CORRUPTION: A REVIEW

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Abstract. As is increasingly recognised in academic literature and by international organisations, corruption acts as a major deterrent to growth and development. The aim of this survey is to organise and summarise existing theoretical and empirical work on corruption with a view to identifying opportunities for further research. The paper begins with a brief overview of key definitions of corruption, and then turns to a review of the factors that favour or deter the growth of corruption together with a brief look at related models. This is followed by an examination of the consequences of corruption for society, and the consideration of measures that might help to reduce corruption. The paper ends with suggestions for future research and includes summaries of data sources and key variables for use in this research.

Keywords. Corruption; Growth and development; Rent-seeking; Governance

1. Introduction

The study of corruption has come of age.[1] Increasing numbers of academic articles are now being published on this subject[2] and several international organisations are intent on combating various forms of corruption.[3] This increased attention is motivated by a realisation among international development experts that development requires, above all, good governance.[4] Advice on sound policies, well-intentioned incentives, and aid efforts seem not to achieve their desired objectives unless these are offered in an environment that stimulates self-sustaining growth and development.[5] We now believe that corruption is inimical for the development of such an environment.[6] There is also a mounting realisation that unsuitable policies do not always result from a lack of knowledge about what the best policies should be. Rather, they may result just as much from decision-makers distorting economic policies for their own interests (Coolidge and Rose-Ackerman 1997, Grossman and Helpman 1994, Krueger 1993a and 1993b). Even the public at large recognises that the greatest obstacle to development may be corruption in the public sector.[7] One consequence of this heightened interest in the quality of governance has been a desire to gain a better understanding of corruption. Efforts are being made to understand how corruption affects economic growth directly, by shifting the allocation of public funds, and indirectly, by changing the incentives, prices, and opportunities that entrepreneurs face. Another way to present this issue it to recognize that '... *how well* the

government spends its resources may be more important than *how much* or *what* it spends its money on' (Pritchett and Kaufmann, 1998, p. 26).

Recent studies on the impact of corruption indicate that its effects tend to reverberate throughout an economy rather than be confined to specific corruption-based transactions. Corruption seems to affect the level of investment, entrepreneurial incentives, and the design or implementation of rules or regulations regarding access to resources and assets within a country. Brunetti *et al.* (1998) present evidence of the link between economic growth and 'credibility of rules' — a variable that captures many of these ideas. In addition to economic growth rates, corruption can influence the income distribution within a country. Greater need for understanding exactly how corruption affects these variables and the growing body of academic work on the subject present an opportunity for scholars in various fields to contribute to our understanding of this phenomenon from different perspectives. The objective of this article is to organise and summarise existing theoretical and empirical works on corruption with a view to identifying and highlighting opportunities for future research.[8]

We will summarise existing research on corruption along two parallel tracks. First, we want to understand the conceptual and theoretical links between corruption and the functioning of a society's economic and political institutions. Where and how these institutions fail should provide important clues for reducing corruption. Second, we want to examine the empirical validity of the observed links and relationships. The first of these tasks is by far the more challenging of the two. The causes and consequences of and solutions for corruption tend to be intertwined. Consider, for example, the relationship between corruption and the effectiveness of a country's legal system. The level of corruption in a country with an ineffective legal system may begin to rise in response to, say, an external shock. The political elite may find the increased income from corruption irresistible. Once corrupted, the elite will attempt to reduce the effectiveness of the legal and judicial systems through manipulation of resource allocation and appointments to key positions. Reduced resources will make it difficult for the legal system to combat corruption, thus allowing corruption to spread even more. Therefore, a weak judicial system becomes a cause as well as a consequence of corruption. The theoretical links between these two variables become even more difficult to sort out if we recognise that their relationship is unlikely to be a direct one, since other variables may intervene between the effectiveness of the legal system and corruption.[9] Sorting out the causal connections from mere incidental associations between corruption, judicial effectiveness, and the behaviour of the elite in this instance presents considerable difficulties, especially for meaningful empirical analysis.[10]

The remainder of this paper is divided in five sections. The first Section presents some definitions of corruption. Detailed discussion of different definitions is avoided since that has been attempted elsewhere without much success at arriving at a consensus. The second section outlines various determinants of corruption and identifies factors that favour the growth of corruption and those that deter it. The third Section deals with various models of corruption. As a phenomenon that

cuts across the boundaries of economics, political science, and sociology, these models attempt to explain how various players make their decisions and why corruption levels vary among different societies. The fourth Section examines the consequences of corruption by looking at the effects of corruption on society. The fifth Section summarises what we currently understand about solving this problem. The paper ends with some ideas for future research. Empirical studies on corruption require a measure for corruption as well as measures for a large number of social, economic, and political variables. Researchers have begun to find creative proxies for variables that would have been thought of as hard to measure. To aid future researchers, a list of variables that have been used in studies of corruption is included in Appendix I.

