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CORRUPTION

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Abstract

This chapter reviews the literature on corruption, which is both vast and diverse. Analytically, corruption has been of great interest to economic theorists in recent years because it is an archetypal problem of asymmetric information involving collusion between agents and ‘outsiders’ against principals, or between supervisors and agents against principals. Most of the models up to now have been essentially static, but recent papers have shown that there is a real prospect of developing dynamic models which can explain the persistence of corruption.

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1. Introduction

Corruption has been around for just about as long as institutions of any sort. In the times of the Greek and Roman empires, for example, corruption was widespread (MacMullen, 1988). Indeed, the corruption of tax officials was so common at that time that it was found expedient to ‘privatize’ tax collection by auctioning rights to collect taxes (Webber and Wildavsky, 1986). Modern democratic government emerged from earlier structures which were ‘rotten to the core’, and the professionalisation of the civil service in the nineteenth century in England was aimed in part at eliminating the sapping effects of corruption on public servants. In the present day, corruption ‘scandals’ are widely reported in the press from almost all walks of life including politics, government and business. The sums involved can range from tiny payments or even small personal favours to bribes running into millions of dollars.

Corruption can be distinguished from ‘*fraud*’, ‘*embezzlement*’ and ‘*extortion*’. The essence of corruption is that two individuals or groups act in concert to further their own interests at the expense of a third party. Fraud, or extortion, by contrast involves an individual or group acting unilaterally to further their own interests at the expense of others. In the language of principal-agent theory this entails collusion between the agent and supervisor

against the principal. There are, nevertheless, many everyday situations in which such *collusion* occurs, even when it is at the expense of the principal, where there would be no (legal) presumption that *corruption* has occurred. A patient and doctor, for example, may 'collude' against the insurer responsible for the costs of treatment by agreeing for the patient to have more costly medicine than is necessary. This might be considered corrupt if the doctor has a financial interest in the provision of medicine, but otherwise it would probably be called just another 'agency cost' (Bowles and Rickman, 1998). A good deal of 'corporate hospitality' involves the provision of private benefits to individuals in the hope that the closer personal relationships it fosters will prove a 'worthwhile investment'.

Another everyday instance of the 'grey area' between honest and corrupt transactions is where a consumer can benefit by paying 'over the odds' for additional service which directly benefits the employee of a firm but not the firm itself. In some service sectors, such as hairdressing or hotels, gratuities are regarded as normal and acceptable. In other sectors, such as refuse collection, gratuities may be discouraged or even prohibited.

In many jurisdictions corruption is a criminal offence, although it is clear from the relevant legislation that there are difficulties in defining it and in setting standards of evidence for it as an offence. In England and Wales, for example, the Prevention of Corruption Act 1916 (the act which governs public sector corruption in Britain today) coverage extends to members, officers or servants of a public body. Any 'gift, loan, fee, reward, or advantage whatever' will count as corruption if it is in consideration of any act or admission by the public servant. The penalties for the offence can amount to seven years imprisonment or a fine or both, in addition to repaying the amount involved. On a second offence a person stands to lose various rights to vote and may lose any compensation or pension rights to which a public position might otherwise entitle them. As a measure of the response of the legislature to difficulties in seeking successful convictions for the offence, in some circumstances the burden of proof lies on a public employee who has received a payment to show that a suspicious transaction was not corrupt.

Under US law the position is a little different. There is not an outright ban on receiving rewards. The US Department of Defense directive 55007 allows gratuities when they are a 'part of a customary exchange of social amenities between personal friends and relatives when motivated by such relationships and extended on a personal basis' (Adams, 1981).

Though there are many countries in which bribing officials is illegal, it was only in 1997 that 34 countries signed an agreement aimed at eradicating bribery of foreign officials by making such payments a criminal offence and ceasing the practice of making them tax deductible (Tanzi and Davoodi, 1998).

In many countries there may be conflict between social custom and practice on the one hand and the letter of the law on the other. Many cultures rely on the giving of gifts as a symbol of a mutuality of interest. The dividing line between recognising a mutual obligation of support and doing favours expressly in exchange for a reward can be a fine one (Klitgaard, 1991). It is in part because of this ambiguity that some authors have argued that the definition of corruption should be refined to include a wider morality and allow for obligations to others (Palmier, 1983; Lewis, 1996).

In everyday use corruption is a term which conveys an element of moral disapproval. It represents an unwelcome deviation from some desired state of the world. Officials or politicians taking bribes are portrayed as ruthless and selfish people exploiting their office for their own private interests at the expense of the wider public good. It is implicit in most discussion of this kind that elimination of corrupt transactions would self-evidently improve welfare. Corruption in this kind of sense is widely recognized as a 'problem' in many countries today. Indices measuring the degree of corruption in the countries of the world are widely published: Business International and Political Risk Services publishes an annual index, International Country Risk Guide; see also Business International Corporation (1984).

In an academic context corruption is a term used in many disciplines (including anthropology, sociology, politics, public administration and development studies) and can refer to a very wide diversity of activities and states of affairs. Shleifer and Vishny (1993), for example, 'define government corruption as the sale by government officials of government property for personal gain'. But this is a much narrower definition of corruption than the classical authors of political theory such as Plato and Aristotle used (Bouckaert, 1996). For them, and for some more recent authors such as Andreski (1978), corruption was not so much a class of illegal practices as a kind of complete subversion to which states and civilisations were vulnerable. In this more classical sense corruption conveys the idea of wrecking or destroying institutions. The more recent use of the term does not have this same connotation, although authors differ widely in the moral content they give the term. For purposes of this review we take a 'middle of the road' view, by defining corruption more widely than Shleifer and Vishny but less broadly than Plato and Aristotle. We include private sector institutions but make rather little reference to the corruption by rulers of the basic machinery of the state.

