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Corruption, Inefficiency and Economic Growth

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Corruption is an illegal payment to an agent to obtain a benefit that may or may not be deserved in the absence of payoffs (Klitgaard, 1988; Rose-Ackerman, 1978, 1998). The context can range from a low level official accepting a bribe to overlook a traffic ticket or reduce a customs fee to a country's ruler accepting many million of dollars to favor a particular international firm. Although payoffs can occur in purely private settings, when, for example, a supplier pays a corporate purchasing agent, this essay concentrates on the public\private interface.

To motivate the subsequent discussion, I briefly review the evidence suggesting that strong public institutions and low levels of corruption further economic growth. Because of the aggregated nature of the data, however, these macro-level efforts are uninformative about the precise ways in which the association operates. Given the number of exceptional cases and the variations in political and bureaucratic institutions across the world, we need a more micro-analytic, institutional approach. Thus the paper concentrates on reviewing theoretical efforts that seek to understand the economic and political impact of corruption. Although corruption can be efficient under some quite restrictive assumptions, it is inefficient in most contexts and may also be unfair and undermine state legitimacy. Even when corruption promotes short term efficiency in private markets and in bureaucracies, a long term perspective casts doubt on the normative force of these results. Corruption can hamper efforts to develop a viable market economy. These harmful effects suggest reasons why the macrolevel research shows an adverse effect of growth.

Empirical Regularities

Development economists have long recognized that government policies and institutions matter to growth (Pack, 1988; Olson, 1982). The economic development literature seldom explicitly considers corruption, but work by Bhagwati (1974) and Krueger (1974) comes close with its emphasis

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on the way public policies create incentives for illegal activities. More recently several cross-country studies have taken up the issue. The papers are in the spirit of recent work that seeks to relate institutional and political variables to measures of economic growth or to other macroeconomic variables of interest (Przeworski and Limongi, 1995; Barro 1994).

Paolo Mauro (1995, 1997) demonstrates that in a cross section of countries high levels of corruption are associated with lower levels of investment as a share of GDP.[1] In the most recent study, a one standard deviation improvement in the corruption index is associated with over a 4 percentage point increase in the investment rate and over a half a percentage point increase in the annual growth rate of per capita GDP. Because the corruption indices are highly correlated with other measures of bureaucratic efficiency, such as the level of red tape and the quality of the judiciary, however, Mauro was unable to measure the marginal effect of any one of these measures holding the others constant. The data are, however, consistent with the claim that the level of red tape is a function of the prevalence of corruption, not something that is reduced by the payment of bribes.

A complementary study by Phillip Keefer and Steven Knack (1996) examines the importance of government institutions including a measure of corruption. The authors averaged a country's corruption index in with expropriation risk, rule of law, risk of contract repudiation by the government, and the quality of the bureaucracy. The authors show that over the period 1974 to 1989 indices of the quality of government institutions do at least as well as in explaining investment and growth as measures of political freedoms, civil liberties, and the frequency of political violence. An improvement of one standard deviation in their index leads to an increase in growth rates that would make Honduras equivalent to Costa Rica or Argentina equivalent to Italy.

Some who believe that a focus on corruption is misplaced point to those countries that do not fit the statistical pattern. They point to countries, mostly in East Asia, that are reputed to have high levels of corruption combined with impressive growth rates. These skeptics are correct in pointing out that corruption is not a unitary phenomenon. High levels of corruption can produce quite different effects depending upon what the payoffs are purchasing. Nevertheless, in spite of this caveat, recent evidence suggests that reducing corruption and insider dealings would have improved the performance even of high growth Asian economies. Thus Shang-Jin Wei (1997) in a paper written during a visit at the IMF has shown that corruption acts like a tax on foreign direct investment. A one percent increase in the tax rate reduces FDI by 5%. An increase in the corruption level from that of relatively clean Singapore to relatively corrupt Mexico is the equivalent of an over 20 percentage point increase in the tax rate. In his sample there is nothing especially benign about East Asian corruption.

These studies suggest that countries that have poorly functioning government institutions tend to be relatively corrupt, and that payoffs are seldom an adequate compensation for other governmental failures. The results

1. Mauro (1995) uses a subjective index of corruption compiled by Business International (BI) from its correspondents throughout the world. The index, which covers 67 countries, omits eastern Europe, China, and the Middle Eastern oil countries. The second index used along with the first in Mauro (1997) was prepared by Political Risk Services for 106 countries from 1982 to 1995. The correlation between the indexes is 0.81.

indicate that corruption is harmful to economic growth, but the magnitude of the effect is unclear. Furthermore, because corruption is tied to other features of government structure, reducing corruption without a more fundamental change in the behavior of public institutions is unlikely to be successful. Why then have some analysts argued that corruption can be an efficient response to government failures? I review such models below pointing out where the logic of their arguments appears sound and where they ignore important features that undermine claims for the efficiency of corrupt systems.

Theoretical Models of Corruption's Impact

The most sanguine view of the impact of corruption arises in models where payoffs allocate scarce public services and where bribes provide incentives to civil servants. I begin with these cases of low level corruption and then consider the more controversial case of high level corruption in the awarding of contracts, concessions, and privatized firms. Finally, I analyze the political consequences of bribes that permit those who pay to avoid compliance with burdensome and costly laws.