2. What is corruption?

One of the difficulties of studying corruption lies in defining it. While it may appear to be a semantic issue, how corruption is defined actually ends up determining what gets modelled and measured.[11] Although it is difficult to agree on a precise definition, there is consensus that corruption refers to acts in which the power of public office is used for personal gain in a manner that contravenes the rules of the game. Certain illegal acts such as fraud, money laundering, drug trades, and black market operations, do not constitute corruption in and of themselves because they do not involve the use of public power.[12] However, people who undertake these activities must often involve public officials and politicians if these operations are to survive and hence these activities seldom thrive without widespread corruption.[13] Moreover, even in their simplest forms, these acts can influence government policy.[14] In this article, we will focus on those activities in which public officials, bureaucrats, legislators, and politicians use powers delegated to them by the public to further their own economic interests at the expense of the common good. If discovered, these activities would, at worst, be considered illegal and, at best, entail strong public disapproval.[15]

Defined in this way, three types of corruption can be identified in democratic societies.[16] Figure 1 highlights certain relationships between the populace and the political, administrative, and judicial elite.[17] The three types of corruption in such a system are shown in bold dotted arrows. These three types of corruption differ from each other in terms of the types of decisions that are influenced by corruption, by the source of (misused) power of the decision maker, and hence the types of models that can be used to explain corruption.

'Grand corruption' (relationship 1) generally refers to the acts of the political elite by which they exploit their power to make economic policies.[18] As elected officials, or in the government's role of a 'benevolent social guardian (Krueger 1993)', politicians are supposed to make resource allocation decisions based solely upon the interests of their principals — the populace. They, of course, have to balance the interests of various segments of society as well as their own desire to remain in power.[19] A corrupt political elite can change either the national policies or the implementation of national policies to serve its own interests at some cost
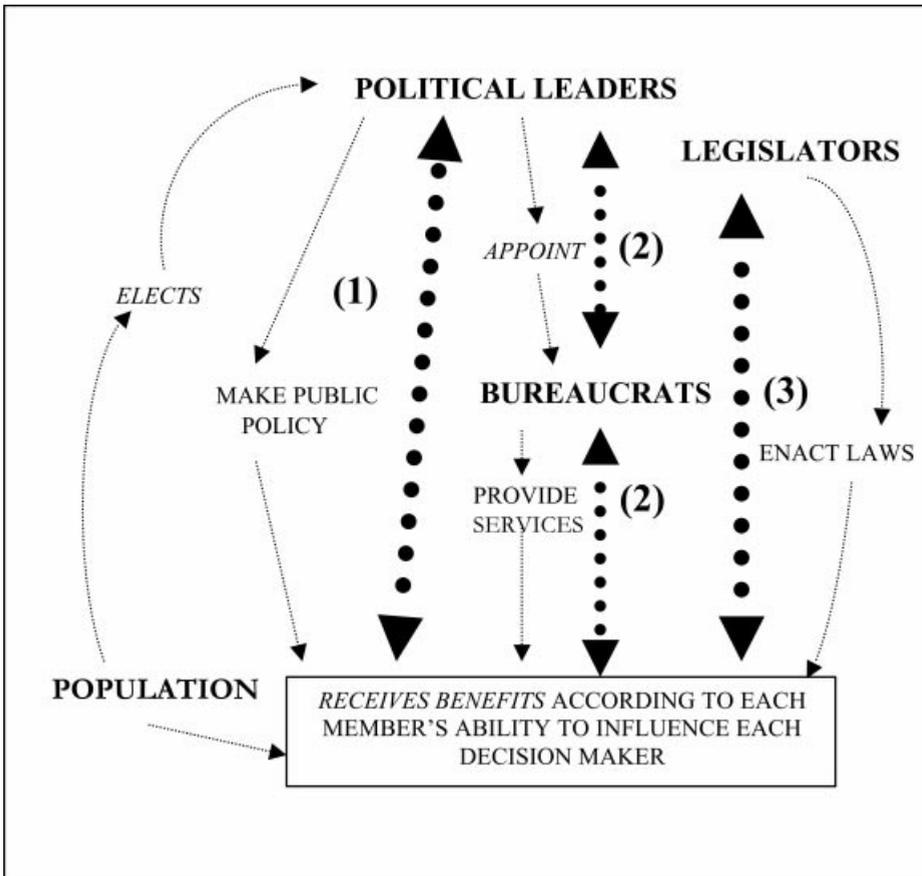
Figure 1. Corrupt relationships in a democratic society.

to the populace.[20] 'Public spending is ... diverted to those sectors where gains from corruption are greatest ... little attention is paid to whether the needs of the collectivity are served by these works or services' (Porta and Vannucci 1997, p. 519).[21] This type of corruption is difficult to identify, unless bribes are paid, since the debate on public policy may be couched in terms of public interest.[22] It is especially difficult to identify and measure this type of corruption when it can be shown that at least some segments of the population will gain, or when claims can be made that (incalculable) future gains will accrue to some segments of the society.[23] There is a dearth of research on the link between corruption and the cost of misdirected public policies perhaps because of a lack of precise measurement tools.[24] This type of corruption may have the most serious consequences for a society. Extreme situations of this type of corruption where, say, a dictator makes no distinction between his own wealth and that of the country or makes policy decisions that serve exclusively his own interests are somewhat easier to study.[25]

This type of corruption is best explained by models that rely on agency theory in which the efficiency of the relationship depends upon the principal's ability to devise appropriate incentives for the agent.