2. The Literature on Corruption

The literature on corruption is both vast and diverse. There is a journal (*Corruption and Reform*) which has been running since 1987 for which it

represents a focus of study, whilst a number of journals have devoted special issues to the subject, some recent examples being: *Stato e Mercato* (April 1992); *Crime, Law and Social Change* (1994-95); *Informacion Comercial Espanola* (May 1995); *Indian Journal of Public Administration* (July-September, 1995); *European Journal on Criminal Policy and Research* (vol 3(2), 1995); and *Journal of Law and Society* (March 1996).

Over the past decade corruption has attracted attention also within the mainstream economics literature as theorists have become increasingly interested in the structure of organizations and agency problems. The impetus for the rapidly growing interest in corruption on the part of economists in recent years is usually traced back to the pioneering work of Rose-Ackerman (1975, 1978a). Texts on microeconomics and on the economics of organisations are increasingly likely to contain discussion of agency problems (Katz and Rosen, 1994) and even corruption itself (Brickley, Smith and Zimmerman, 1996).

It is this strand of literature on which we focus here for the most part. In contemporary economics the notion of corruption is often used in a fairly narrow and technical way to refer to a particular type of opportunistic behaviour which rational agents will follow. In particular corruption results as a cooperative outcome in games involving three or more players, where two (or more) players can collude at the expense of a third party. Bribes to officials are thus readily explained as transactions in which both buyer and seller of a favour benefit at the expense of the organisation or hierarchy within which the official works. This same basic principal-agent model has many applications, such as to the 'agency problems' resulting from the divorce between ownership and control of firms. Lazy managers indulging their workers' preferences for an easy life make life more agreeable for both the manager and the workers at the expense of the profits remaining for the firm's shareholders (Katz and Rosen, 1994). Such behaviour is often described as collusion rather than as corruption, even though it meets most definitions of corruption (Tirole, 1986, 1992).

A survey of the literature on corruption could be organised in many ways. It could be based on discipline or on the type of corruption or on dimensions of corruption such as causes and consequences. We opt here for organisation around various strands in the economics literature on the topic. Sections 3 and 4 set out a basic, or generic, model of corruption giving a flavour of contemporary work in the field. Section 5 explores the Public Choice approach. Section 6 explores some of the applications of corruption models to private sector firms. Section 7 reviews bureaucratic corruption and Section 8 concentrates on political corruption. Section 9 is concerned with 'macro' models of corruption which focus on the consequences of corruption for investment levels, growth rates and so on. Section 10 reviews policy to combat corruption. Section 11 reviews the analysis of corruption in LDCs and Section 12 concludes.

3. Basic Economic Analysis of Corruption

A natural starting point for the economic analysis of corruption is to treat it as any other crime and to apply to it the standard economic model of crime developed originally in Becker (1968) and extended subsequently by many authors such as Polinsky and Shavell (1979, 1984). In this basic model the persons contemplating corruption take account of the expected benefits in the form of bribes, favours or payment in kind and compare the monetary equivalent of these gains with the expected costs in the form of a probability that they will be detected and the monetary sum (or equivalent) of the punishment should they be convicted. Such a formulation has close parallels with the application of the Becker model to the economics of tax evasion by Allingham and Sandmo (1972). Corruption is predicted to occur if the net expected gain is positive.

The important element in corruption which is missing in the earlier applications of the Becker model is, of course, that both sides to a corrupt transaction are usually committing a crime and not just one side. In the tax evasion model the taxpayer has private information not available to the tax official and all that is entailed analytically is a calculation on the part of the taxpayer as to whether, or how much of the information, to disclose. In a corruption model, *each* side has to be persuaded that it is worthwhile for *both* sides to collude in sharing information which will not be disclosed to third parties.

A simple algebraic formulation helps crystalize ideas on this basic model and forms a useful base on which more sophisticated models can be constructed. We suppose that a citizen stands to enjoy a rent, R . The 'rent' can take a great many forms: it might be an unpaid tax liability, or avoidance of a term of imprisonment, or the supernormal profits from the receipt of monopoly rights and so on: it could be as simple as the gain from having a document processed. A bureaucrat (or regulator or politician or another citizen) is in a position to decide whether or not the rent is to be enjoyed by the citizen. In exchange for a bribe B the bureaucrat promises to bestow the monopoly right, to process the document or to keep the incriminating information secret or whatever. There is nevertheless a risk, in the form of a probability, p , known to both the citizen and the bureaucrat, that payment of the bribe will be detected by a third party in which case both parties to the corruption will be liable for punishment. For the citizen, discovery will mean liability to pay a fine F whilst for the bureaucrat it will mean liability to pay a fine G and to repay the bribe B .

To keep the model simple, assume both parties are risk neutral so that the calculation of expected gains and losses need contain no reference to utility levels. Assume also that both parties to the corruption are sincere, so that we can ignore both the possibility that the citizen is trying to lure the bureaucrat

into an illegal act and also any fear the citizen might have that the bureaucrat will renege on the corrupt agreement and spill the beans after taking the bribe.