Payments that equate supply and demand

The simplest case occurs when the briber is qualified for the benefit he seeks but is required by the official to pay for it. Suppose the service is scarce so that the number of people qualified to obtain the service exceeds the supply. If the corrupt market operates efficiently, the service will be provided to the applicants with the highest willingness to pay. If there is no price discrimination, the "market clearing" bribe will be equivalent to the price in an efficient market. The state could have legally sold the service with the same result except for the distribution of the revenue. Bribes increase the incomes of civil servants. Legal payments go into the government's treasury. But even that difference may be illusory. If the labor market is competitive, the government can reduce the pay of civil servants to below private sector wages because of the payoffs available to public officials (Besley and McLaren, 1993; Flatters and MacLeod, 1995). At least for marginal employees, public and private sector earnings must be equal. In short, if competitive conditions exist both in the corrupt market and in the labor market, corruption is as efficient as the direct, legal sale of a scarce publicly provided service. The winners, relative to an honest nonmarket system, are those willing to pay the most in bribes; the losers are those willing to pay in other forms such as time spent in a queue or persistence in petitioning officials.

Consider, however, the ways in which this simple case can be modified to generate inefficient or unacceptable results. First, the goals of a program may be undermined if the services are provided only to those with the highest willingness to pay. Thus the sale of import and export licenses would be efficient, but the allocation of subsidized housing or university admissions by price would undermine the programs' distributive goals. Introducing goals other than efficiency in a situation where demand exceeds supply, implies that bureaucratic discretion exists. Discretion may be exercised through bribery, but this method of allocation is costly given the program's goals. One's response should be to rethink the way the "worthy" are selected, not condone bribery.

Second, consider cases where allocation to those with the highest willingness to pay is acceptable. Then one must ask whether corrupt markets are likely to differ much

from open competitive ones. There are several reasons to suppose that they will not work as efficiently as legal markets (Bardhan, 1997; Bigsten and Moene, 1996; Cartier-Bresson, 1995; Gambetta, 1993; Rose-Ackerman, 1978). The illegality of bribery induces participants to spend resources keeping the transaction secret. This in turn means that information about bribe-prices will not be well publicized. Prices may be relatively sticky because of the difficulty of communicating market information. Some potential participants may refuse to enter the market because of moral scruples and fear of punishment, and public officials may themselves limit their dealing to insiders and trusted friends and relations to avoid disclosure. For all these reason, a corrupt system may be not only less competitive but also more uncertain than a legal market. The bribe-price paid may vary widely across participants (for some evidence on this see Rose-Ackerman and Stone, 1996), and those who obtain the service corruptly will have no recourse if the official does not live up to his side of the bargain.[2]

If the official must allocate a *fixed* number of licenses each year or grant a contract with well-specified terms, then bribery is essentially redistributive unless the problems raised in the previous paragraph prevail. However, in practice, many officials can exercise monopoly power by determining the quantity of services provided. They may be the only person with authority to issue a permit, overlook a violation of the law, grant a contract (Findlay, 1991; Klitgaard, 1988; Rose-Ackerman, 1978; Shleifer and Vishney, 1993). The official, like a private monopolist, may seek to set supply below the officially sanctioned level to increase the economic rents available for division between himself and the bribe payers. Conversely, under other conditions the corrupt official might seek to provide an increased supply of the service if the government has set the supply below the monopoly level.[3]

Instead of assuming that the service is scarce, suppose that it is an entitlement that is meant to be available to all who meet certain qualifications. It is a service like a passport or a driver's license or a benefit like old age pensions in the United States. Bribery is clearly not an efficient way to allocate the benefit even to the qualified, but one might wonder whether it would even occur at all in the absence of scarcity. In fact, it can only occur when officials have sufficient monopoly power to create scarcity either by delaying approvals or withholding them unless paid bribes (Paul, 1995). Officials with monopoly power will set the level of supply to maximize their profits (Dey, 1989; Shleifer and Vishney, 1992, 1993). The willingness to pay of qualified applicants will be lower if they have other options and if denunciations are not very costly in time and money (Alam, 1995; Cadot, 1987). Thus in assessing both the likelihood and the impact of corruption, the behavioral options of firms and officials play a critical role. The greater the discretion available to officials and the fewer the options

2. Beck and Maher (1986) and Lien (1987) construct models where the only market failure is a lack of information about other bribe payers. Under the conditions of their models, corrupt payoffs are as efficient as legal payments, but this should hardly be surprising since, in general, market participants also have no information about the cost or utility functions of other participants.
3. This second case is analogous to the model of budget maximizing top officials presented by Niskanen (1971) and Brennan and Buchanan (1980). See Coolidge and Rose-Ackerman (1997) for a application to corrupt autocrats.

open to private firms and individuals, the higher the costs of a system that condones corruption even when all those who obtain the service are, in fact qualified. The costs take the form of the transactions costs introduced by the officials' efforts to create corrupt demands (Bardhan, 1997; Klitgaard 1988).

Finally, why should officials only provide services to those who are qualified? Corrupt officials can be expected, not only to allocate a scarce benefit to the qualified, but also to provide the benefit to high bribers who do not qualify. Similarly, even those who are qualified for the benefit may seek unauthorized gains or try to avoid costs. Shleifer and Vishney (1993: 601) call this case "corruption with theft" since their archetypal example is a firm that bribes to be excused from paying customs duties, but the range of examples is broader than those in which the government loses revenue. It also includes those in which a qualifications process is undermined or a regulation violated. Clearly, the unqualified may often be those with the highest willingness to pay since they have no legal way to obtain the service.