'Bureaucratic corruption' (relationships 2) refers to corrupt acts of the appointed bureaucrats in their dealings with either their superiors (the political elite) or with the public.[26] In its most common form, usually known as petty corruption, the public may be required to bribe bureaucrats either to receive a service to which they are entitled or to speed up a bureaucratic procedure.[27] In some cases, a bribe may even provide a service that is not supposed to be available.[28] Bureaucrats may also extract payments while carrying out tasks assigned to them by the political elite.[29] Corruption in the judiciary, where bribes can lower either the costs or the chances of legal penalties (termed 'bribes to buy judicial decisions' in Rose-Ackerman, 1998), may also come under this category of corruption. Models for this type of corruption have relied on equilibrium in markets for supply and demand of services which in turn leads to the analyses of competition and costs and revenues associated with these services.

'Legislative corruption' (relationship 3) refers to the manner and the extent to which the voting behaviour of legislators can be influenced. Legislators can be bribed by interest groups to enact legislation that can change the economic rents associated with assets. This type of corruption would include 'vote-buying', whether by legislators in their attempt to be re-elected or by officials in the executive branch in their efforts to have some legislation enacted (Rose-Ackerman 1998, pp. 41–42, and Rose-Ackerman 1999, pp. 127–142).

It may be worthwhile here to briefly summarise some estimates of the extent of corruption. Although there are numerous journalistic accounts of corruption in various countries, it is difficult to accurately estimate the extent of corruption in any one country. Rose-Ackerman (1997a, p. 32) summarised estimates of losses from corruption taken from studies around the world. Krueger (1974) estimated that rent-seeking behaviour raised the costs of imports in India and Turkey from between 7 and 15% of the national income. In most instances, where quantitative estimates can be made, corruption results in losses from 15 to 50% of the funds involved. Huberts (1996) summarised 'expert panel's educated guesses' about the extent of corruption in different parts of the world in 1994. Regional experts provided estimates of the percentage of politicians and public servants that are corrupt. Corruption levels seem to be the highest in Asia, where between 25 and 40% of politicians and between 15 and 33% of public servants are corrupt, and the lowest in Oceania, where all the numbers are below 10%. Using a different approach, Johnston and Hao (1997) examined the number of complaints of corruption to estimate changes in the levels of corruption in China. Whatever the total size of gains from corruption, Bardhan (1997, pp. 1326–27) demonstrates that most of the gains go to bribers not to the bribe receiver. Researchers, who have estimated the size of black markets (e.g., in foreign currencies), underground economies, or the extent of money laundering may wish to apply their expertise in this area. We need to measure the value of corrupt payments as well as the losses that arise from corrupt policies.

2.1. *Can corruption be measured?*

Besides the difficulties of defining corruption, there is the problem of measuring it. By its nature corruption would be difficult to measure since it is carried out, in most cases, clandestinely and away from the public eye and records. A researcher trying to develop quantitative measures of corruption has to struggle with the question of what will be included in such a measurement, and then try to measure something that those who know about are trying to hide. Johnston (2000b) provides a detailed discussion of challenges involved in measurement and analysis of indices of corruption. In spite of these difficulties, there have been several attempts to measure corruption.

- Business International Corporation (BI; now part of Economic Intelligence Unit) published a number of ratings on countries, including an assessment of the level of corruption in various countries. These ratings were based on data collected from a network of correspondents and analysts around the world and were first published for the period 1981–83. Mauro (1995) may have been the first to use BI data for empirical analysis. Ades and Di Tella (1997a) provide some details of these ratings.
- Political Risk Services Inc. publishes an annual report, *International Country Risk Guide* (ICRG), which includes a corruption index. Tanzi and Davoodi (1997) have described and used this index.
- Ades and Di Tella (1997a, p. 498) report a survey of German businesses, published in 1994. The survey was based upon the opinions of German businessmen. As far as we know, no one other than these authors has used this source of corruption data for any empirical research.
- World Economic Forum, Switzerland, has included a measure of bribery in its annual publication, *World Competitiveness Report* since 1989. This measure, however, is only a small part of larger attitudinal survey and there were few guarantees that corruption had been measured with the minimum degree of care required for academic research.
- Transparency International, an organisation devoted to fighting bribery around the world, has measured perception of corruption in different countries. Lambsdorff (1998b) describes how this index is created as well as some problems with previously available indices of corruption. Kaufmann (1998) and Johnston (2000b) discuss some problems with this index.
- Political and Economic Risk Consultancy in Hong Kong has published estimates of corruption in 10 to 12 Asian countries since 1993. Lancaster and Montinola (1997) provide some details of this measure.
- Recently, Kaufmann, Kraay and Zoido-Laboton (1999) have created an aggregate measure combining three elements of governance. These are: 'probity', 'bureaucratic quality' and 'rule of law'. Their aggregation process addresses some of the problems associated with survey data like the one collected by Transparency International. Since corruption is one aspect of what constitutes governance, some of the research on corruption could be extended to the aggregated concept of governance.

- Transparency International created a 'Bribe Payer's Index' in 1999. This measure has not yet been used for empirical analysis.
- Hall and Yago (2000) have developed an index of 'opacity'- the opposite of transparency.[30]

There appears to be a high degree of stability of corruption over years as measured by the these sources. Correlation between various measures tends to be very high, providing some support for the contention that survey data on corruption may provide reliable estimate of the real phenomenon. In spite of the attendant objections with these measures of corruption, authors like Mauro (1995) and Knack and Keefer (1995) pioneered the use of these indices for empirical analysis. Since then, most researchers have used a combination of these measures to estimate the relationships between corruption and a host of other variables.

