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How Business Community Institutions Can Help Fight Corruption

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Abstract

This paper considers the possibility of collective action by the business community to counter corruption in the award of government licenses and contracts. The analogy is with contract enforcement institutions studied by economic historians and contract law scholars. The institution in this context comprises a no-bribery norm, a community system to detect violations, and a multilateral ostracism penalty upon conviction in a community tribunal. The requirements such an institution must meet if it is to be effective are analyzed. It is shown that an institution of sufficient quality—combining probability of correct detection and severity of punishment—can eliminate bribery. If the private institution is not sufficiently good, then in conjunction with the state's formal apparatus it reduces the level of bribes demanded, but increases the probability of winning the license or contract through bribery. An improvement in the government's formal anti-corruption mechanism, holding the private institution constant, reduces both the level of bribes and the probability of success through bribery. The two institutions together are shown to achieve substantially better outcomes than either can on its own.

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How Business Community Institutions Can Help Fight Corruption*

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1 Introduction

Corruption in dealings between business firms and government officials and politicians is a complex problem that needs to be tackled from multiple angles. Most anti-corruption strategies that have been proposed in policy forums and studied by researchers have two features. First, they are controlled by governments: either the general apparatus of police and courts, or special anti-corruption agencies. Second, they operate on what may be termed the demand side, namely by detecting and punishing the officials who demand bribes, whether for granting some special treatment to those who meet their demand, or as extra extortion payments for taking actions to which the applicant was entitled either without charge or for some nominal fee. Indeed, some researchers have suggested an asymmetric treatment where punishment for the latter kind of bribery should focus on the demand side, and suppliers of such bribes should not be punished or even be rewarded for whistle-blowing. See Basu (2011), and formal modeling and extensions in Basu, Basu, Cordella and Varoudakis (2014).

The government's formal anti-corruption efforts face a formidable obstacle. Many officials and politicians, and often even the government in aggregate, stand to gain from corruption. The financial gains are large; political gains from reducing corruption may not be large enough to offset these. Therefore enforcement of anti-corruption measures by one branch of the government are obstructed by other branches or departments with parallel or independent powers. The incentives of the business community as a whole are better aligned to resist corruption. In some situations business may collude with government officials to increase costs of projects so both of these parties gain at the expense of the taxpayers. But on the whole the politicians' and officials's take is a direct hit to the bottom line of business. A corrupt system also entails indirect costs to business by acting as a tax, and an uncertain and inefficient tax, that reduces the incentive to invest and innovate; Ayyagari, Demirgüç-Kunt and Maksimovic (2014) provide evidence bearing on this.

Of course a firm that wins a government license or contract through bribery will benefit at the expense of other competing firms. Therefore individual firms are tempted to engage in bribery even when the business community as a whole stands to lose from the corrupt system. This is a prisoners' dilemma: individually rational choices lead to a collectively bad outcome. Like all such dilemmas, collective action is needed to resolve it.

Here I explore the potential of such a non-governmental institution that operates on the supply side by detecting and punishing givers of bribes, following an initial suggestion in Dixit (2013). If several major and respected firms and businesspeople can become persuaded to take a leadership role in launching and sustaining a collective anti-bribe-giving effort, then they, in alliance with some political and governmental leaders, have a better chance of success than either side on its own.

The concept is similar to the institutions of contract enforcement studied by Greif (1993), Bernstein (1992) and others. Their communities of businesspeople or traders sustain a norm of good behavior in contractual performance using a threat of multilateral punishment. Even though any two given members of the community may not have sufficiently frequent bilateral interaction to support an honest equilibrium outcome in their repeated game, the prospect that if member B cheats in dealing with member A, then C, D, E, ... will punish B on A's behalf in their future interactions makes it a repeated game for B in his dealings with the community as a whole.

The mechanism requires the community to have a reliable apparatus for detecting and investigating violations of the norm, and a credible and sufficiently severe punishment for proven contract violations and defiance of any stipulated remedies. The usual punishment is ostracism, which is very drastic since it wipes out the industry-specific capital of the guilty party and essentially takes away his livelihood. The prospect of efficient application of this severe punishment keeps most participants honest; there are few contractual disputes and the punishment has to be inflicted only rarely.

In the case of Greif's Maghribi traders, the detection apparatus was the system of communication—letters exchanged among the members of this relatively small and closed community. The enforcement of ostracism was credible because it was more costly for a member to enter into a relationship with an ostracized trader than one with a good reputation—the former feared no further punishment and was therefore more likely to cheat. In the case of Bernstein's diamond merchants, detection is simple because an aggrieved member brings a complaint to the arbitration tribunal, which can investigate it rapidly and efficiently using the members' experience and detailed inside knowledge of the industry.

In the context of corruption, the norm would be not to give bribes to public officials in order to win licenses or permits, or to speed up the process of getting these. The sanction would be that any businessperson who is found to have violated this norm will be ostracized by the rest of the community. Since the winner of a license will need contact with many other members of the community of various essential purposes—supply, subcontracting, marketing, trade credit from other firms, longer-term credit from banks and other financial institutions, accounting services, and so on—a boycott from all or even many of these providers will severely reduce the values of the illicitly-won license and of future business opportunities. If this threat is sufficiently severe, winning the license by bribery becomes worthless. The model of Section 2.4 derives the conditions for this to work. I find that in combination with the government's own demand-side enforcement efforts, it can make a significant contribution to reducing the level of corruption.