In cases where corruption's only inefficiency stems from its illegality, the payments should be legalized. Surveys of private individuals and firms in Pakistan and India indicate that even quite poor people would be willing to make legal payments for improved service (Paul, 1995; Stone and Rose-Ackerman, 1996). Toleration of corruption is problematic because it is difficult to limit bribery to the cases where payments are efficient and not perceived as unfair. If legalization is indicated, should the payments should go to the public officials as bonuses or to the government treasury? The answer depends both upon whether bonuses will induce officials to perform better and upon whether such bonuses will be more effective if paid by clients or if paid by the state agency on the basis of performance reviews. If incentive payments simply induce officials to act like monopoly rent seekers, legalizing payments is not efficient. This issue is dealt with explicitly in the next section.

Bribes as incentive payments for bureaucrats

The strongest case for the efficiency of bribery, focuses not on the role of bribes in allocating public services to private citizens, but on the way bribery of low level officials can solve the agency\principal problem faced by top officials. Bribes may give an incentive to low level officials to do their job effectively. But in what situations is toleration indicated? In the cases discussed above, even when corruption served an allocative function, it was a second best response. A legal sale would be superior. Such is generally the case here as well.

Models of corruption in bureaucracies are of three types – those that produce stable unique equilibria where bribes affect job performance, those which generate spirals resulting in either high or low levels of corruption, and those that take into account the hierarchical nature of the bureaucracy. I consider each in turn

In the first category, the most careful analyses of the possibly desirable incentive properties of bribes have been provided by Francis Lui (1985) and Frank Flatters and W. Bentley MacLeod (1995). Lui (1985) models a system where payoffs to those who manage queues can be efficient. The payments give officials incentives both to favor those with a high opportunity cost of time and to work quickly. Lui concludes that his model of corruption in queuing can be used to design a legal auctioning procedure. Lui's paper can be read as an argument for legal reimbursement schemes that reward civil servants for high levels of effort. In the design of such

systems, however, it is important to avoid giving bureaucrats monopoly power that they can use to extract increased levels of rents (Rose-Ackerman 1978: 85-108).

Flatters and MacLeod (1995) argue that in developing countries the corruption of tax collectors can be efficient so long as the government can impose a binding overall revenue constraint. In their model the Minister sets a revenue target, a nominal tax liability schedule, and the wage rate of the Tax Collector. Corruption is tolerated so long as the Collector turns in an amount equal to the revenue target. The larger the difference between nominal tax liabilities and the revenue target, the higher is corruption. The higher the level of bribe payments, the lower the official wage. When the Minister is free to set any wage he wishes and the Collector's effort is a constant, corruption is harmless, but unnecessary. If, however, the Minister is not free to pay tax collectors more than other civil servants, corruption is a substitute for incentive-based civil service reform. Furthermore, if the Collector must spend time and effort determining tax liabilities, tolerance of corruption is one way to give him an incentive to carry out this task. The model, however, requires the Minister to set the parameters of the system so the Collector has no incentive simply to abscond with the tax collections. Even if garden variety corruption is tolerated, excessive greed must be punished severely.

Although Flatters and MacLeod's model does seem to capture some elements of reality, their prescription that routine corruption of tax collectors be tolerated has several problematic aspects. First, toleration of corruption in an important agency, such as tax collection, may encourage its spread to other areas where the conditions for efficiency do not hold. Second, the authors assume that with some effort the Collector can "discover" the tax liability of a citizen or firm. Instead, he might creatively "create" that tax lability as a bribe extraction device. If firms' and individuals' vulnerability to corrupt demands varies, the result will be an arbitrary and unfair pattern of payment that reflects the Collector's leverage, not the underlying tax rules.

A corrupt bureaucracy can contribute to an uncertain business climate. Firms pay bribes to obtain certainty, in this case about their tax liabilities, but the certainty may be illusory since corrupt deals cannot be enforced. The short term equilibrium impact of bribes may be to enhance efficiency in tax collection or business regulation. However, difficulties arise when one looks at the issue systemically. Payments made to increase certainty for individual firms result in a wide variance in conditions across firms.[4] Potential entrants will view the economic environment as risky and unpredictable. Nominal tax liabilities are poor predictors of actual tax liabilities. Individualized attempts to reduce uncertainty can, at the systemic level increase uncertainty and unpredictablilty. A policy of active tolerance is likely to be destructive of the prospects for long term reform and will make it difficult to create a state viewed as legitimate by its citizens. Payoffs that are widely viewed as acceptable should be legalized, but not all "incentive pay" schemes will actually improve bureaucratic efficiency.

The second problem with bureaucratic corruption is that, under some conditions, corruption can breed more corruption.

4. Although they present no direct evidence of corruption, Pritchett and Sethi (1994) show how higher tariff rates not only are associated lower proportional collections but also with greater variance in rates actually paid.

Multiple equilibria are easy to generate – one with a high level of corruption, and one with very little. There are several variants, but the basic structure involves multiple officials and many potential bribers. The models are constructed so that the profitability of bribery increases as the incidence of corruption increases. For instance, J. C. Andvig and K.O. Moene (1990) rely on the bribers' ignorance ex ante about which officials are corrupt. The higher the proportion of corrupt officials, the easier it is to encounter a corrupt official, and the more private agents who expect to benefit from paying a bribe. Since the corrupt proportion increases with the level of bribes, an increase in the bribe level frequently *increases* the proportion of private individuals who pay bribes. This basic structure can produce multiple equilibria under plausible assumptions about the distribution of corruption costs across officials. There are two stable equilibria – one with a low incidence of bribery and low bribe levels, and another with high incidence and high individual payoffs. Temporary changes in the underlying parameters can produce long run shifts in the level of corruption.