3. Determinants of corruption

Existence of corruption requires three elements to co-exist. First, someone must have discretionary power. Defined broadly, this power would include authority to design regulations as well as to administer them.[31] Second, there must be economic rents associated with this power. Moreover, the rents must be such that identifiable groups could capture those rents. Third, the legal/judicial system must offer sufficiently low probability of detection and/or penalty for the wrongdoing. In an extension of Becker's (1968) 'crime and punishment' argument, the first two elements combine together to create incentives for corruption and the third acts as a deterrent. Corruption occurs when higher rents are associated with misuse of the discretionary powers, net of any illegal payments and penalties associated with such a misuse. Empirical research that sheds some light on the validity of these elements is scarce and neither establishes that these three elements fully describe corruption nor provides an estimate of their relative importance. This task is left to future researchers.

3.1. *Discretionary powers*

Corruption requires, above all, that someone has discretionary powers over the allocation of resources.[32] The discretionary powers of the three types of agents (the political elite, the administrators, and the legislators) differ in terms of the sources of these powers and in terms of their principals' abilities to monitor their respective agents. The political elite (relationship 1 in Figure 1) is chosen by the populace to make and implement policy. The elite acquires very broad powers over economic policy making and it is very difficult to assess whether it is making the best policy or not. Other than for simple situations involving fraud, bribery, or nepotism, it is also difficult to observe corruption on their part. Hence, it has a broad leeway in using the discretionary powers. The administrators (relationships 2 in Figure 1) are appointed by the political elite and are delegated the powers to

administer the policies made by the political leaders. The behaviour of the agents, that is the administrators, is constrained by the principal's ability to set precise rules and to closely monitor the agent. But the rules will have to leave some discretion and monitoring is costly. The imprecision of rules and the costs of monitoring will determine the extent of administrators' leeway for corruption. The populace also chooses the legislators (relationship 3 in Figure 1) and is able to observe their voting behaviour. Their discretionary power lies in designing legislation that will govern the behaviour of the other two agents. The extent of the legislators' corruption is controlled only by the populace's threat to not reelect corrupt legislators.

The three agents, the political elite, the administrators, and the legislators, have incentives to further their own interests at the expense of their principals. They could, for example, agree to change a decision that would favour someone who is willing to bribe them.[33] The greater the discretionary powers, *ceteris paribus*, the stronger the incentive for the agent to succumb to temptation. Bliss and Di Tella (1997, p. 1002) give examples of how agents use these discretionary powers.

Not all uses of power by politicians, legislators, or bureaucrats that benefit someone (other than the principal) constitute corruption. In what is called rent-seeking behaviour, property owners have incentives to influence those with discretionary powers in order to increase the value of their property rights (Grossman and Helpman, 1994). At times, appropriate consideration of influence from interest groups may lead to decisions that are correct from the standpoint of the principal, and that also serve the agent's own desire to be re-appointed. When, why, and how the politicians/administrators are willing to be influenced by the property owners determines whether the process is free of corruption or not. Legally sanctioned acts of rent-seeking become illegal acts of corruption when at least one of the following three conditions is violated.[34]

 (i) The process of influencing the decision makers represents a competitive game played according to rules that are known to all the players.
 (ii) There are no secret or side payments to the agent.
(iii) The clients and the agents are independent of each other in the sense that neither group benefits from the income earned by the other group.[35]

The term 'discretionary powers', like corruption, is difficult to measure.[36] In general, discretionary powers are associated with regulations (Rose-Ackerman 1978). Regulations, by design, locate powers with those who have to implement the regulations. Therefore, we would expect to find larger discretionary powers, and hence more corruption, in regulated and controlled economies as opposed to market economies. By extension, we would expect the level of corruption to decline as regulated economies become more liberalised. The relationship, however, is more complex and it appears that liberalisation is accompanied by more corruption, not less. There are two possible explanations for this. First, even if the aim of liberalisation is to reduce the government's intervention in the economy, the implementation process itself requires a high level of state intervention. Increased government involvement in the process of liberalisation

will increase opportunities for corruption (Weyland 1998, p. 111). The process of privatisation, which is often an important aspect of liberalisation, should offer a fertile area to test this argument. The discretionary powers associated with the transfer of large volumes of assets from public to private hands can create opportunities for corruption.[37] Second, imperfections in the reform process itself could also lead to opportunistic behaviour (Johnston and Hao, 1995, p. 86).[38]

Some of the relationships proposed above have been tested. Kaufmann and Siegelbaum (1996) examine the link between privatisation and corruption. Their research supports the importance of discretionary powers and of deterrents to corruption (the third determinant of corruption discussed below). Separating property rights into 'control rights' and 'cash flow rights', they hypothesised that corruption is correlated with control rights, misalignment between control rights and cash flow rights, and 'the level of civil service professionalism and pay incentives, as well as the effectiveness of the monitoring, enforcement and penalty processes ...' Four aspects of the process, namely, the speed with which it is implemented, the level of administrative discretion, transparency (of information), and an independent program administration influence the degree of corruption that accompanies privatisation. The authors go on to estimate the corruption potential of different methods of privatization (pp. 433–439).