For the citizen, payment of a bribe will be worthwhile iff:

$$(1 - p)(R - B) - p(F + B) \geq 0 \quad (1)$$

The first term refers to the case where the bribe goes undetected so that the citizen enjoys the rent net of the bribe paid. The second term refers to the case where the bribe is detected and the citizen, who has already paid a (non-recoverable) bribe, is fined for corruption. Condition (1) can be rearranged in the form of an upper bound, B^U , on the size of bribe the citizen will find it worthwhile paying:

$$B^U \leq R(1 - p) - pF \quad (2)$$

For the bureaucrat, the calculation is that taking the bribe is worthwhile provided that:

$$(1 - p)B - pG \geq 0, \quad (3)$$

where, again, the first term refers to the case where the bribe is undetected and the second term to the consequence of detection. We assume that the bureaucrat assigns the same value, p , to the probability of detection as does the citizen. The condition can then be rearranged in the form of a lower bound, B^L , on the bribe which will induce the bureaucrat to conspire in the corruption:

$$B^L \geq pG / (1 - p) \quad (4)$$

Corruption is assumed to occur in this simple model if there exists a bribe at which the citizen and the official both find themselves better off. This condition is satisfied if and only if the upper bound for the citizen exceeds the lower bound for the official, that is $B^U > B^L$. This is equivalent to the requirement that:

$$R(1 - p) - pF > pG / (1 - p), \text{ or that:}$$

$$R > [pG + pF(1 - p)] / [(1 - p)^2] \quad (5)$$

The 'enforcement parameters' p , F and G describing the probability of detection and the size of the punishment, have to be viewed against the prospective gain to the citizen from corruption. Corruption occurs so long as the rent at stake is sufficiently large to offset the expected punishment.

4. Implications of the Basic Model

Many of the main findings from the corruption literature are at least implicit in the formulation of the previous section, namely:

1. There is nothing to prevent a 'rotten core'. Corruption will occur if the lower bound from (4) is below the upper bound on willingness to pay a bribe derived in (2).
2. As condition (5) indicates, this is equivalent to requiring that the rent at issue is sufficiently high relative to the parameters p , F and G defining the probability of detection and the punishment structure. In policy oriented models it is common to specify either the fines as related in some way to the size of the rent at issue and/or to consider a group of citizens across whom the value of R varies. In this way it is possible to model the *extent* of corruption rather than modelling a (binary) choice problem for an isolated citizen who either indulges in corruption or avoids it;
3. Increasing the fine for citizens, F , will tend to reduce corruption since it raises the cost of detection and thus reduces the net pay-off from corruption: B^U falls while B^L remains constant;
4. Likewise for the penalty, G , imposed on officials: this time B^L rises while B^U remains constant, with the result that corruption again becomes less profitable;
5. Increasing the probability of detection, p , simultaneously reduces B^L and raises B^U and thus erodes the difference ($B^U - B^L$) on which corruption depends;
6. There is in the transaction at least some of the character of a bilateral monopoly, so long as neither side can readily contact alternative buyers or sellers. The size of the bribe may thus be indeterminate, requiring the introduction of some assumption about the bargaining which will take place between the citizen and the bureaucrat;
7. Introducing competition into the model, for example through allowing the citizen to canvass a range of (corruptible) bureaucrats, may result in Bertrand competition between officials driving bribes down to the competitive level. Corrupt officials try to attract bribes by offering more attractive or cheaper terms than their competitors with the result that the bribe gets driven down close to zero (Shleifer and Vishny, 1993).

We consider some of these findings and further extensions in sections below concerned with more sophisticated models of corruption. One obvious extension is to consider the monetary cost to the bureaucrat of being detected not just in the form of a court-imposed fine, but as putting at risk the bureaucrat's pension rights and any wage premium (relative to available

alternative job openings) she is earning as a bureaucrat (see Becker and Stigler, 1974).

A second line of development is to introduce a layer of officials (supervisors or auditors) whose responsibility is to detect corruption by 'front-line' officials. In these multi-tier hierarchies it is possible to specify different kinds of 'supervisory technology' and to distinguish 'systemic' corruption from corruption specific to a single tier (Bac, 1998).

Another extension is to consider corruption in a dynamic model rather than in a purely static way. Individuals who sense that corruption is potentially profitable for them may seek to 'regularize' corrupt arrangements so as to minimize the risk of being surprised by detection and to reduce transactions costs to a minimum. The systematic corruption of police by organized criminals can be interpreted in this way as can various political arrangements, including bureaucratic corruption in the 'old Soviet' type of economy (Shleifer and Vishny, 1992).

From a policy perspective the central question to which this basic model can most readily be applied is the choice of an optimal level of resources to put into the detection of corruption and the choice of an optimal fine. As in other areas, the tendency of this optimal law enforcement model, as pioneered by Becker (1968) and reviewed recently by Garoupa (1997), is to produce solutions suggesting high, possibly maximal, fines and comparatively low probabilities of detection. There are two reasons why these sorts of results tend to emerge. First, fines represent transfer payments rather than real resource costs so that, other things equal, it is usually judged better to rely on the deterrent power of the fine rather than on a high probability of being caught (Polinsky and Shavell, 1984). Secondly, in an area such as corruption where the incentives to report the crime are small, if not non-existent, it is likely to be extremely costly to raise the probability of detection significantly.