At first the scheme may seem too idealistic or even naïve to be practical. But there are some closely related precedents of collective action by the business community that have achieved some measure of success. Therefore I believe it deserves further study and even some experiments in implementation.

I should emphasize that I do not expect such a scheme to achieve anywhere near the 100% success it can under certain conditions in a theoretical model. However, the problem is so pervasive and costly for economic development that even a 50% or even 25% success is worth having. Waiting for 100% merely guarantees getting 0%.

1.1 Practical Precedents

Community activists in India have attempted to counter petty bribery by meeting demands with a specially printed zero-rupee note.[1] The idea is partly to shame the official demanding a bribe, but more importantly, making him aware that the resisting customer belongs to an organization, so any reprisal against him will have more serious consequences for the official than if the customer were an isolated and unsupported individual. This institution claims to have achieved some success, but these claims, and some favorable coverage in the media, are not yet supported by any reliable statistical evidence.

Even more remarkable is the Sicilian community organization AddioPizzo that has attempted, with some success, to resist the Mafia's extortion. The collective action has made it harder for the Mafia to target retribution that they would have easily inflicted on any individual unorganized resisters. See the account and analysis in Superti (2009).

Business leadership in corporate governance reform has a long and distinguished history. To give just one prominent example, J. Pierpont Morgan and his partner Elbert Gary who founded Federal Steel "took the then unusual step of issuing quarterly reports" because "both men believed that corporations issuing publicly traded securities had to account for their financial performance" (Strouse 2000, p. 398). Only later was the idea picked up by the progressive movement and made into a legislated requirement. Prominent firms in modern

[1] See `http://www.5thpillar.org` and `http://en.wikipedia.org/wiki/Zero_rupee_note`.

sectors of India and some other developing countries are similarly taking leading roles in reforming corporate governance, albeit with limited success so far (Khanna and Palepu, 2004). A similar community effort to fight corruption would be a valuable and welcome extension of these initiatives.

1.2 Literature on Corruption

The literature on corruption is too huge to survey here. I will only mention the seminal work of Becker and Stigler (1974) and Rose-Ackerman (1978), and the surveys by Aidt (2003) and Rose-Ackerman (2011). In all this work, anti-corruption policies are assumed to be the government's job, using its formal legal apparatus. The modeling is very detailed and sophisticated. But my focus is on the extra role a non-governmental business community association can play; therefore I will keep the government side quite simple and in a reduced form.

2 A Formal Model

Suppose a permit or license or contract (henceforth called "license" to avoid constant repetition) lasting one period has value L to a person or firm (henceforth simply "firm" for brevity). I assume L to be exogenous and the same for all potential recipients, like the common value assumption in auction theory; variations and extensions are left for future research. A bureaucracy, which I shall model as a single decision-maker called "the bureaucrat," decides whether to grant the license. I shall consider both the competitive case where there is only one license and many firms would like to get it, and the non-competitive case where any qualified person or firm can have one. Many other cases can be considered: the license can last more than one period, it may be partially competitive in the sense that its value to one firm depends on how many others have one. These are left for future research.

There will be two key variables in the model: the bribe B relative to the value of the license, denoted by $\beta = B/L$, and the degree of favoritism shown by the bureaucrat to a firm that pays a bribe, which I shall model as a ratio $\pi = p_B/p_0$, where p_0 is the probability of getting the license without paying a bribe and p_B the probability of getting it with a bribe. The cases $p_0 = 0$ and $p_B = 1$ are not excluded a priori. Both β and π are endogenous, to be determined in the various cases under consideration. Other formulations, such as faster service to a bribe-paying firm, are conceivable and should yield qualitatively similar results.

I begin with separate treatments of the bureaucrat's decision (the "demand side" of corruption) and a firm's decision (the "supply side"), and then put the two together to characterize the overall equilibrium or outcome of their interaction.

2.1 The Demand Side

The bureaucrat would of course like to extract as much of the value of the license as possible. What constrains him is the risk of being detected and punished. Detection need not be the result of monitoring by a formal anti-corruption agency or some other government body. It could come about from investigative journalism, or complaints by aggrieved client firms or internal or external whistleblowers. I specify all this monitoring technology in a simple reduced form, writing the probability of detection as a function $D(\beta, \pi)$. The idea is that if the fraction of the license fee that is demanded as a bribe is small, it is unlikely to elicit complaints or whistle-blowing, but if the fraction is higher, such activities are more likely. Similarly, if the probability of winning the license with bribery is substantially higher than getting it without bribery, this is more likely to be blatant and visible to anti-corruption inspectors or investigative journalists. I assume a linear form

$$D(\beta, \pi) = g\,\beta + h\,(\pi - 1)\,. \tag{1}$$

This makes the calculations simpler and yields insights based on plausible numerical values; the qualitative results will persist for more general functional forms. Of course a probability cannot be a linear function over a large domain, but linearity can be a locally valid approximation, and the qualitative results will generalize to plausible nonlinear functions.