This conclusion can be strengthened by several plausible extensions. For example, if moral scruples fall the greater the incidence of corruption, that would contribute to both upward and downward spirals. A similar result occurs if the probability of detection falls when the incidence of corruption rises (Andvig and Moene, 1990: 75). This might happen example, if there is a fixed budget for combating corruption and if the auditors depend upon the cooperation of honest officials in uncovering malfeasance. Then if few officials are corrupt, anticorruption resources can be used efficiently to collect evidence, thus discouraging corruption in the future. In contrast, when a high proportion of officials are corrupt, collecting evidence is costly and relatively ineffective, thus encouraging more corruption in next period (Lui 1986). The state can either settle for a high corruption equilibrium or spend the resources needed to tip the system to a low one (Lui, 1986: 18-22).

In a related model Oliver Cadot (1987) emphasizes the active role of qualified applicants who can report the corrupt demand and reapply to another official if the first demands too high a bribe. Qualified applicants will then pay no more than the cost of applying to another official, who may or may not also demand a bribe. Now the honesty of some officials increases the cost to unqualified applicants and may drive them away, reducing bribe revenues, and inducing some formerly corrupt officials to switch, further increasing the risk. Bribery is a gamble for both citizens and officials who must consider the possibility that the citizen will report the corrupt demand. This type of behavior can also produce multiple equilibria.

Jean Tirole (1996) focuses on the principal's hiring choices. The private sector's willingness to bribe is a given. The level of corruption is a function of agents' behavior and the kind of task they are given. High government officials can engage agents to perform an efficient or a less efficient task. Each period a different agent appears at the public agency's door asking to be hired. All the agents are part of a well-defined group of people eligible for these positions. One might think of a tax collection agency hiring collectors who may accept bribes from tax payers. The tax system might be either a complex one, in which agents must calculate taxpayers ability to pay or a simple fixed head tax. The group of potential tax collectors has a reputation based on the proportion who are always honest, the proportion who are always corrupt, and the proportion of opportunists. The principal has limited information about

the track record of the agent before him. Like the models described above, multiple equilibria exist under some parameter values. In the low corruption equilibria, the opportunists are all honest. If they maintain an honest track record, they will be hired for the lucrative, high efficiency task. In contrast, a high corruption equilibrium also exists where all the opportunists are corrupt. This is also sustainable since the overall corrupt reputation of the group makes it pointless for any one opportunistic agent to become honest. Short-run attempts to control corruption will be ineffective. A one period crackdown will not work. The possibility of a high corruption equilibrium can be read as an argument for policies that permit principals to monitor individual agents from period to period rather than relying on group reputation and weak information about individual applicants.

In these models the value of a civil service job deters bribery. Thus an increase in the public sector wage reduces corruption – an association that has been confirmed in exploratory cross-country empirical work (Van Rijckegham and Weder, 1997). In deciding on a civil service wage policy, a country may pay low wages and expect to attract only those willing to take bribes or pay high wages that also attract honest people. Assuming that corruption imposes costs, the efficient choice will depend upon the losses generated by corruption relative to the increased costs of paying high wages and monitoring for malfeasance. Sometimes the low wage policy will be most efficient even though it implies high levels of payoffs. In such cases, corruption is harmful, but a corrupt system is not as costly as a reformed one (Besley and McLaren, 1993; Flatters and MacLeod 1995).

Suppose, in contrast, to the above models that applicants know ahead of time which officials are corrupt and which are honest. Individuals who are qualified for a license can apply to any of a number of officials and can reapply if the first turns them down. Bribery simply provides applicants with a service they should have obtained for free. If some officials establish honest reputations, applicants will prefer those officials, thus reducing the gains to the corrupt. This reduction in benefits may induce some marginal officials to shift to being honest, further reducing the benefits to the remaining corrupt officials, and so on. A small number of honest officials can overturn a corrupt system if congestion is not a serious problem. In contrast to the above models, honesty may drive out dishonesty even if only a few officials are honest on principle (Rose-Ackerman, 1978). If, instead, those who pay bribes are unqualified, the honesty of some officials increases the gains to those who are corrupt, inducing more to become corrupt. Thus the progression of corruption over time is very sensitive both to the nature of the corrupt benefit and to the information available to private actors and public officials.

The level of corruption is also a function of the penalty function. Multiple equilibria occur because the net reward of corruption increases as the incidence of corruption rises. In contrast, suppose that the probability of being caught increases as the size of the bribe increases. Then it is no longer true that high bribes and a high incidence of bribes go together. The equilibrium bribe may either be very low with a low probability of catch or so high as to overcome the increased cost of being caught. In the latter case, few people may pay bribes, but those who do will pay very large ones. Law enforcement efforts have increased the size and lowered the incidence of payoffs. Similarly, if penalties are tied to the marginal benefits of corruption to the parties, greater deterrence is possible. In short, any of

the multiple equilibria models discussed here can be converted into single equilibrium cases with the appropriate choice of law enforcement strategy or change in the information conditions. Any change that ties penalties to marginal gains, as in the standard economics of crime literature (for example, Becker 1968), can remove a society from a high corruption trap. The only issue is whether such a policy is worth the social costs.