One drawback of this model, albeit one which is shared by most models of corruption, is the difficulty of collecting empirical data which could be used to test it. The probability of detection, for example, would require information about the proportion of offences involving corruption in which an individual is detected and convicted. But one of the central features of corruption is that it is, in essence, a cooperative venture which both participants have every incentive to keep secret. It is thus extremely difficult to identify either particular instances of it or its extent in aggregate. From an analytical perspective the question becomes one of how individuals might construct or update (subjective) estimates of probabilities in such circumstances, a matter which is discussed in some of the literature on information, and particularly on the value of message services (see ch. 5 of Hirshleifer and Riley, 1992). There are very obvious parallels with the analysis of the 'underground' or

'black' economy: ingenious indirect methods may be used to make estimates of how widespread are the transactions at issue, but nobody really knows (Pyle, 1992).

5. Corruption and Public Choice

Whilst the analysis of behaviour under uncertainty has provided a comparatively straightforward line of approach, as we have shown in the previous two sections, there has been a parallel line of intellectual enquiry which has also been influential in the development of our understanding of corruption. The application of economic reasoning to public bodies and political processes has resulted in the development of an analysis of government and bureaucracy which stresses the critical role played by individual interests and objectives in the shaping of these institutions. The formulation of ideas which came to be known as the theory of public choice showed a recognition that public policy could not be thought of simply as the pursuit by pure-minded automata of 'the public interest' but rather represented the outcome of decisions by individuals (be they politicians, bureaucrats or interest groups) with their own interests and their own agenda. Early analyses in this vein were the work of Downs (1957) on the motives of politicians and of Niskanen (1974) on bureaucrats.

The 'public choice' approach emphasizes the role played by the private interests of all the players involved in the formulation and execution of policy. For surveys of the public choice approach see Mueller (1979), or Cullis and Jones (1992). The capture of politicians by interest groups is studied by Becker (1983). Corruption is something which fits very naturally into a picture of the world in which politicians, bureaucrats and citizens are all busily searching for strategies for pursuing their own private motives at the expense of others, whether they be taxpayers, other citizens or whatever. It might be noted also that principal-agent models of the kind reviewed in Section 2 above are quite close in spirit to the Public Choice approach, although they tend to a higher degree of abstraction.

The analysis of rent seeking provides a fertile ground for creating a motivation for corruption. Standard references on rent seeking are Tullock (1967), Kreuger (1974), Posner (1975), Bhagwati (1982) and Tollison (1982). For applications of rent-seeking to corruption see Blomqvist and Mohammad (1986) and Mbaku (1992). Rational individuals assumed to be maximizing their own net benefits without further reference to ethical constraints may come to regard corruption almost as a moral imperative. The individual seeking monopoly rights will probably consider corruption as a possible substitute for (or complement to) other tactics such as political lobbying or capturing bureaucrats. Corruption comes then to be chosen if it represents part

of a cost-minimizing strategy. A natural extension of this rent-seeking approach to the analysis of corruption is suggested in Bowles (1998) in which a citizen seeking rents considers various possible 'pathways' to achieve her goal. The more pathways there are, the more opportunity there is to acquire the rent at a lower cost, such as corrupting an official or a politician or whatever may be regarded as alternatives to seeking the rents through some 'legitimate' channel such as legislative change or the exercise of an official's discretion.

Are there any limits to this pursuit of individual self interest other than possibly rather ineffective external controls? Is corruption inevitable if it pays? Just about the only device through which any such limits can be imposed is to suppose that individuals may incur some subjective costs or 'stigma' when acting dishonestly. This approach borrows the term coined by analysts seeking to explain apparently irrational instances of honesty in other spheres, as in Akerlof (1980) and Benjamini and Maital (1985). It may look contrived, but it is often the only practicable way of filling the 'moral vacuum' created by the economic approach and explaining why people may desist from corruption even when it appears 'profitable'.

6. Private Sector Corruption

Within what one might term the 'purely private' sector, corruption has been studied rather less than its public sector counterpart, although that is not necessarily a reason for supposing that it is less widespread than in the public sector. A private sector engineering contractor, for example, may find it expedient to pay bribes to a prospective private sector buyer for just the same reasons they pay bribes to government officials or politicians. Data deficiencies are particularly acute in this field, since it is only really from reports of court cases that remotely reliable evidence is likely to emerge. Whilst a public body might seek to publicize anti-corruption efforts and successes to demonstrate a tough anti-corruption policy, the private firm might prefer to resolve matters away from the public eye in order to avoid the bad publicity and loss of reputation which disclosures of corruption might bring. There are many different forms corruption in the private sector can take: we review a brief selection here.

Insider trading scandals occur from time to time on most of the major financial markets, and they sometimes involve corruption. The insider, say the accountant of a major company or a senior executive of the firm who has seen the firm's provisional profit results, holds information which when published will, or at least might, move the firm's share price. Rather than trade in the shares herself, the accountant or executive might contemplate selling the relevant information to a third party who is in a position to make profitable,

but less obvious, use of it by buying or selling shares in the firm. Any such sale of information would be regarded in most countries as corrupt, even though there are some economists who would regard such transactions as being conducive of market efficiency for the most part, and would argue that the main beneficiaries of a prohibition of a ban on insider information are financial market professionals rather than the firm's shareholders (Manne, 1966; Baye, 1997).