Suppose that, when detected, the bureaucrat is punished by having to give up the bribed amount and in addition paying a fine F. Then his expected payoff from the bribe is

$$\begin{aligned} EP &= D(\beta, \pi)\,(-F) + [1 - D(\beta, \pi)]\,\beta\,L \\ &= -\,[g\,\beta + \,h\,(\pi - 1)]\,F + \{\,1 - [\,\beta + h\,(\pi - 1)\,]\,\}\,\beta\,L\,. \end{aligned} \tag{2}$$

Setting this expression equal to a constant c and solving for π, we get the equation of a typical iso-expected-payoff (IEP) contour:

$$\pi = 1 + \frac{1}{h}\left[\,-\,g\,\beta + \frac{\beta\,L - c}{F + \beta\,L}\,\right] \tag{3}$$

Then

$$\frac{\partial \pi}{\partial \beta} = \frac{1}{h}\left[\,-\,g + \frac{(F + c)\,L}{(F + \beta\,L)^2}\,\right] \tag{4}$$

and

$$\frac{\partial^2 \pi}{\partial \beta^2} = - \frac{2\,(F+c)\,L^2}{(F+\beta\,L)^3} < 0\,.$$

Also

$$\frac{\partial \pi}{\partial c} = - \frac{1}{h\,(F+\beta\,L)} < 0\,.$$

Thus the IEP contours are concave, and those lower down correspond to higher expected payoff levels. Figure 1 shows some of these contours. The intuition is that an increase in the favoritism variable π holding the rent extraction ratio β constant (i.e. a vertically upward move in the figure) always makes the bureaucrat worse off by raising the risk of detection, but an increase in β holding π constant (i.e. a horizontal rightward move) creates a tradeoff between bribe revenue and risk of detection, therefore the contours peak in that direction.

Of course the bureaucrat can always act honestly and award the license to any qualified applicant in the non-competitive case and the best-qualified applicant in the competitive case. This will yield him zero expected payoff in the formula (2).[2] Therefore a corrupt bureaucrat will choose only points in the region in Figure 1 below the contour labeled EP_0 where $c = 0$; this is shown shaded.

2.2 The Supply Side without the Business Institution

An applicant for the license is willing to pay the bribe if $p_B\,(L - B) \geq p_0\,L$. Using the definitions

$$\pi = p_B \,/\, p_0, \qquad \beta = B/L\,,$$

this becomes

$$\pi \geq 1/(1-\beta)\,. \tag{5}$$

The boundary of this, defined by an equality in (5), is an increasing convex curve in (β, π) space, passing through the point (0,1) and asymptotic to the vertical line $\beta = 1$. Figure 2 shows this curve, and the shaded region above it is the set of points satisfying (5) where the firm is willing to pay the bribe.

[2] That is simply the choice of origin of the expected payoff. It would matter in models that considered government policies of paying efficiency wages or similar bonuses to deter corruption, but that is not my focus here.

2.3 The Outcome without the Business Institution

Figure 3 brings together these curves. On or above the curve labeled $\pi = 1/(1-\beta)$, applicants are willing to pay the bribes demanded. At points on or below the curve labeled EP_0, the bureaucracy has positive expected payoff from its corrupt strategy. The intersection of these two regions, shown shaded, is therefore the feasible set. I assume that the bureaucrat states the terms of the bribe demand, to maximize his expected payoff EP subject to feasibility. This occurs at the point B of tangency between the frontier of the feasible set (5) and an IEP contour labeled EP*. Note that at B we have $0 < \beta < 1$ and $\pi > 1$.

The bureaucrat's choice of π may be subject to one other constraint. The firm's competence or quality may imply that in a bribe-free setting it would get the license with a given probability p_0 that is not under the bureaucrat's control. Since $p_B \leq 1$, the bureaucrat's choice must satisfy $\pi \leq 1/p_0$, i.e. it must be on or below a horizontal line like the one labeled U in Figure 3. I have shown a case where this line is above the point B and therefore this constraint is irrelevant, but if p_0 is high enough the constraint may bind; then the solution will be at the corner where the line intersects the firm's willingness-to-pay frontier.

The only way the government's detection and punishment system can eliminate corruption is if there is a corner solution at $\beta = 0$ and $\pi = 1$. For this, the EP_0 contour has to be flatter than the frontier of the feasible set. The slope of the former is given by (4) setting $c = 0$ and $\beta = 0$, and that of the latter can be found by differentiating its equation $\pi = 1/(1 - \beta)$. This yields the condition for a corner solution:

$$\frac{1}{h}\left[-g + \frac{L}{F}\right] < 1,$$

or

$$F\,/\,L > 1/(g + h) \tag{6}$$

Let us consider plausible numerical values. To make the condition (6) easier to satisfy, g and h should be as high as possible. The most we can expect for g is a value like 2 (which means that a bureaucrat who demands half the value of the license for his bribe is sure to be caught). For h, about 0.1 seems as high as we can expect (which means that a bureaucrat who favors bribe givers by a factor of 10 is sure to be caught). Then the condition becomes $F > 0.476\ L$: even with the optimistic assumptions about detection probabilities, fines have to be close to half the value of the license. Financial fines of this magnitude seem infeasible in cases of highly valuable licenses or contracts, because bureaucrats typically would not have that much wealth to be confiscated. Unless a regime can impose non-monetary penalties that are equivalently sufficiently harsh—long imprisonments or even death—demand side policies will be insufficient to eliminate corruption. The best that can be done is to increase F as high as possible, lowering and flattening the IEP curves and thereby shifting the bureaucracy's tangency optimum to the south-west (with lower β and π) along the boundary of the clients' participation constraint. This is essentially the same solution as we have from Becker (1968) for deterrence of crime in general.