Johnson, Kaufmann, and Zoido-Lobatón (1998) provide some empirical support for the importance of discretionary powers. They argue that more discretion and regulations for officials '... leads to a higher effective burden on business, more corruption, and a greater incentive to move to the unofficial economy' (p. 387). They tested these propositions with data on 49 countries using four variables to proxy discretionary powers. These are: a measure of 'regulation' from the Heritage Foundation, 'regulatory discretion' from the Global Competitiveness Survey, 'bureaucratic quality' from the International Country Risk Guide, and 'economic freedom' from Freedom House. Allowing for the observation that countries with higher incomes tend to have smaller unofficial economies, they found that two of these four variables support their first proposition '... that regulatory discretion is an important cause of the unofficial economy' (p. 389). As expected, a higher tax burden results in an increase in the size of the underground economy. Two measures of tax burden were used: 'tax burden' as estimated by the Global Competitiveness Survey and the 'top marginal tax rate' reported by the Fraser Institute. Finally, using a measure of bribery from the Global Competitiveness Survey, the authors found a significant relationship between the level of corruption and the size of the underground economy. If we accept that the size of the underground economy indicates the same types of failures of governance as corruption, their research shows that the more discretionary powers officials have, the more problems there will be with effective governance.

3.2. *Value of economic rents*

The economic rents associated with discretionary powers are the second determinant of corruption. The higher the rents, the greater the incentive for

property owners to attempt to evade regulations and the higher the value of the side payments they could offer the agents who hold the discretionary powers.[39] By definition, this would exclude discretionary powers that do not affect the income of identifiable groups. For example, the power of the bureaucrats to change regulations governing some aspect of civic behaviour might not lead to corruption. Although such regulations could affect costs to the public at large, the 'public goods' nature of these regulations prevents someone from offering bribes to bureaucrats to bring in regulations different from the ones they may consider optimal.

Empirical tests for the importance of excess rents are difficult because it is difficult to estimate the size of these rents. Goel and Nelson (1998) proxy the value of rents with 'the size and scope of the public sector'. They use three variables to determine how the 'supply side' influences the level of corruption in various American states. These are 'real per capita gross product originating in the federal military government industry', 'real per capita gross state product originating in federal civilian government', and 'real per capita total expenditure by state and local governments'. Ades and Di Tella (1997b) provide direct support for the proposition that the existence of economic rents will foster corruption. Their analysis is based on the argument that a government's active industrial policy will transfer rents to firms in favoured industries. 'Bureaucrats with control rights over those firms can create mechanisms to extract some of those rents through bribes'. (pp. 1023–4) Their tests, using indices that measures 'the extent to which public procurement is open to foreign bidders' and 'the extent to which there is equal fiscal treatment of all enterprises', indicate that '... corruption is higher in countries pursuing active industrial policies' (p. 1040).

An indirect test for the proposition that excess rents may be related to the level of corruption is provided by a study that shows that as markets became more global, the success of commercial banks and other financial institutions came to depend more on their competitive strategies and less on protective regulations. Jain and Tirtiroglu (2000) show that the financial services industry in the United States has responded to globalisation by reducing its contributions to legislators as the rents associated with legislative protection have decreased. They examined the patterns of contributions made by finance industry PACs to legislators and found that their contributions in the 1996 election cycle were smaller than those in previous election cycles. As financial markets became globalised in the 1990s, legislation that conferred monopolistic powers on certain institutions became less valuable, thus necessitating smaller contributions to the legislators who would have perpetuated such legislation. This determinant of corruption offers significant potential for future research.

3.3. Deterrents to corruption

The third requirement for corruption to flourish is that those engaging in corrupt acts must believe that the utility of the income from corruption is worth the inconveniences caused by the penalties associated with such acts. The probability

of being detected, prosecuted, and punished is, of course, closely related to the values and structures of the society. These ideas may be summarised in a simple relationship, as follows:[40]

$$\{\text{Net utility of} = f\{\text{Income from corruption,}$$
$$\text{corruption}\} \qquad \text{Legitimate income (or fair wages),}$$
$$\text{Strength of political institutions,}$$
$$\text{Moral and political values of the society,}$$
$$\text{Probability of being caught and punished}\} \qquad (1)$$

3.3.1. *Income from corruption*

There appears to be a lower threshold below which corruption income becomes acceptable and an upper threshold above which it becomes unacceptable. In most countries where there is at least some corruption, there seems to be an acceptance of the 'petty' corruption by which lower level administrators supplement their income.[41] The populace in the same societies, however, seems to react strongly to large scandals (recent scandals in Italy and Japan are perhaps the clearest examples of this attitude). The upper threshold at which corruption becomes unacceptable clearly has to do with the concept of 'fair wages' discussed below.

3.3.2. *Legitimate income or fair wages*

The concept of 'fair wages' seems to play an important role in determining whether or not corruption will be accepted by the populace. Chand and Moene (1997) model the effects of such incentives. If the society at large as well as the administrators themselves believe that they are being paid fair wages for their work, there may be little sympathy for an administrator (or a policy-maker) who tries to supplement his/her income with bribes. Goel and Nelson (1998) found that in the United States, higher salaries tend to discourage corruption.