Valuation of goods, services or assets is clearly an area where there is scope for corruption. The valuer can 'create a rent' by overvaluing an item, since the owner of the item might stand to gain in creditworthiness as a result or might get a better price if selling the item. This creates an opportunity for collusion between the owner and the valuer of the item at the expense of the buyer. Examples of this kind of collusion can be found in markets for sports players, where the manager of a club buying a player takes a bribe from the club selling a player (or from the player's agent) to overestimate the player's value. They can be found also in the financial markets where a stock analyst is entertained lavishly by a firm hoping that the analyst will publish a positive report about the prospects for the firm's share price. In a somewhat similar vein was the 'payola' scandal in which record companies used to pay bribes to DJs for playing records by the company's artists on the radio. Pechlivanos (1995) refers to the example of the American Honda Motor Company whose managers received kickbacks from prospective franchisees.

Andvig's study (1995) of the North Sea Oil industry makes use of reports from six trials in the British courts of so-called 'information brokers'. Ten of the thirteen defendants in these trials were found guilty: punishments ranged from six months to three years in prison plus fines and compensation orders from about £40,000 to £500,000. Spending on the procurement of equipment for the North Sea is very high, at around £13 billion per annum. Those involved in the award of contracts for the supply of this equipment have information about bids and tenders which is potentially of substantial value to the firms competing for supply contracts.

Monopoly power is likely to be a pre-condition for private sector corruption. A well informed competitive market will leave little room for it since, at least in the longer run, corrupt firms will have higher costs and thus be unable to survive. But a privatized utility might, for example, enjoy a local monopoly in the provision of some service. It is quite imaginable that the employee of the utility will exploit this monopoly for private gain, say, by arranging connection to a power or telephone network unusually quickly for a premium. A number of commentators in the literature on privatization have, indeed, argued that the elimination of waste and inefficiency on the part of public utilities requires not only a transfer of assets from public to private hands but also the introduction of elements of competition to break down the

local monopoly power which is what enables the utility's employees to 'hold up' their customers (Kay and Thompson, 1986).

7. Bureaucratic Corruption

Public sector bureaucracies often have considerable powers and areas of discretion: they are often in a monopoly supply position and their employees are often tempted to make strategic use of these advantages for their own ends. Anecdotes are legion. There is the immigration official checking papers who can be persuaded with a \$20 tip to ignore some real or imaginary inconsistency. There are ships which cannot enter certain ports until they supply customs officials with amounts of whisky and cigarettes as spelled out on a schedule sent in advance of their arrival. There are hospitals in some countries where patients cannot get drugs without paying bribes to staff. And so on.

A hard-bitten economist, or world traveller for that matter, would think it naive to imagine anything else. Even the less cynical would agree that there are dangers that the pursuit of the ideal of public interest might sometimes slip in favour of the pursuit by bureaucrats of their private goals. It is perhaps inevitable then that public administration should have a rather tainted reputation when it comes to corruption. But as the examples above illustrate, in many cases the corruption is not an occasional lapse by an official but a deeply-embedded *modus vivendi*. We consider in this section two particular areas of bureaucracy where allegations are often made and a good deal has been written.

7.1 Corruption of Tax Officials

Tax evasion has been widely studied, and it has for long been known that tax administrations are particularly vulnerable to collusion between taxpayers who underdeclare their income and tax officials who may be bribed to overlook these underdeclarations when reporting to the tax authority. As we remarked in Section 1 above, corruption of this kind was the motivation for the development of 'tax farming' from the days of the Greek and Roman empires until comparatively recently.

To give a sense of how deep-seated tax corruption might be, Chu (1990) reports the results of a 1981 survey by the city government of Taipei in which 94 percent of the taxpayers polled admitted to paying off tax officials in exchange for collusion in tax evasion. Interviews with the group of accountants involved in the preparation of tax returns appeared to confirm that taxpayer dishonesty was widespread and that almost a half of the tax officials with whom the accountants dealt would actively solicit payoff.

Contemporary models of corruption of tax administration are usually constructed in two stages. At stage 1, the taxpayer makes a declaration of income following the standard Allingham and Sandmo (1972) approach, that is by comparing the expected costs and benefits of declaring different proportions of true income. The tax administration, meanwhile, selects an audit probability for the taxpayer (which may be declaration-dependent) to maximize its revenue net of the costs of audit. In the Graetz-Reinganum-Wilde (1986) model, a Nash equilibrium is established which makes the policies followed by the taxpayer and the tax administration mutually compatible.

At stage 2 the possibility is introduced that the tax auditor can suppress the result of audits and thereby shield the taxpayer from a penalty for underdeclaring income (Cadot, 1987; Chander and Wilde, 1992). The auditor who chooses to take a bribe herself runs the risk of detection. The tax administration thus has two layers of auditing: audit of the taxpayer and audit of the auditors. Auditing of either kind is costly, and the administration's problem is to figure out how best to split its resources between the two kinds of audit work.

Models of this kind are inevitably rather complex, since there are many sets of assumptions the analyst can make and there are many interactions which can be explored. For example the split of the taxpayer's gain from underdeclaration between the taxpayer and the auditor can be treated as exogenous, as in Chander and Wilde (1992) but is endogenized in other models such as Virmani (1987), Goswami, Sanyal and Gang (1991) and Besley and Maclaren (1993) (see also Flatters and MacLeod, 1995 and Toma and Toma, 1992).

Despite their analytical sophistication, these models gloss over many important practical problems. The ease with which tax auditors can be investigated, for example, will depend on the quality of information and record keeping. If taxpayer files can be (strategically) lost, if tax auditors have discretion about which taxpayer returns to investigate or if the auditor is subject to influence via the political system, then the model misses important interactions. But this demonstrates simply that the tax official has to maintain a delicate balance between various forces. The contemporary models have made a good start on modelling this tension, but there remains plenty of scope for 'fine tuning'. Tirole (1996), for example, has developed a model in which a reputation for corruption may be difficult to shake off, and this is a development which might have an interesting application in the tax field.