2.4 The Supply Side with the Business Institution

Now suppose the business community forms an institution that can detect and punish firms that pay bribes. The punishment consists of ostracism that reduces the values of the current license and of future opportunities. Suppose that when a firm is convicted of bribery by a tribunal of the business community, the value of the license falls from L to $\theta\,L$, and the continuation value of being in the business falls from V to $\phi\,V$, where θ and ϕ lie between 0 and 1. A perfect punishment system would have $\theta = \phi = 0$, but I allow for a less than perfect system as is likely to exist in reality. The detection mechanism is not perfect either; let q denote the probability that a firm that is actually guilty of bribery will be convicted by its peers in the association, and r the probability that an innocent firm will be wrongly convicted, where $1 > q > r > 0$. Let δ denote the discount factor.

Consider one firm's decision whether to pay a bribe. By the standard recursion reasoning, it is willing to comply with the bureaucrat's demand if

$$\begin{aligned} V &= (1-q)\,[\,p_B\,(L-B) + \delta\,V\,] + q\,[\,p_B\,(\theta L - B) + \delta\,\phi V\,] \\ &\geq (1-r)\,[\,p_0\,L + \delta\,V\,] + r\,[\,p_0\,\theta L + \delta\,\phi V\,] \end{aligned}$$

The equality implies

$$V = p_B\,\frac{[(1-q)+\theta\,q]\,L - B}{1-\delta\,(1-q+\phi\,q)}$$

and the inequality implies

$$p_0\,L\,[1-r\,(1-\theta)] \leq p_B\,\{L\,[1-q\,(1-\theta)] - B\} - \delta\,V\,(q-r)\,(1-\phi)\,.$$

The latter simplifies to

$$\pi \geq \frac{1-r\,(1-\theta)}{1-q\,(1-\theta)-\beta}\;\frac{1-\delta+\delta\,q\,(1-\phi)}{1-\delta+\delta\,r\,(1-\phi)}\,, \tag{7}$$

using the same notation $\pi = p_B/p_0$ and $\beta = B/L$ as before.

Introduce the abbreviations

$$m = [1 - r\,(1-\theta)]\,\frac{1 - \delta + \delta\,q\,(1-\phi)}{1 - \delta + \delta\,r\,(1-\phi)} \tag{8}$$

and

$$k = 1 - q\,(1-\theta). \tag{9}$$

Obviously $k < 1$; also $q > r$ ensures $m > k$, or $m/k > 1$. Then the condition (7) becomes

$$\pi \geq \frac{m}{k - \beta} \tag{10}$$

Figure 4 shows the frontier of this, defined by equality in (10), as the thick increasing convex curve that starts at $\beta = 0$ and $\pi = m/k$, and is asymptotic to the vertical line $\beta = k$. At the points on or above it, the firm is willing to pay the bribes demanded by the bureaucrat, even at the risk of being detected and ostracized by the business community. Compare it with the corresponding curve without the business institution, defined by equality in (5), and shown in Figure 4 by the thinner curve. For given β, the ratio of π with the business institution to that without is

$$m\,\frac{1-\beta}{k-\beta} = m\,\left[1 + \frac{1-k}{k-\beta}\right].$$

This equals $m/k > 1$ when $\beta = 0$, then increases monotonically as β increases, and $\to \infty$ as $\beta \to k$. Therefore the frontier of willingness to bribe with the institution lies uniformly above that without the institution, as shown in Figure 4. The prospect of the community's punishment shrinks the region of the firm's willingness to pay bribes.

Figure 5 brings together the bureaucrat's IEP curves with the region where a firm is willing to comply. Most importantly, it shows a case of an empty intersection between the set of points where the firm is willing to pay the bribe and the set below the EP $= 0$ curve where the bureaucracy has positive expected payoff (both these regions are shown shaded). The bureaucracy does best by abandoning its attempts to demand bribes and being content with zero payoff.

Let us supplement the earlier numerical calculations with some plausible parameters for the business community institution. A really good detection mechanism would have a high q (probability of convicting the truly guilty) and low r (probability of wrongly convicting the innocent). Suppose $q = 0.25$ and $r = 0.01$. A good punishment mechanism would have low

θ and ϕ (the fractions to which current and future payoffs of the convicted are reduced); let us take each $= 0.1$. Finally, suppose the discount factor is $\delta = 0.9$. With these numbers, we get $m = 2.773$ and $k = 0.73$. On the demand-side enforcement by the formal legal system, keep $g = 2$ and $h = 0.1$, the same values as were used in Section 2.3 without the business community institution. Then numerical calculations show that to get an empty intersection we need the ratio of the fine to the value of the license to satisfy $F/L > 0.086$. This is much lower than the 0.476 that was needed without the business institution. Thus the institution makes a substantial contribution to tackling the corruption problem.

Even if the intersection between the set of points where the firm is willing to pay the bribe and the set below the EP $= 0$ curve where the bureaucracy has positive expected payoff is non-empty, there is a third constraint that may come into play and rule out deviations from a corruption-free equilibrium.