But in public agencies the problem of deterrence may go deeper than just getting the rewards and punishments right for individual officials. Low level corruption is often linked through hierarchical connections to corruption higher up (Wade, 1982). Low level officials are often the front line troops who collect the bribes and share them with superiors either directly or indirectly through the purchase of their offices. Initially, the payoffs to superiors may be a means of buying their silence, but when such payments are institutionalized, they become a condition of employment, organized by superiors for their own gain. In some cases, a pyramid operates in which each tier purchases its positions from the one above it.

Several recent theoretical efforts have tried to capture aspects of this phenomenon. Cadot (1987) develops a model where high level officials may cover up the corruption of subordinates in return for a share of their gains. The superiors are, however, not active in organizing the corrupt system, but simply wait for denunciation letters to arrive and then decide whether to accept the proffered payoff. According to Cadot (p. 224): "corruption at high levels of an administration feeds on lower-level corruption, while at the same time shielding it, and each level is encouraged by the other." His model has two possible equilibria. In the first, only low level bribery occurs where subordinates are not willing to pay enough to eliminate the risk of being detected and fired. In the second, low level bribes are higher and used, in part, to pay off those superiors who receive information about corrupt deals.

Kaushik Basu, Sudipo Bhattacharya, and Ajit Mishra (1992) develop a recursive model where low level corrupt officials calculate the chance that they may need to bribe superiors to avoid being disciplined for corruption. Penalties are imposed if the superior (or a law enforcement officer) cannot be bought off. The actors are in a chain of command so that each official has another one above who may also need to be bought off. This chain can either be modeled as infinite or finite with a honest official at the top. In the model officials always make deals so the penalty is never paid. Nevertheless, the level of the penalty increases the threat point of higher ups, thus reducing the benefits to the official at the bottom and deterring bribery. This model is another illustration of the point that if expected penalties are not a function of the size of the bribe, they will both deter corruption and raise the level of bribes that are paid.

Payments to obtain major contracts, concessions, and privatized firms

Corrupt payments to win contracts, concessions, and privatizing companies are generally the preserve of large businesses and high level officials. The important cases represent a substantial expenditure of funds and can have a major impact on the government budget and the country's growth prospects.

Is there anything distinctive about such deals other than their size? At one level they appear analogous to cases in which government disburses a scarce benefit, only this time the value of the benefit is valued in many million, not a few thousand dollars. Under competitive conditions the high briber will be the most efficient firm, and the winner will

behave efficiently ex poste irrespective of whether or not it used a bribe to obtain the benefit. The same caveats about bribes paid to obtain benefits or avoid costs apply here although the efficiency goal seems less problematic in this context, and the benefit obtained is not itself illegal. Nevertheless, systemic corruption can introduce inefficiencies that reduce competitiveness. It may limit the number of bidders, favor those with inside connections over the most efficient candidates, limit the information available to participants, and introduce added transactions costs.[5] But does the scale of the corrupt deal and involvement of high level officials change anything?

One essential difference is the likelihood that rulers are effectively insulated from prosecution. They will thus be less restrained in their corrupt demands than lower level officials who may be subject to more external and internal constraints. This circumstance may imply that high level corrupt officials can obtain a higher share of the rents available than lower level ones.

Since deals involving major contracts, concessions and privatizations can each have a noticeable impact on the government budget and the country's overall prosperity, the size and incidence of the payoffs is especially relevant (Bigsten and Moene, 1996; Faruqee 1994). Furthermore, although those who obtain licenses and tax breaks through bribery are rarely thought to behave inefficiently once the benefit is obtained, the contrary argument is often made for the kind of major deals considered here. Thus I consider, first, the incidence of corrupt payoffs and, second, ask if corruption breeds inefficiency in firms that pay bribes.

To isolate these distinct issues consider a logging concession obtained corruptly by a company over the higher bids of competitors. Suppose that as a result of corruption, the government obtains less than fair market value for the resources under its control. If corruption does not restrict entry and if the official cannot affect the size of the concession, however, the high briber is the firm that values the benefit the most. It is the most efficient firm that would offer the highest price in a fair bidding procedure. The losses are the dead weight losses of the extra taxes that must be collected and the foregone benefits of public programs not undertaken. Honest officials receive distorted information about the value of the concession and may in the future support fewer of them. A similar analysis applies to corrupt contracts and privatization projects. The most efficient firm will be selected under competitive bribery, but the benefits to the government are reduced.

With a monopoly official and a competitive corruption "market" allocating a fixed benefit, the official will extract all the rents. The benefit to the firm will be exactly what it would obtain in a comparable auction (Beck and Maher, 1986; Lien, 1986). The bribe is a transfer from the government to the public official. Suppose, instead, that the market is an oligopolistic one and that the most efficient firm would earn economic rents if it bid just enough to beat its closest competitor. Then a bargaining range exists. If no one has any scruples, the most efficient firm will still win the bid, but it may be able to retain some economic rents for itself. Now the comparison with an honest system is more complex since one cannot be sure exactly

5. Lien (1990) canvasses these difficulties. See also Rose-Ackerman's (1978: 121-132) model of corruption in public contracting.

what would have transpired in an honest auction.[6]

In general, the bribe will be extracted partly from returns that would otherwise flow to government and partly from the profits of the winning firm. However, in some cases a corrupt deal may be more lucrative for firms than an honest deal in spite of the monopoly power of the rulers. From a development point of view, the greater the loss to the government, the more serious the problem, especially in countries that have few alternative sources of revenue. Even when the bribes are mostly extracted from firm profits, however, there may be a longer term impact depending upon whether corruption increases or decreases firms' profits. The same analysis can be carried out for privatization projects and, in reverse, for contracts.