7.2 Police Corruption

Police enjoy the same privilege as tax officials, namely access to public resources with which to investigate illegal activities or earnings which individuals wish to keep secret. The temptations to collude in keeping the secret may be very great and there have undoubtedly been occasions when

police corruption has been widespread. An early economic study of corruption was the work of Becker and Stigler (1974) who had been asked to find ways of reducing corruption amongst Chicago police (for a recent summary of their work see Brickley, Smith and Zimmerman, 1996).

Models of police corruption can be distinguished by whether they deal with 'one-off' or repeated incidents of corruption. Bowles and Garoupa (1997), for example, treat 'casual' police corruption as a one-shot game, involving isolated instances of a citizen and a police officer who are strangers to each other. There are many instances, however, where it is alleged that corruption is not of a 'one off' kind but is more deeply embedded in a continuing relationship. Schelling (1967) gives as an example an illegal wire-service gambling syndicate in Miami. Regular payments were made to police not only in respect of protection of syndicate members from arrest but also in exchange for systematic intimidation by police of bookmakers outside the syndicate.

Another example is the illegal drugs market where producers and suppliers may establish a regular working relationship with enforcement agents (see Klitgaard, 1988, and Lupsha, 1991).

These dynamic elements call for a repeat play treatment. There are interesting parallels between continuing corrupt relationships and the discussion of alternative forms of contracting between firms using the notion of transactions costs (Williamson, 1979; Deakin and Michie, 1997). Corruption cannot be supported by legally enforceable contracts and yet corrupt agents are clearly able to sustain viable long-term relationships.

8. Political Corruption

The powers of government to create and/or to protect rents have been a rich source of study for those interested in corruption. It was Lord Acton who famously claimed that 'Power tends to corrupt and absolute power corrupts absolutely'.

The power to enact legislation carries with it the possibility of creating rents. The prospect for the amoral individual of being able to participate in the processes by which rents are created and distributed may express itself in a wide variety of ways, some at least of which can be regarded as corrupt. Abuse of this power has occurred frequently, most notably with monarchs and autocratic (often military) governments rather than with democratic governments. Kings in mediaeval England, for example, would grant trading and many other monopolies simply to raise cash for their own purposes, whether noble or otherwise. Similar sorts of claims have sometimes been made about socialist economies and about countries with military governments. For review of these and other issues in the sphere of political corruption (see

Amuwo, 1986; Benson, 1978, Brooks, 1978 and other contributors to Heidenheimer, 1978; and Coldham, 1995).

In a modern democracy politicians are not usually in a position to be able to enact legislation purely for their own private benefit. But they may be able to wield influence over the legislative process, and such influence makes them vulnerable to corruption by those groups who will be affected.

The asking of leading questions in the legislature and the exploitation of membership of influential committees or subcommittees are two of the more obvious ways of exerting pressure on the shape of legislation. The corruption element obviously arises when the politician 'sells' this influence to an interested party. The grey area between explicit selling of influence and more subtle routes through which influence can be exploited is sometimes referred to as 'sleaze'. It is in an effort to counter this kind of sleaze which has prompted the Nolan Committee to press for greater disclosure of the outside interests of British Members of Parliament. Consultancies and sponsorship can significantly undermine the credibility of the claim by politicians that they are pursuing the public interest.

The power to enforce legislation is likewise open to manipulation and abuse. Governments make decisions all the time about the public resources to be made available for the agencies responsible for enforcing legislation. Influence over the way the resources are used and over agency priorities will often have a market value since a greater intensity of enforcement is likely to be of advantage to some party. Pressure for law enforcement is, of itself, entirely legitimate. But if the pressure is wielded in return for payments of some kind then we have corruption.

The power to influence public sector contracting with the private sector for the provision of goods and services is an area where corruption is sometimes alleged to occur. In large-scale civil engineering projects, 'political factors' sometimes play a role in deciding which contractor gets the job as well as more traditional criteria such as tender price or track record. Giving a role to such factors is a way of creating a space for political influence to carry weight and thus a market value. In effect it is allowing the politician to collude with outside interests against the bureaucrats responsible for procurement. It thus creates the possibility of corruption since it gives the outsider the incentive to bribe the politician to wield power over the bureaucrat (Becker, 1983).

This is a subtly different form of corruption from the one considered in the 'regulatory capture' tradition in which the regulator (the bureaucrat) and the outside interest collude against the politician or the public interest. Collusion between regulators and regulated industries, in the form of regulatory capture, against the interests of consumers and/or taxpayers has been explored by Stigler (1971), Peltzman (1976) and many others. Corruption in this context, as elsewhere, could range from the payment of cash bribes through to

regulators expecting employment in the regulated industry on retirement from the public service: the 'revolving doors' arrangement, on which see Adams (1981) and Breyer and Steward (1979).

The expanding literature on public sector procurement has concerned itself with the structure of contracts and incentives in these 'hierarchical' models, where there are three or more parties involved and a number of forms collusion could take. The standard theoretical work in microeconomics in this area is Laffont and Tirole (1993), which draws on earlier work on multilevel hierarchies by Tirole (1986, 1992), Laffont (1990) and Koffman and Lawarree (1993).