Suppose there are n firms, and their competence or quality is such that in a corruption-free equilibrium their probabilities of winning the license are p_i for $i = 1, 2, \ldots n$. If the license is exclusive and only one firm will get it, the p_i must sum to 1. If it is not exclusive, for example any restaurant that meets the health and safety standards will qualify for a permit to operate, then there is no such restriction. Intermediate cases of congestion-like interactions, where each p_i depends on how many and which other firms receive the license, are also possible. Anyway, I will take the p_i as exogenous.

Firm i and the bureaucrat will be able to deviate and upset the candidate corruption-free equilibrium if they can find a corrupt deal, i.e. pair (β, π), that leaves both of them better off. For this, the intersection of the firm's willingness-to-bribe set, the bureaucrat's non-negative EP set, and the constraint $\pi \leq 1/p_i$ must have a non-empty intersection. Conversely, a corruption-free equilibrium requires an empty intersection for all firms. The first two constraints are the same for all firms, but the third is firm-specific.[3] A non-empty intersection is most likely where that constraint is least relevant, i.e. for the firm with the smallest p_i. Suppose this is firm 1. Then the corruption-free equilibrium requires an empty intersection of the three constraints taking the third to be $\pi \leq 1/p_1$. Figure 6 shows such a case.

As intuition would suggest, the firm least likely to get the license in a corruption-free situation is the one most likely to accede to a bribe demand. Conversely, firms that have

[3]It is easy to generalize the analysis to the case where the willingness-to-pay constraint is also firm-specific, for example if the true and false conviction probabilities q and r are different for different firms. The only added complication is a proliferation of cases and conditions for corruption-proofness.

the best chances in the corruption-free situation are the best candidates for launching the institution to sustain the clean equilibrium.

Thus far we have found conditions for none of the firms to violate the no-bribery norm, given the threat of ostracism. Finally, we need to check that the threat is credible, i.e. that other firms are willing to go along with the ostracism imposed on a firm that the community has found guilty of bribery. This is in the context of Nash equilibrium: given that other firms are complying with the ostracism, would it pay any one firm to break away and deal with the miscreant? In countries where inter-firm dealings are on a relational basis, the analysis of Greif (1993, Proposition 2, p. 535) applies. Suppose firm A is already ostracized. It now fears no worse penalty; therefore it is more likely to cheat in inter-firm dealings. Firm B contemplating dealing firm A must give it more of the surplus from the deal. Therefore it is more costly for B to deal with the ostracized firm A than with others such as say C, D, ... that have a clear history. In other words, it is not in any firm's interest to deviate from the community's sanctions on the original briber. Once the institution gets going, it will also develop its culture that will reinforce the material incentive to conform with the sanctions.

2.5 Partial Reduction in Corruption

Even when the community institution is not good enough (the value of m is not high enough and/or that of k is not low enough), it can make a contribution to reducing corruption in combination with the formal legal apparatus. Consider the case shown in Figure 7. (Ignore the dashed curves for the moment.) The set of (β, π) combinations where businesspeople are willing to comply with demands for bribes has a non-empty intersection with the set that gives positive expected payoff to the bureaucracy; this feasible set is shown shaded. The outcome is at the point C of tangency between the feasible frontier and an IEP contour labeled EP'. As was discussed in connection with Figures 3 and 6, if the worst-placed firm's competence or quality give it a probability p_1 of getting the license in a bribe-free system, then π is subject to a further constraint $\pi \leq 1/p_1$, which may bind and further reduce the possibility of corruption. I will omit this possibility to save space and taxonomy.

Let us consider some comparative statics of the partial reduction outcome as various aspects of the formal and the community institutions improve.

Any improvement in the formal institution—an increase in the detection probabilities g and h or the fine F – flatten the IEP contours. To see this, use the implicit function theorem to derive the slope of a typical IEP contour

$$- \left[h \ (\pi - 1) + g \ \beta \right] F + \{ 1 - \left[h \ (\pi - 1) + g \ \beta \right] \} \beta L = c \, .$$

This yields

$$\frac{\partial \pi}{\partial \beta} = \frac{L - Lh(\pi - 1) - g\,(F + 2\beta L)}{h\,(F + \beta L)} \, . \tag{11}$$

It is easy to see that an increase in F or g reduces this. The effect of h is a bit more complicated. Writing

$$\frac{\partial \pi}{\partial \beta} = \frac{L - g\,(F + 2\beta L)}{h\,(F + \beta L)} - \frac{L\,(\pi - 1)}{F + \beta L} \, ,$$

we have

$$\frac{\partial}{\partial h} \left[\frac{\partial \pi}{\partial \beta} \right] = - \, \frac{L - g\,(F + 2\beta L)}{h^2\,(F + \beta L)} \, .$$

When $\partial \pi / \partial \beta > 0$ as is the case in the relevant part of the space,

$$L - g\,(F + 2\beta L) > Lh(\pi - 1) > 0,$$

so

$$\frac{\partial}{\partial h} \left[\frac{\partial \pi}{\partial \beta} \right] < 0 \, .$$

In Figure 7, what happens as the formal enforcement improves is that the IEP contours become flatter, and the point of tangency C moves to the south-west along the feasible frontier, resulting in lower β and π, i.e. reduced corruption.