Van Rijckeghem and Weder (1997) examined whether the concept of 'fair wages' affects the behaviour of the civil servants as well as that of the public at large. Using the corruption index from Political Risk Services (International Country Risk Guide), they test the relationships between corruption and a number of variables related to the desire and ability of civil servants to earn income from corrupt sources. They measure the impact of pay, internal as well as external controls, statutory penalty rate, and distortions in the economy. Lack of data prevented them from including such factors as the 'size of the penalty', leadership, level of education of civil servants, the degree of social acceptance of corruption, and cultural determinants of corruption. The pay variable is measured as the ratio of government wages relative to manufacturing wages. The internal control variable is the 'quality of bureaucracy' index available from the International Country Risk Guide. This index assesses 'autonomy from political pressure' and 'strength and expertise to govern without drastic changes in policy or interruptions in government services' as well as the existence of an 'established

mechanism for recruiting and training'. 'Rule of law', 'political rights and civil liberties', 'PPP adjusted per capita GDP' and 'secondary-school enrolment' were used to proxy 'external controls'. The black market premium for foreign exchange rates provided a proxy for distortions in the economy.

Empirical results show 'a close negative association between relative civil wages and corruption across the developing countries ...' The authors '... tend to reject the hypothesis that higher pay leads to reduced corruption in the short run ... The 'quality of bureaucracy' and the black market premium are significant in within-country regressions, though the latter is not economically significant' (pp. 31, 34). Based on the analysis, the authors are not able to differentiate empirically between an efficiency or a fair wage hypothesis (that higher wages will reduce corruption by tilting the balance in favour of the costs of penalties when corrupt officials weigh the extra income from corruption against the costs of penalties) and a shirking model (in which income from bribery is so high that wages have no influence on the level of corruption). The study points to a number of conclusions that may be important from the standpoint of understanding and fighting corruption.

> First, an increase in the ratio of civil service to manufacturing pay from 1 to 2 is associated with an improvement in the corruption index (which ranges from 0 to 6) on the order of 1 point in the 'between' (i.e., cross-country) regressions for a sample of 25 developing countries. Second, civil service wages are highly correlated with measures of rule of law and quality of bureaucracy, and may therefore have additional indirect effects on corruption. Third, relative pay has no significant effect on corruption in 'within-country' regressions, indicating that pay may not have a contemporaneous effect on corruption. Fourth, quasi-eradication of corruption requires a relative wage of 3–7 times the manufacturing wage. Stronger internal and external controls are associated with lower corruption across countries' (p. 4).

Mookherjee and Png (1995) extend the analysis on the importance of wages by including the benefits and penalties associated with bribes that officials could receive. They model the behaviour of inspectors who have to monitor pollution levels. The authors found that appropriate compensation policies can eradicate bribery in a situation where these inspectors can be bribed, but penalised if caught accepting bribes (p. 146).

3.3.3. *Strength of political institutions*

In democratic societies, voters have the choice of voting politicians out of power. Other principals identified in Figure 1 can also exercise their power of reappointment of their agents. In less than fully democratic societies, and in between voting cycles in democratic societies, the public has other means of influencing their agents' behaviour. These mechanisms include exerting influence through family, friendship, or patronage ties, legal actions, threats of violence, and control of resources (Jain 1987, pp. 372–3, also Jain 1993, Montinola 1998).

Corrupt agents can expect to be subjected to these controls, but at the same time, the agent will also use mechanisms under its control to reduce the effectiveness of these mechanisms (Jain 1987, pp. 373–4). The issue is one of 'existence of multiple and broadly balanced political forces ... . Serious imbalances *(in these forces)* ... tend to foster corruption' (Johnston 1997, p. 68; also Rose-Ackerman 1999).

3.3.4. *Moral and political values of society*

Current research or writing on this issue has touched on two themes. First, the moral codes of different societies vary in the extent to which activities that eventually lead to corruption are accepted as 'normal' behaviour.[42] *Guanxi*, the practice in some East-Asian cultures of building long-term business and political relationships through the exchange of favours, is frowned upon in most Western democracies.[43] The political culture in the United States permits the creation of political action committees to influence legislators, a practice that people in other democratic societies see as being close to legalised corruption.[44] Second, the extent to which the media get involved in corruption scandals reflects a society's tolerance for corruption.[45] In addition, a society's values about the fairness with which penalties are applied may influence the fight against corruption.[46] Treisman (2000) introduces three dimensions of societies that relate to the levels of corruption: extent of involvement in civil associations, legal culture, and religion. Theoretical analysis by Sosa (2000) shows that individual values act as self-imposed corruption deterrents.

3.3.5. *Penalties for corruption*

This is a joint function of the probabilities of being caught and, once caught, being punished (for an earlier and related analysis see Becker, 1968). Four factors may be relevant to an individual's assessment of the costs of engaging in corruption. In addition to these four measurable factors, corruption among the top political elite will also depend on the balance between political powers of the elite versus those of the populace. A country's political elite may be able to escape any penalties associated with corruption if they control the political/legal system within the country. Their powers, however, are restricted by the various mechanisms, besides elections, that the populace has to influence the elite.[47]

1. *Probability of being caught*. There may be no effort made to apprehend those who are corrupt in a system with widespread corruption, whereas in a system where corruption is infrequent, efforts may be made to uncover all corrupt activities. Between these two extremes, a corrupt system would have developed ways to protect those who are corrupt. The following questions will have to be answered by future researchers: How can we quantify the relationship between the level of corruption within a society and the effort that is made to uncover acts of corruption? Is there a correlation between levels of corruption and expenditures on policing and maintenance of the

legal system? Is there a cut-off point at which our attitude toward corruption changes from 'corruption is dangerous and unacceptable' to 'this is the only way to do things here?'