Now consider a firm that has obtained a secure long term timber concession at a bargain price even when the bribe is added in. If it operates in the international market, its subsequent actions should depend upon the market for timber. The fact that is has underpaid for the concession should not affect its production decisions. It still seeks to maximize profits, and the concession payment is a sunk cost. The cost of corruption is felt by the public fisc, but no inefficiency has been introduced into the international timber market. Even if the total payment is above that expected in an honest system, there should be no impact.

The claim of no impact on firm behavior is an important result, but it is too simple to reflect reality. The operative terms are *secure* and *long term.* The corrupt nature of the deal introduces uncertainties into the economic environment that can have additional effects on the way private firms do business. The corrupt nature of the deal may give the firm a short run orientation.[7] There are two reasons for this. First, the concessionaire (or contractor or purchaser of a privatized firm) may fear that those in power are vulnerable to overthrow because of their corruption. A new regime may not honor the old one's commitments. Second, even if the current regime remains in power, the winner may fear the imposition of arbitrary rules and financial demands once investments are sunk. It may be concerned that competitors will be permitted to enter the market or even worry that its contract will be voided for reasons of politics or greed. Having paid a bribe in the past, the firm is vulnerable to extortionary demands by those who can document the illegal payments. For these reasons, the corrupt firm with a timber contract may cut down trees more quickly than it would in less corrupt countries. It may also be reluctant to invest in immovable capital that would be difficult to take out of the country should conditions change. In short, both the timing of production and the input mix may be inefficiently chosen as a result of the corrupt nature of the system.

Furthermore, it is unlikely that corruption will be limited to a one time payment to top officials to cement the deal. Instead, the winner may be a firm more willing than

6. Obviously, if the contract price is fixed ex ante, bribes will simply be transfers from firms' profits to officials' bank accounts (Beck and Maher, 1989). Efforts to deter bribery reduce the level of payments, but have no allocative effects. Although this seems a very unrealistic assumption, it does suggest a policy response – favor standardized products and benchmark contract values using international market prices.

7. See Coolidge and Rose-Ackerman (1997). For an example of the short run orientation of corrupt timber concessionaires in Malaysia see Vincent and Binkley (1992). Deacon (1994: 415) reports studies showing that security of tenure is negatively associated with deforestation rates, and he points to case studies showing that when property rights are poorly enforced, deforestation is more rapid.

others to engage in ongoing corrupt relationships up and down the hierarchy to protect its interests. For example, if the timber concession includes a royalty per log that is calibrated by the type of timber, the firm may pay inspectors to misgrade the logs. It may also pay to cut down more trees than the concession permits. In fact, the expectation of a long term ongoing relationship may be part of the appeal of signing with a corrupt firm in the first place. Alternatively, the corrupt firm may itself hold back some promised bribes as a way to guarantee performance by the country's officials. Frequently, such arrangement take the nominal form of consulting contracts with payments tied to the receipt of funds under the contract.

Even when the exploitation of a country's natural resources is carried out efficiently by the corrupt firm that wins the bid, the struggle for rents can have a destructive impact on the economic and political system. Talented people may concentrate their effort on rent seeking rather than on productive activities. This can occur on both sides of the corrupt transaction. Thus potential entrepreneurs may abandon the private sector and become public officials charged with allocating rents. In a democracy, people may seek political office, not to fulfill some idea of public service, but to extract as many rents for themselves and their supporters as possible (Diamond, 1995). Similarly, private business people may concentrate on the struggle for publicly provided benefits, be they mineral concessions or aid contracts, rather than on establishing productive enterprises. Considerable evidence suggests that a strong natural resource base may be a hindrance to economic development (Gelb, 1988; Sachs and Warner, 1994). The reason for this outcome is presumably the incentive to substitute rent seeking for productive activity. Each individual sees that the most effective way to seek wealth is to try to take it from someone else or from the state rather than to produce an increment (Krueger, 1974).

Some analysts are relatively sanguine about high level corruption arguing that the most serious problem is low level corruption under which officials "overfish" a "commons" in their search for rents (Shleifer and Vishney, 1993; Olson, 1993; Rodrik, 1994). Corruption organized at the top will be designed to maximize monopoly rents and will thus lead to inefficient supply restrictions but will have no impact on productive efficiency. In contrast, competitive rent seeking may be more costly and inefficient. This result is a direct application of a familiar result in the economics of property rights (Hardin, 1968). A single "owner" of the rents will be productively efficient even as he exploits his monopoly power. When no one owns the common pool, an inefficient amount of effort will be spent fishing. One way to extract rents is to create extra rules and regulations. Especially destructive, according to Shleifer and Vishney (1993: 606) is the possibility that new bureaucratic entrants will try to obtain a share in the rents.

A policy implication of this analysis is that high level corruption is less harmful than low level corruption so that most effort should be placed on corruption at the bottom. This is a problematic conclusion that only holds within the confines of the model. The model assumes a fixed level of rents in the private sector (the common pool) that public officials try to extract. A monopoly official constrained to charge a single price would supply a quantity where his net marginal revenue equals zero. Suppose, instead, that two (or more) officials demand bribes of the same firm so that the firm cannot act unless both are satisfied. In that case, the per unit bribe is higher, and output is lower. Overall aggregate bribes are lower because output is lower

(Shleifer and Vishney, 1993: 606). From a policy point of view, however, the key point is that output is below the monopoly result.