Next consider improvements in the business community institution, i.e. an increase in the probability q of being convicted when guilty, and/or a decrease in the probability r of being wrongly convicted. When m increases and/or k decreases, the feasible frontier defined by equality in (10) obviously shifts up, but we need to know what happens to its slope. Along it, we have

$$\frac{\partial \pi}{\partial \beta} = \frac{m}{(k - \beta)^2} = \frac{\pi^2}{m} \, .$$

Therefore the shifted frontier becomes steeper as we move vertically up by increasing m or decreasing k at given β, but flatter as we move horizontally to the left by increasing m, and keeps the same slope when k decreases, at given π.

The slope of IEP curves changes the opposite way. We see from (11) that moving vertically up at given β makes IEP curves flatter, and moving horizontally to the left at given β makes them steeper.

Therefore, as the feasible frontier shifts up, in Figure 7 the tangency outcome must move somewhere between vertically upward and horizontally leftward to a point like C to the north-west, with lower β but higher π. (The figure shows such a comparison of C and the outcome B with no (or totally ineffective) business institution that was derived in Figure 3 and is now shown as the tangency of the two dashed curves.) Improvement of the business community institution reduces the magnitude of bribes the bureaucrats demand, but the chances of winning the license through bribery improve. Intuitively, as the business community increases its own expected penalties for winning a contract through bribery, the bureaucracy has to make it more attractive for businesspeople to comply with their demands, and they do this by combining smaller bribes and greater probability of success through bribery.

Thus a small improvement in the business community institution has a mixed outcome. However, when the improvement progresses far enough, eventually the feasible set becomes empty and corruption is eliminated.

3 Practical Considerations Outside the Model

The formal model of the previous section was highly simplified in a reduced form. Moreover, it studied only the equilibrium of the suggested institution, i.e. how it would maintain itself once it got going. Therefore the formal analysis must be supplemented by some informal discussion of practical matters of implementation. Here is a brief statement; for a more detailed discussion see Dixit (2013).

3.1 Requirements

The work of Ostrom (1990, 2009) and others has clarified some conditions that are necessary for successful operation of self-sustaining communal institutions of collective action. In our context, the following seem the most important ones.

3.1.1 Boundaries

The set of members, and their rights and duties, should be clearly defined. Here the business association imposing the sanctions may have a set of members who have publicly declared themselves to be bound by the norm. That will be valuable in ways mentioned later. These members should also declare themselves to be bound by the sanctioning procedure, agreeing to ostracize any firm that the association finds guilty of bribery, whether or not the guilty firm has itself joined the association. That is, firms should not think themselves immune from sanctions if they stay outside the group that has signed the no-bribery pledge.

3.1.2 Detection and adjudication

Monitoring and sanctioning is best done by members of the association through their delegated representatives, using their local and insider knowledge, expertise and experience. They can admit and interpret evidence on using broader criteria than can a general court. As in Bernstein (1992) and Greif (1993), this will be conducive to a faster, less costly, and more accurate process. The business association can pursue more pro-active strategies, for example sending its agent-provocateurs to entrap corrupt officials and exposing them. However, in the context of corruption, internal adjudication carries the danger that the association becomes an insiders' clique, using the sanctioning power illegitimately to exclude newcomers and to preserve an oligopoly of incumbents. To maintain the integrity of the mechanism, it is crucial not only that the procedure is untainted, but that it is seen to be untainted. For this, the adjudication tribunal should have some representation of respected outsiders and new firms, and its process should have sufficient transparency to allay suspicion. Integrity and objectivity of the tribunal is also important to reduce the risk that a firm is sanctioned because of false accusations by rival firms.

3.1.3 Graduated sanctions

In most game-theoretic models of repeated prisoners' dilemmas, good behavior is best sustained by the harshest self-enforcing punishment. In practice, however, punishments that are small for a first offense and only gradually become harsh are found to work best. This seems equally valid in the context of corruption, especially because it reduces the risk of wrongful conviction leading to permanent ouster from business. It may also help prevent the morphing of the anti-corruption institution into one that deters new and innovative entry; if a novice firm gains a foothold through bribery, it would not be immediately booted out but be given a warning or a slap-on-the-wrist punishment like a small fine, and given a second chance to stand on its own merit.

3.1.4 Official recognition

We saw that the business institution has to work together with the government's own anti-corruption efforts, although it does greatly increase the effectiveness of the latter. Conversely, the government's legal system should accept the business association's verdicts, much as courts show forbearance for verdicts of recognized private arbitration systems, standing ready to enforce their verdicts and not hearing the cases again. The government can do more. Many private firms and government departments that regularly award contracts have lists of approved bidders. A preliminary scrutiny is carried out to put a firm on this list, and in the competition for any specific contract only bids from firms on this list are considered. The government can make it a requirement for being on the approved vendors' list that the firm is not ostracized for previous bribery by the business association. Of course, if such a rule is adopted, that makes it all the more important that the association's procedure minimizes the risk of false conviction, and does not become a means of deterring entry to preserve the insiders' oligopoly.

3.2 Launching the Institution

Shifting an equilibrium is always difficult, and unfortunately, shifting from a good equilibrium to a bad one is easier than shifting from a bad one to a good one. A rumor or some local difficulty can start a bank run; creating or restoring confidence in the banking system is much harder. Similarly, launching an anti-corruption institution is a difficult task, requiring much effort in reputation-building and creating confidence that the system is going to function sufficiently well. Here are just a few thoughts in this matter; more are sure to occur to others as thinking and experimenting along these lines progresses further.