9. Consequences of Corruption

Many 'macro' studies of corruption have been concerned with the causes and consequences of corruption at an aggregate level. These studies can be thought of as complements to, rather than as alternatives to, the essentially micro models of behaviour reviewed here thus far. The consequences of corruption have been widely discussed and authors have reached widely differing conclusions.

The conventional wisdom is that corruption is harmful, and for some authors this seems almost self-evidently to be the case. A recent paper, for example, Tanzi and Davoodi (1998) carries the title 'Road to Nowhere: How Corruption in Public Investment Hurts Growth' (see further Alam, 1990; Ades and Di Tella, 1995, 1998; Mauro, 1995, 1998, and Klitgaard, 1998). The general thrust of the argument is that corruption harms growth by reducing the incentives to invest. This distorts the allocation of resources and leads to underinvestment and poor growth rates.

Some authors, however, argue that corruption may be as good a device for screening projects as anything else. In this view the most profitable amongst a group of competing projects will generate the greatest possible bribe and thus have the best chance of succeeding. The only difference is that most of the monopoly profits are appropriated by the corrupt persons choosing between the projects rather than by the firms proposing them. More technically, this 'neutrality' view suggests that corruption is not inefficient but may redistribute income.

Yet others argue that corruption may be positively beneficial (Leff, 1964). Corrupt bureaucrats who respond to payments for services rendered may work harder and process matters more quickly than they would if they relied purely on their public services salary. But it should be stressed that this is rather a minority view.

Even if the *outcomes* of selection processes for projects will be the same whether or not corruption occurs, it is more efficient to use an honest

procedure because of the resource costs of secrecy. Bribes themselves may be only transfer payments and thus irrelevant from an allocative perspective, but real resources are involved in arranging and protecting bribe offers, and these represent real costs which could be avoided. Making corruption illegal raises the costs of corruption and thus some of the rents potentially created by projects get dissipated by rent-seeking behaviour (Shleifer and Vishny, 1993). There are parallels with the continuing debate about the resource costs of rent-seeking more generally: see for example the debate about how transfers are treated in cost-benefit analysis, about how the costs of crime are to be treated and about the distortion of the results of cost-benefit analysis by vested interests in the decision-making processes of government (see Weingast, Shepsle and Johnsen, 1981; Lee, 1983; Lewin and Trumbell, 1993; McChesney, 1993, and Jones and Cullis, 1996).

As well as theoretical arguments about corruption being harmful, there has been some empirical literature pointing in the same direction. Mauro (1995), using data for a wide cross-section of countries, argues that, holding income constant, countries with higher rates of corruption (as measured by the standard business indicators of corruption referred to above) have a lower ratio of both total and private sector investment to income. Tanzi and Davoodi (1998) take a rather different tack in arguing that countries with high levels of corruption will engage in particularly high rates of public investment, and will be particularly subject to low rates of return on these investments. The argument is that corruption may encourage projects which are inefficient but rewarding to corrupt politicians.

10. Control of Corruption

When it comes to measures to control corruption, results tend to be dictated by the structure of the model of behaviour employed. Nevertheless there are a number of recurring strands in discussion of the strategies which can be used to combat corruption.

The basic principal-agent model of corruption rather naturally inclines to the search for 'top-down' solutions. The victim in these models is the principal (the government) and the corrupt parties are bureaucrats and citizens. Principals who suspect themselves to be vulnerable to 'agency problems' can, speaking in general, take various kinds of defensive action (Ross, 1973; Grossman and Hart, 1983; and Hirshleifer and Riley, 1992). The 'Mechanism Design' literature invites the principal to design a grand scheme of things which anticipates the corrupt behaviour and makes it unprofitable. This scheme is implemented through contracts for bureaucrats which are constructed in a way which would make it irrational for the bureaucrat to take

bribes (Lui, 1986; Cadot, 1987; and Mookherjee and Png, 1995). Methods for 'designing corruption out of the system' have long been sought. The 'selling the store' solution (see Rasmusen, 1994) is a rather extreme example, but has relevant historical parallels in the use of 'tax farming' contracts by tax revenue departments for many centuries. The literature also recognizes that there are some circumstances in which it will either be infeasible to prevent corruption (Koffman and Lawarree, 1993) or non-optimal (Olsen and Torsvik, undated).

A second common theme is the use of auditing methods to monitor the quality of the reporting behaviour of agents in hierarchies. Many tax and police authorities have a 'vigilance' or 'special investigations' branch with the express task of identifying and pursuing corrupt officers. This approach has its drawbacks because most of the factors which encourage 'front line' officers to behave corruptly apply equally when it comes to an auditing tier. The audit reveals potentially valuable information which someone is prepared to pay bribes to suppress (Border and Sobell, 1987). Likewise, if corruption is endemic within an institution then it is likely that any findings of corruption will be liable to suppression (see Bac, 1996a, 1996b, 1998).

An early application of this approach is the argument of Becker and Stigler (1974) that by paying police a salary higher than the prevailing market wage it would be possible to create an incentive on the part of officers to retain their job. In such an environment, the prospect of being found guilty of taking bribes acts as a powerful threat since it would result in loss, over the rest of the officer's career, of the rents created by the wage premium. The excess supply of prospective police officers this premium would cause is dealt with by 'selling' the posts. This payment can be interpreted as a bond posted by the officer: the honest officer keeps the bond in the form of a premium wage whilst the dishonest officer forfeits it.