2. *Enforcement*. The extent to which law-enforcement officials themselves are corrupt will determine the effectiveness of anti-corruption efforts. Surveys show that four law-enforcement related departments were among the five most corrupt departments in Albania and Georgia (Kaufmann 1998, Appendix 7.2). We need to investigate whether this relationship — that the level of corruption in a country correlates with the corruption within the law-enforcement agencies of that country — can be generalised to other countries.

3. *Independence of the judiciary from politicians*. Grand corruption requires that politicians acquire control of the judicial system. The research reported below confirms this hypothesis. Examining the importance of different types of legal systems, Treisman (2000) found that countries with common law systems have lower corruption levels than countries with civil law systems.

4. *Equal access to the law for everyone*. A system where the legal channels are open and easily accessible is likely to have better counter-balancing forces against corruption and hence lower levels of corruption.

Sosa (2000) illustrates the value of penalties in a theoretical model. Goel and Nelson (1998) apply Becker's (1968) 'crime and punishment' model to test whether the levels of corruption in various American states can be predicted. They explain that in addition to the three variables that account for the incentives for corruption (listed above), the number of convictions within a state depends on the salaries paid to officials and the expenditures of the law-enforcement agencies. Recognising that they are measuring convictions and not actual corruption levels, they found strong support for the model in which the levels of corruption depend on a balance between deterrents to and incentives for corruption. Goel and Rich (1989) find that higher penalties discourage bribes.

Research by Johnson, Kaufmann, and Zoido-Lobatón (1998) contributes to the assessment of the legal system's effectiveness in inflicting costs upon corrupt officials. They examined whether the effectiveness of the legal system affects the size of the unofficial economy — an indirect measure of corruption. Using three indices, namely, 'rule of law', from the International Country Risk Guide, 'index of property rights', from the Heritage Foundation, and 'equality of citizens under the law and access of citizens to a non-discriminatory judiciary' from the Fraser Institute, they found that the size of the underground economy is significantly influenced by the effectiveness of the legal system. Other research in this area is aimed at establishing a relationship between corruption and various measures of economic, political and civil liberties within a society. These liberties reflect the extent to which the public is able to participate in the process of governance of their country; hence they also become indicators of the extent of corruption. A corrupt government will have to first suppress the media, then the judiciary, and will then have to deprive the public of other liberties. In analysing this

research, we must be aware of the difficulties of establishing causation between variables and of the possibilities of simultaneous determination of some of these phenomena.

Civil liberties seem to be correlated with economic performance. Pritchett and Kaufmann (1998) show that countries with higher than average discontent among citizens had lower than average rates of return associated with World Bank related projects. They measure citizens' discontent by the frequency of riots, demonstrations, and strikes. Their analysis seems to indicate that countries with the best civil liberties record may earn as much as 50% more on their projects than countries with the worst record on this score (Table 1).[48] Johnson, Kaufmann, and Shleifer (1997) examine similar issues within the context of privatisation in transition economies.

Brunetti, Kisunko and Weder (1998) constructed an indicator of the 'credibility of rules' that captures many of the determinants of corruption we have outlined above. Based on surveys of private enterprises in 73 countries, they attempted to capture '... local entrepreneur's views of the predictability of changes in laws and policies, of the reliability of law enforcement, of the extent of discretionary and corrupt bureaucracies, and of the danger of policy reversals due to changes in governments'. Although their goal was to test the effects of this updated measure of 'political uncertainty' on economic growth, this indicator could also serve to estimate corruption levels in individual countries.

Contrary to what we might expect, it appears that corruption within a society is independent of the reigning ideology. Kaufmann (1998, p. 140) finds the correlation between the ideology of the regime (defined as either 'left' or 'non-left') and corruption to be almost zero. Thus, even if regulated economies provide officials with more discretionary powers, other factors intervene to make the relationship between the nature of a regime and corruption much more complex and, therefore, a rich subject for future research. Liberties within a society, whether economic, political, journalistic, or judicial, seem to co-exist with probity. Societies that have fewer of these liberties generally tend to have more corruption and tend to perform poorly in economic terms. We also know, as will be shown below, that corruption correlates with poverty levels within a society. Correlation, however, does not imply causality.

4. Models of corruption

Models of corruption attempt to explain the level of corruption within a society given the incentives as well as the disincentives outlined in the previous section. Players have to solve problems of information asymmetry and uncertainty as well as risks involved in corrupt transactions. There are two predominant approaches to modelling the three types of corruption identified in Figure 1. An agency model seems to best explain grand corruption (relationship 1) and legislative corruption (relationship 3). Although bureaucrats are also agents, a resources allocation model that views corruption as a cost within a supply-demand framework seems to best explain petty corruption (relationship 2).[49]

An agency model views corruption as affecting incentives and constraints faced by the elite or the legislators and examines the effects of changes in these incentives on their decisions. Normally the agency model is applied to situations where there is information asymmetry — situations in which the principal lacks full information about the actions of its agent. The principal must attempt to design incentive contracts to motivate the agent to behave in the desired manner. In the case of corruption, however, the problem can arise not only when there is information asymmetry between the agent and the principal but also when there are problems of enforcement, that is, when the principal lacks mechanisms to fully hold the agent accountable for its behaviour. The problems in an agency relationship arising from the lack of control are just beginning to be addressed (Jain 1987, 1993, Klitgaard 1990, Kurer 1993, Johnston 1997, and Montinola 1999, Rose-Ackerman 1999). [50] In resource allocation models, corruption changes the relative costs of inputs and outputs as well as the penalties faced by decision-makers and, hence, the behaviour of the players as well as the output of an economy. These models must allow for uncertainties involved in enforcement of corrupt contracts as well as risks of penalties and controls that may be imposed.