3.2.1 Selecting launch members

If the new institution is to get sufficiently rapid recognition and respect, it is essential that several of the most respected leaders of the business community publicly declare their active support and participation by becoming launching members and urging others to join. In countries like India and China, these are most likely to come from the modern sectors of the economy—information and communication technology, web-based businesses, consulting etc.—who also do business in other countries with higher standards of governance and have some incentive to maintain similar reputation and standards in their own countries. See Khanna and Palepu (2004) for further discussion of such interactions. Once a sufficient mass of respected members exists, others who stay out can be named and shamed into joining; the media can help in this. The government can also help recruitment by coordinating its list of approved vendors with the list of the business association's members in good standing.

3.2.2 Earning and maintaining reputation

The worst thing that can happen to an anti-corruption organization is being tainted by a scandal. The association in its early phases will have to be especially vigilant in its detection and sanctioning, ready to expel and ostracize any members, no matter how important, who are found in violation of the no-bribery norm. It will also have to be especially careful to avoid any suspicion of being seen as a clique of big firms or insiders. It will have to make special efforts to recruit new, small, and innovative firms, not only as members but as active members with representation on the adjudication and decision-making bodies of the association.

3.2.3 Overcoming opposition

Businesses with relational capital invested in existing system will resist the new institution; this resistance can take many forms and needs to be countered by all available means, including the use of allies in the press and other media to name and shame the firms that refuse to take the pledge. Resistance will also come from within the government, as many of its politicians and officials stand to lose lucrative bribe incomes. Media campaigns can help; proactive strategies to maintain good relations with the media will help deflect false accusations of improprieties and attempts to create scandals to discredit the institution. More generally, a recent comparative case study (Innovations for Successful Societies, 2014) of how various governments' anti-corruption agencies fared in building and maintaining reputations can be useful here.

4 Concluding Comments

Corruption is endemic and entrenched in many countries. The community institution operating on the supply side of bribery that I have proposed here cannot by itself eliminate or even significantly reduce it. But it can greatly strengthen the effectiveness of the government's formal system of detection and punishment that operates mostly on the demand side. I hope this idea will be further scrutinized in research and attempted in some country whose business community is sufficiently well organized and sufficiently adventurous to experiment with novel ideas that have the potential to free it from the yoke of extortionate demands of politicians and officials.

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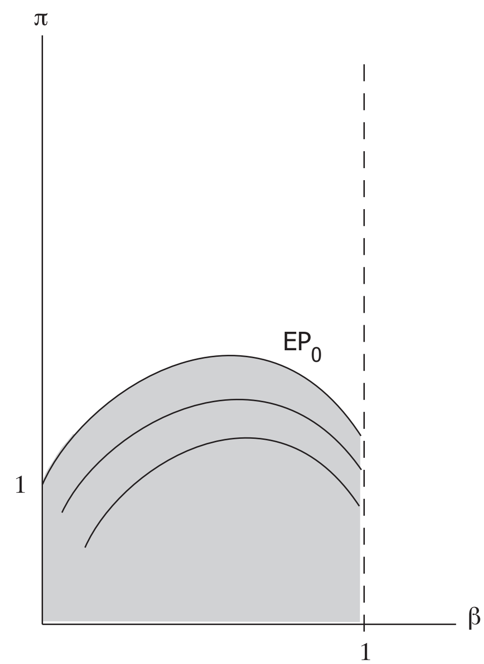