A third theme which recurs quite commonly is the introduction of competition as a means of attacking corruption. In this view, corruption is fostered wherever there is a single source of supply. By opening up alternatives, the capacity of the bureaucrat or tax official to hold up the citizen is reduced and the willingness to pay bribes correspondingly lowered. This might entail opening 'multiple windows', so that a citizen can contact a different official if the first one tries to elicit a bribe (Shleifer and Vishny, 1993). It might equally entail opening up an economy to foreign trade in order to prevent a domestic producer wielding monopoly power (Ades and Di Tella, 1995).

A fourth theme is the use of administrative devices within organisations to discourage corruption. Many police and tax departments have a policy of moving officers around quite frequently in order to prevent them from becoming too familiar with an area. In terms of the relational contracting literature this can be interpreted as an effort to raise the transactions costs of dealing corruptly rather than honestly. By frequently disrupting the pattern it

may be possible, at the cost of having to give on-the-job training more frequently, to impose higher 'set-up' costs on those wishing to corrupt officers.

11. Corruption in LDCs

In their folklore at least, many developing countries experience substantial corruption. Many contributions have been made by sociologists and other policy analysts (including some work by economists) to what has become a substantial literature on the subject of corruption in LDCs: for general reviews see Beenstock (1979), Winston (1979), Macrae (1982), Jagannathan (1986, 1988), Andvig (1989), Ward (1989), Alam (1989, 1990, 1995) and Charlick (1992).

An obvious question, of course, is whether there is anything about corruption in developing countries to distinguish it from corruption elsewhere. The short answer to this is probably no: the institutions involved are the same (business, bureaucracies and governments) and the incentives for the individuals concerned are similar. The same kind of analysis can thus, at least in principle, be applied.

But this is probably too glib. There are special reasons why corruption in LDCs is of particular concern and there are also reasons why it may take a rather different form and may impose greater costs than its counterpart in the North. Development aid has in many cases been diverted for their own private use by corrupt politicians and bureaucrats. Partly as a defensive measure against criticisms from the taxpayers funding aid budgets, a quest for 'good governance' is now high on the priority list of many international agencies, and anti-corruption programmes have become an essential item for many of the poorer countries (see, for example, United Nations, 1989; World Bank, 1992; Doig, 1995).

This quest can be problematic, however. There are some countries where corruption has become deeply embedded, in part as a response to very low civil service salaries. Just to survive and support their families, officials may need to moonlight or to take bribes. Clearly any serious effort to reduce corruption in such an environment can only work if part of the policy is to raise civil service salary levels. But this tends to raise public expenditure and, other things equal, may intensify what is already a serious debt problem. One could argue, therefore, that in countries where it is difficult to raise money through taxes to pay officials a little bribery is no bad thing because it is one way of getting citizens to support public sector officials. This is not a very attractive argument to economists looking for first best equilibria or to moral crusaders but it probably helps explain why corruption is sometimes tolerated.

A further reason for treating corruption as a 'special' problem for LDCs is that institutional differences resulting from different cultural and political

traditions can create some ambiguity about the definition of corruption. Critics have argued that much of the literature of the 1950s and 1960s was judgmental and morally critical, and that care is needed when studying corruption in LDCs to avoid an ethnocentric view in which corruption is viewed as an aberration of post-colonial societies which would eventually disappear as these countries evolved towards a more Western form (Clarke, 1983; Werner, 1983; and Lewis, 1996).

Many of the studies have been concerned with particular countries or regions: Kaufer (1989), Kennedy (1989), Sands (1989, 1990), Kolenda (1990); Rocca (1992), and Wong (1992) on China; Halayya (1985), Goswami, Sanyal and Gang, (1991), Wade (1982) on India; Carino (1986) and Gleason (1995) on Asia; Grayson (1984) on Mexico; Maingot (1994) on the Southern Hemisphere; Werlin (1973) and Le Vine (1975) on Ghana; Amuwo (1986) on Niger; Reno (1995) on Sierra Leone; Ouma (1991) on Uganda; Gould (1980) and Szeftel (1983) on Zaire; Makumbe (1994) on Zimbabwe; Ekpo (1979) on Sub-Saharan Africa and Kotecha and Adams (1981), Theobald (1993) and Mbaku (1994) on Africa more generally.

12. Concluding Remarks

Corruption is a very widespread phenomenon and takes a great variety of forms. It is difficult, for this reason, to define very exactly. It is also something which is very difficult to prevent. It is illegal virtually everywhere, in some of its forms, but its victims often are unaware that it is taking place. Both parties to a corrupt transaction have an incentive to avoid disclosure since both will usually have been acting illegally. Thus, even establishing that it has occurred may be very costly. Even when corruption is suspected it is very often difficult to adduce legally convincing evidence since parties to corrupt transactions can comparatively easily cover their tracks by using tactics which offer ambiguity and are susceptible to multiple explanations. It is not, however, in any respect a 'victimless crime'.

Analytically, corruption has been of great interest to economic theorists in recent years because it is an archetypal problem of asymmetric information involving collusion between agents and 'outsiders' against principals, or between supervisors and agents against principals. Most of the models up to now have been essentially static, but recent papers have shown that there is a real prospect of developing dynamic models which can explain the persistence of corruption. Much of the future for application of these models will probably be in the fields of the economic analysis of the operation of government and political institutions. But corruption remains an area which will continue to be

of interest to scholars of law and economics because it raises fascinating issues about the enforcement of law in the broadest sense.

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