Before one converts the results of this model into policy, however, one needs to recognize its limitations. The size of the common pool is often not fixed. Instead, officials may have the power to expand the pool, and higher up officials will generally have more power to increase the reach of the state than lower level ones. Those at the top can extend state tax and regulatory authority to new sectors. They can nationalize industries. They can introduce general protectionist policies that go far beyond the reach of lower level officials. Furthermore, higher ups are likely to face fewer constraints on their actions than low level officials. Thus the model takes too much as given to provide a general recommendation on where to concentrate anti-corruption efforts. Furthermore, unless the populace is living in fear of its corrupt rulers, it is difficult to see how a policy of cleaning up low level corruption could succeed if lower level officials perceive the continued and even growing corruption of their superiors.

Toleration of corruption can produce incentives for officials to increase the opportunities for payoffs in the next period. High up officials are likely to be able to do this more effectively than lower level ones. They can, for example, propose expensive, complex, capital intensive projects that can be used to generate bribes. They can reduce oversight of public officials. They can increase the level of trade protection, taxes, and regulatory requirements, planning to grant exemptions in return for payoffs (Rose-Ackerman, 1998; Bardhan, 1997; Bigsten and Moene, 1996).

But, one might argue, an autocrat will not push rent generating programs so far as to seriously undermine growth. He will have a long run viewpoint and hence will seek ways to constrain uncoordinated rent seeking so that his long term gains are maximized. In fact, this seems to have happened in some East Asian countries where rulers have established institutional mechanisms to cut back uncoordinated rent seeking by both officials and private businesses (Campos and Root, 1996). Why don't all autocrats do this? The answer seems to be that not all of them have long time horizons. Once again, an unstable spiral may exist. A corrupt ruler fears exposure and hence has a short term perspective; this induces him to steal more which makes him even more insecure, and so forth. The key in not autocracy per se, but the stability of the ruler. For example, suppose that a stable autocracy is more corrupt than a democratic regime and less corrupt than an insecure autocracy. Then if democratic movements arise in autocracies that threaten their future, the result could be an increase in corruption as the rulers react to their new insecure status. Once they leave office in a government reform, however, the new rulers cannot expect a low level of corruption automatically to result.[8] A new less corrupt system must be self-consciously established.

Another risk for long-ruling autocrats is overconfidence. They use past stability to predict future stability and believe that nothing will change if they increase their take from ten per cent to fifteen per cent. If such a shift succeeds, the proportion may escalate

8. The lessons of the multiple equilibria models discussed above are relevant here. According to Andvig and Moene (1990: 70-71, 75) an increased probability of regime change may increase the level of corruption, jumping the system to the high corruption equilibrium. When the uncertainty is resolved, the situation will be trapped at the high corruption equilibrium.

over time until growth is, in fact, undermined. If any unexpected shock occurs – a fall in the prices of exported oil or other raw materials, for example – , the regime may be caught in a bind. If it cuts back corruptly obtained benefits, its former allies may organize to unseat the incumbents. If it does not cut these benefits, it may become vulnerable to overthrow by groups outside of the economic and political elite who benefited from overall growth and are now asked to bear the brunt of the costs of adjustment (Chhibber, 1996).

Payments to avoid inefficient rules and burdensome taxes

Suppose a state has many inefficient regulations and levies burdensome taxes on business. Given the existing inefficient legal framework, payoffs to avoid regulations and taxes increase efficiency.[9] Even if the corrupt "market" has some of the problems outlined above, the result may still be superior on efficiency grounds to compliance with the law. This defense of payoffs is commonly espoused by foreign investors in the developing world and appears in discussions of investment in eastern Europe and the former Soviet Union as well. The case is important because it attempts to justify corruption carried out to obtain benefits to which one is *not* legally entitled. Bribers are better off than they would be in an honest system in which they had to comply with the law.[10]

This argument raises the question of whether individuals and firms are obligated to obey only laws that they judge to be efficient and just. Clearly, in the developed world individuals and firms are not entitled to decide on their own what laws to respect. In the United States industry's response to environmental and health and safety rules that it finds burdensome is not generally to bribe officials or enlist the help of criminals to evade the law. Instead, firms work to change the laws in Congress, make legal campaign contributions, lobby public agencies, and bring lawsuits that challenge laws and regulations. One can complain about the importance of wealth and large corporations in American political life, but, at least, well-documented lobbying activities and campaign contributions are superior to secret bribes in maintaining democratic institutions.

Some of the same firms that engage in legal political activities at home feel less constraint about violating laws in developing and transitional economies. Since the United States outlaws bribes paid abroad to obtain business, American companies face a domestic legal constraint.[11] But the perceived importance of that constraint suggests that multinationals do not generally feel an obligation to obey the law in the developing countries where they operate. However, it is not just multinationals that behave in this way. Domestic companies often operate in the same fashion.