Figure 1: Bureaucrat's Payoff Contours

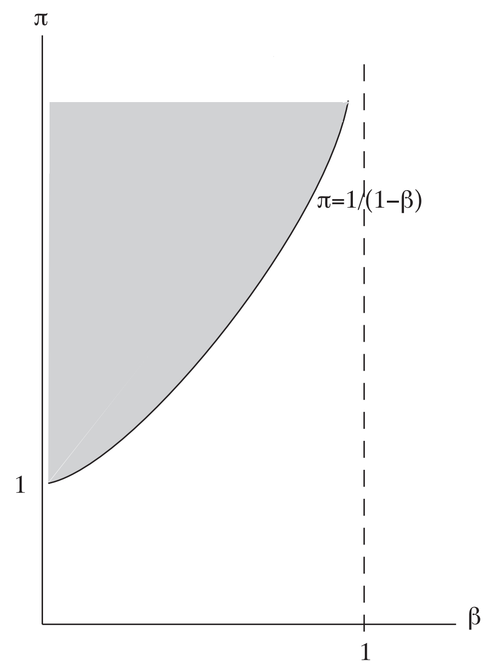

Figure 2: Willingness to Pay Bribe without Institution

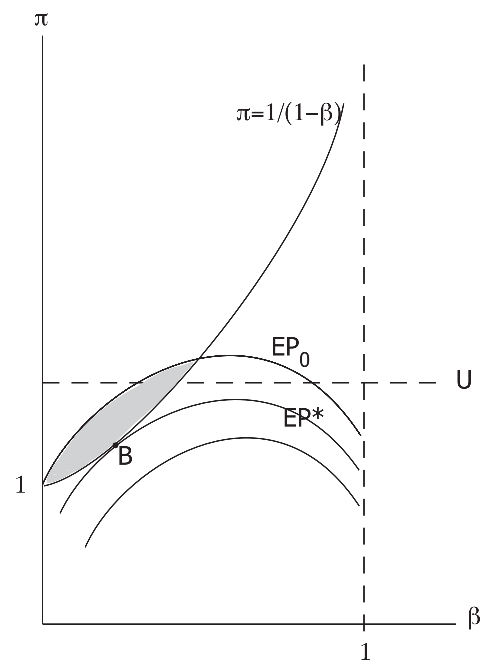

Figure 3: Outcome without Institution

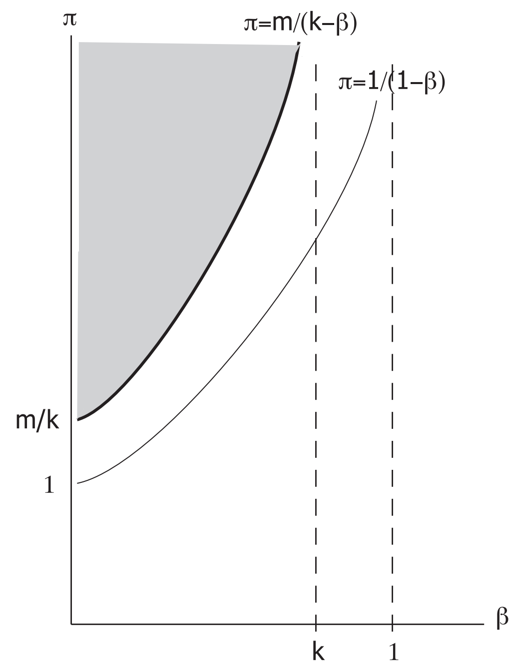

Figure 4: Willingness to Pay Bribe with Institution

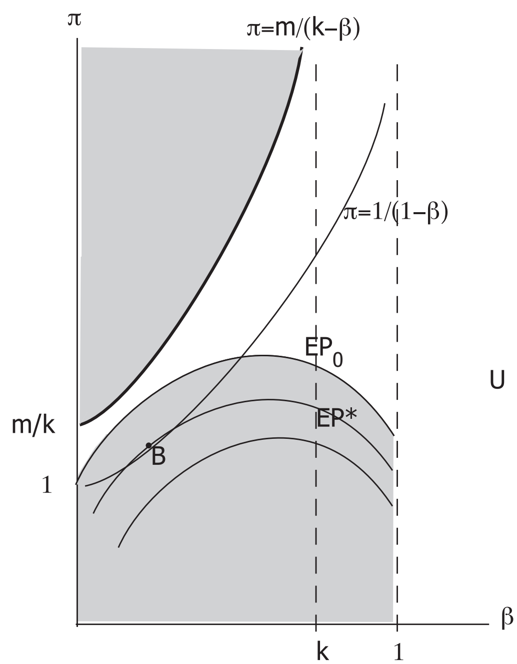

Figure 5: Corruption-free Outcome with Institution – 1

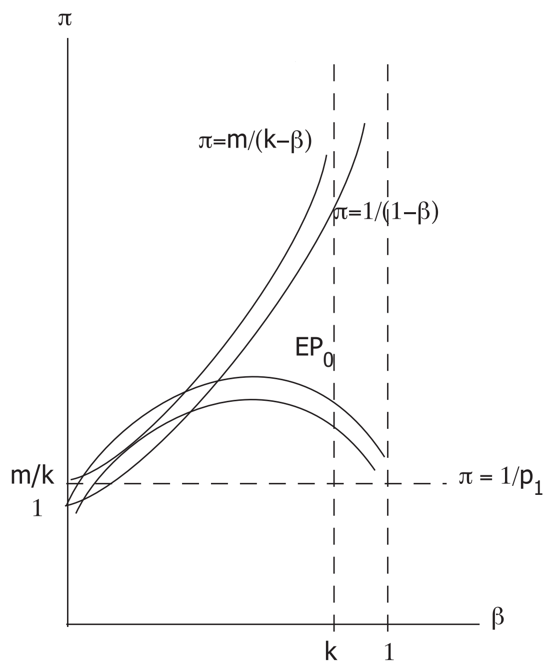

Figure 6: Corruption-free Outcome with Institution – 2

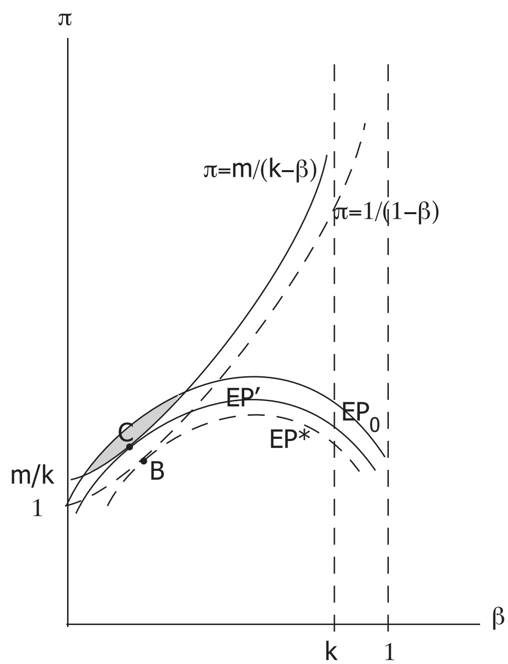

Figure 7: Partial Reduction in Corruption