t}_\Phi(N - 1)) - c(S(\delta), 0)
\]

Proposition 3 shows that the costs of parochial corruption to the government will generally be higher in a more collectivist society characterized by frequent interactions within tight-knit groups. There are two related reasons. First, in a collectivist society the strong within-group cohesion (high \( S(\delta) \)) will make it harder for the government to make the official’s expected punishment sufficient to overcome his loyalty to kinsmen. Second, the inefficiency in this model does not arise from bribery itself, but because a contractor with an “inside track” (one with whom the official can enforce a bribe transaction) may be awarded the contract even though there are higher-type contractors in the population at large. In a more integrated society, an official’s more extensive network of social contacts (high \( N \)) makes it more likely that one of them will be relatively competent to fulfill the contract satisfactorily.

Proposition 3 sheds light on an apparent contradiction between our theory and a prominent strand of the existing literature on the interaction between government and society. In his study of civic traditions in Italy, Putnam (1993) found that the northern regions, which were characterized by dense informal contacts among citizens and high levels of trust, had more effective government than the southern regions, which were characterized by generalized mistrust and corruption. He concludes that dense informal ties, which he termed “social capital” were the key to “making democracy work” and that “the denser (the) networks in a community, the more likely that its citizens will be able to
cooperate for mutual benefit” (1993:173).

In contrast, our analysis in this paper suggests that the quality of government will be higher when individuals in a society cannot cooperate since they cannot conspire to engage in corruption. This may seem a contradictory and pessimistic view of social capital. However, we can resolve the apparent conflict by considering the role of social structure: not just the amount of informal interaction, but who interacts with whom. We have shown how strong social ties can be used to enforce bribe transactions, but in keeping with Putnam’s view, our argument also suggests that in an integrated society, in which overlapping networks of informal interaction link many individuals, corruption will be easier to control, and that even if it occurs, the resulting inefficiency will be less.

As noted in the Introduction, more recent work on social capital including Putnam (2000) distinguishes between different types of social capital. In terms of our model, $S(\delta)$ (the strength of within-group ties) and $N$ (the number of individuals to which any given individual is informally connected) might both be regarded as aspects of social capital, but Proposition 3 shows that they may have very different effects. This has important policy implications. For example, the “social capital” created by ethnic associations, such as caste associations in India, may increase $S(\delta)$ but not necessarily $N$, and so might have entirely different effects from that created by the cross-community, issue-oriented organizations of a “civic” society, which would tend to increase $N$ but not necessarily $S(\delta)$. 
5 Conclusion

This paper has explored parochial corruption - favoritism shown by government officials to friends and family members. We have argued that informal ties may enable an official and a member of the public to enforce bribe transactions by “linking the games”. To conclude, we consider some possible extensions.

We have treated the identity of the official as exogenous. However, in societies which experience parochial corruption, the background of those in power becomes a sensitive issue. In India, for example, caste and religious groups frequently lobby to obtain “reservations” (quotas) of government jobs for their members. One reason for this is that these secure, well-paid jobs are in themselves valuable prizes and confer status on all group members. However, an additional important reason for people to care about the identity of government officials is an increased ability to engage in parochial corruption with those to whom they have an existing informal relationship.

We have also treated social structure as exogenous, which seems appropriate in a short-run analysis. Presumably, differences in social structure may stem from differences in technology and other parameters which affect the stability of groups, the transmission of “gossip” within them, and the outside options of their members. In the long run, however, social structure itself may change. One common assumption is that as economies develop, social structure should become more integrated and individualistic. However, in fact, scholars have noted that in the context of parochial corruption and patronage-based politics, people often have increased incentives to reinforce existing ethnic identities and social structures in order to gain access to “spoils” (the growth of caste associations in India is an example). Furthermore, because corruption raises the costs and uncertainty of impersonal exchange, it may make people cautious about forming relationships with strangers. These feedbacks to social structure raise the possibility of a development trap, in which a collectivist
social structure gives rise to parochial corruption, and as people adapt to this situation, the existing social structure is reinforced.

Besides helping to enforce a bribe transaction, informal social connections between officials and members of the public can also make such transactions easier to hide. For example, a favor done by an official might be rewarded at a later date with a gift on the occasion of a wedding or birthday. Also, several observers, including Oldenburg (1987), have noted that corruption often takes forms more subtle and complex than a simple bribe transaction, such as involving a “chain” of sub-transactions. Membership of a cohesive group would aid participants in constructing such a chain, thereby decoupling the quid from the quo and making the transaction harder for a third party to detect (in terms of our model, raising $c(\cdot, \cdot)$).

One policy not explored here, which has been used specifically to combat parochial corruption, is the practice followed by many governments of preventing officials from serving in their area of origin, and periodically transferring them between posts to prevent them from building up too many informal contacts. In India, for example, the practice of transferring officials was initially begun in the 1770s to combat endemic corruption in the East India Company (de Zwart 1994), and continues to the present day. Frequent transfers reduce the probability of repetition, thereby making it harder for officials and bribers to enforce bribe transactions using reputation-based mechanisms (see Appendix). Transfers may also help to reduce parochial corruption in another way: because social connections are built up over time, and are strengthened by the expectation of repeated future interaction, frequent transfers may make it harder for officials to form relationships with members of the public affected by their decisions (that is, they may reduce $S(\delta)$). Transferring officials also entails costs, however; officials must be compensated for the inconvenience of frequent transfers, and may take time to “learn the ropes” and become effective in a new role. In fact, Wade (1982) has shown that in India, the system
of transfers ultimately became an integral part of the system of “market” cor-
ruption: officials used the money they received in bribes to pay bribes to their
own superiors in exchange for transfers to posts with particularly lucrative
opportunities for corruption.

Finally, policymakers often attempt to change attitudes to corruption directly
via, for example, media campaigns. However, ethical attitudes often reflect
underlying strategic equilibria:

The cooperative solution to a repeated game can be nothing more than the coin-
cidence of self-interested strategies. Adherence to such strategies creates expecta-
tions, however, and expectations often turn into obligations. By this familiar but
mysterious chemistry, strategies become social norms. (Cooter 1993:423)

Thus, in an integrated society, we might expect social norms to prescribe that
preferential treatment of one’s close acquaintances is not justified for holders of
public office, whereas norms in a collectivist society would reflect a “culture”
of corruption, in which preferential treatment of friends and family members
is regarded as ethical. Attempts to change ethical attitudes and norms may
have little effect if the underlying strategic foundations of those norms are
ignored.
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