There are two difficulties with widespread tolerance of such corruption. First, one

9. Oxford Analytica (1996) issued a note which states that: "If assumptions that some state bureaucracies are inefficient are made, and that the degree of regulation or taxation that they impose is excessive, three possible benefit of corruption emerge." The benefits are as follows. Bribes can speed up processing for profitable projects by permitting them to get to the head of the queue. Bribes can overcome excessive regulation, and bribes can reduce tax payments. The authors conclude that, given the costs of prevention, corruption "may offer a 'second best' alternative [to more fundamental reforms]."
10. The case is analogous to Shleifer and Vishney's corruption "with theft" (1993: 602).
11. The act is the Foreign Corrupt Practices Act, 15 U.S.C. §§ 78m(b) & (d)(1) & (g)-(h), 78dd-1, 78dd-2, 78ff (a) & © (1988 & Supp. IV 1992).

cannot rely on investors only to pay bribes to avoid *inefficient* rules and taxes. They will, instead, want to reduce the impact of *all* state-imposed burdens, justified or not. Of course, one can construct models in which the laws on the books are all payoffs to politically powerful groups with no public legitimacy (Brennan and Buchanan, 1980; Stigler, 1971; Oxford Analytica, 1996). Then avoiding the burdens imposed by such laws seems a worthy goal. Unless one is a strong libertarian who believes that all state action is illegitimate, however, such a criterion is not readily operationalizable. Should firms or individuals be able to defend against a charge of corruption with a showing that the law was unjust or inefficient? This would put a policy analytic burden on the law enforcement system that it is ill-equipped to handle in practice and that it is illegitimate to impose on it in theory.

Second, it seems strange indeed to tolerate business firms' judgments that a well-placed payoff is justified because it increases their profits. Such an attitude can do serious harm in nations struggling to build a viable state. These states need to develop public choice mechanisms that translate popular demands into law, that provide a credible commitment to the enforcement of these laws, and that provide legal recourse to those who think they have been wronged. If, instead, investors and ordinary citizens make individualized judgments about which laws are legitimate, the attempt to create state institutions will founder. Bribery will determine not only which laws are enforced, but also what laws are enacted. All states, even those that have most successfully curbed the power of special interests, enact inefficient laws, but no state could operate effectively if individuals could take the law into their own hands and justify doing so by reference to cost-benefit criteria.

Conclusions

The cases in which corruption enhances the efficiency of agents and improves the allocation of public services are limited. The cross-country empirical studies that show a negative relationship between corruption and weak public institutions, on the one hand, and growth, on the other, receive broad support from a more fine-grained consideration of the operation of corrupt public programs and activities. Corruption can further short term efficiency in a subset of quite specific cases, but neither theory or evidence suggests that it is a spur to economic growth . Stable states that operate under the rule of law have a development advantage. Since corruption undermines this commitment, it undermines state legitimacy and in the process harms the prospects for growth.

Both theory and practice suggest that there is no single simple response that should be adopted across the board once the basic anticorruption statutes are in place. Instead, there are two different but related types of corruption – corruption involving high level officials that often implicates multinational corporations or large domestic firms; and corruption that is endemic in the way the government carries out its routine activities such as tax collection, customs, licensing, and inspections. Within each of these categories, some payoffs facilitate illegal activities and some are paid to obtain benefits to which one is legally entitled. Cutting across reforms that seek to reduce particular types of payoffs, special efforts may be needed to establish the integrity of independent institutions, both inside and outside of government, that play an important role in oversight, prosecution, and judgment.

Economic growth is constrained by systemic corruption, but growth alone is not a cure. A growing pie may just imply that there are more rents to divide. Corruption

may be more tolerable if the pie is growing since everyone can receive some benefits, but for that very reason it may be more likely to spread. An economic downturn will then leave the regime in power vulnerable to overthrow since it can no longer satisfy all those who have shared in the spoils.

Countries serious about fighting corruption will require a detailed country-specific assessment, but a few general remarks are possible. The first step is to discover where corruption is imposing the most costs. Here are several common possibilities. (1) Tax and customs revenues may be far below the level needed to carry out basic government services and the pattern of payments may be very inequitable due to payoffs. The response should be both to simplify the tax laws to reduce bureaucratic discretion and to reorganize the bureaucracy to improve oversight and incentives for good performance. (2) Regulation of business may be so complex, time consuming, and intrusive that the development of a healthy private sector is affected. Here the answer is a hard look at tax and regulatory laws to see which can be eliminated, which can be simplified and which require improved enforcement. One common pattern seems to be much pointless business regulation that generates bribes combines with ineffective regulations in socially beneficial areas such as environmental protection. (3) Another costly pattern is state sponsorship of massive infrastructure projects that are too large and complex. The cost of corruption is, not the bribes themselves, but the cost of the inefficient projects they encourage. Even if direct evidence of corruption is not available, evidence of the inappropriate scale and design of projects should be sufficient to cancel them. Such a change in direction must, however, be combined with improved procedures for future project approvals or the pattern may repeat.

Second, basic institutional reforms will usually also be needed as a precondition for reform in particular sectors (Pope 1996, Rose-Ackerman 1997, 1998). The problem is to institutionalize such reforms so that they will endure changes in personnel and changes in the political coalition. Fundamental change requires commitment from the top and a willingness to let the chips fall where they may once the anticorruption effort unfolds. Governments that make it very difficult for independent voices to be raised in criticism will have an especially difficult time establishing a credible commitment to honest and transparent government. Such governments may be able to move quickly in the short run, but always pose the risk that their policies will be reversed in the future.

Economic analysis suggests that systematic corruption is harmful not only to overall economic growth but also to the efficiency of the economy. The available empirical work confirms this view. However, there is much that we do not know. More work is needed both to isolate the mechanisms by which corrupt systems operate and to find out what kinds of policies work best to limit the costs of corruption under different conditions.

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