In the remainder of this section, we provide only the essential building blocks of various models since more extensive reviews are provided elsewhere (especially Bardhan 1997, Elliot 1997, Rose-Ackerman 1999). In addition to the two types of models, we discuss two problems where economic modelling may be useful. First, the need to manage uncertainty may give rise to internal markets within government departments. Second, the prediction of the equilibrium level of corruption within a society may require a different modelling technique than that for predicting the behaviour of corrupt agents.

4.1. *The agency model of corruption*

The agency model was first used in economics and political science to question the motives of legislators. Equilibrium in these models depends on how the elected agents balance their own interest of being re-elected and the interests of, or the payments from, various interest groups that wish to influence the legislation against the welfare of the voters (Barro 1973, Becker 1983, Grossman and Helpman 1994). Rose-Ackerman (1978) was among the first to use the agency model to explain corruption among elected officials and petty bureaucrats. Her first model (1978, pp. 17–29) shows that legislative corruption cannot survive in a world of perfect information. In this model, amoral legislators care for their chances of being re-elected and for their income. Fully informed voters, however, will lead legislators to implement their promises or else be voted out for corrupt behaviour. The model is then extended to situations where the voters are not fully informed and where some voters are able to purchase votes (pp. 33–84). Under these, more realistic, assumptions, there is potential for corruption and legislators will balance increased income from corruption against reduced chances for re-election. Others have recognised that legislatures may seek economic benefits from their positions and design policies to increase that benefit (Kurer 1993, Lien 1990).

Rose-Ackerman (1999, Chapter 8) applies the ideas of an agency model to explain the behaviour of leaders in a democratic system. In such a system, control of 'grand corruption' will depend upon the strength of political parties and institutions and the methods of campaign financing. The three important determinants of corruption, according to Rose-Ackerman (1999, p. 132), are 'the existence of narrowly focused favors available for distribution' (described in Section 3.1 above as 'discretionary powers'), 'the ability of wealthy groups to obtain these benefits legally' (described in Section 3.2 as 'value of economic rents'), and 'the temporal stability of political alliances'. The level of corruption within a society will result from an interaction of economic and political pressures within the society.[51] 'This means, first, a balance between the accessibility and autonomy of the political elite, and second, a balance between wealth and power ... . Serious imbalances, by contrast, tend to foster corruption' (Johnston 1997, p. 68). In Johnston's model, imbalances between political and economic opportunities create four types or levels of corruption. These are interest-group bidding, patronage machines, elite hegemony, and fragmented patronage. The latter two can deteriorate into situations of extreme corruption.

Some support for these models can be found in descriptive as well as empirical studies. Naylor (1998) describes corrupt connections of the arms industry and the government. Gupta *et al*. (2000b) show that military expenditure — decisions on which are often political — increase with the level of corruption in the country. Studies by Mauro (1995, 1997) and Tanzi and Davoodi (1997) in which they examine the behaviour of agents are summarised in Section 5.3.2 below.

Some agency models explain the behaviour of autocratic dictators (Jain 1987, 1993, Klitgaard 1990, 1991, Rose-Ackerman 1999, Chapter 7). A subset of these may be termed as models of 'totalitarian socialism' (Shleifer and Vishny, 1994). These models view policy-makers as predatory agents who are able to ignore the interests of their principals almost completely. Such an approach challenges the existing economic orthodoxy which assumes that '...government actions are the responses of policy-makers to socio-political pressure brought to bear upon them by interest groups' (Frieden 1991, pp. 5–6).[52]

4.2. *The resource allocation model*

The most obvious applications of the resource allocation model are for rent-seeking behaviour. These applications are based on the premise that entrepreneurs attempt to '... escape the invisible hand of the market and to redirect policy proposals for their own advantage. Whereas traditional neo-classical welfare economics assumes government to be an exogenous force, trying to do good, new neo-classical political economists argue that government is at least partially endogenous and the policies it institutes will reflect vested interests in society' (Colander 1984, p. 2). These activities differ from corruption in that, unlike corruption, rent-seeking or DUP activities need not involve illegal payments to the legislators or policy-makers.[53] The premise of this model is that 'rent-seeking is one part of an economic activity, such as distribution or production, and part of

the firm's resources are devoted to the activity (including, of course, the hiring of expediters)' (Krueger 1974, p. 293). The rent-seeking model can also be applied to the activities of different bureaucracies competing for budgets (Faith, 1980). Katz and Rosenberg (1994) apply this model to measure the consequences of rent seeking for the budgets of the central government. Mixon *et al.* (1994) found that clients seeking favours from politicians offer them meals instead of direct (monetary) bribes, thus affecting the demand for restaurants in cities where legislators reside.

Extensions of the simple models of rent-seeking behaviour follow at least two routes. Application of game theory shows how firms will behave when there is competition for rent seeking or when they can co-operate with each other (Linster 1994). Kaufmann and Wei (2000) derive the optimal levels of bribes in a Stackleberg game between officials and firms. The general conclusion of these models would appear to be that 'the extent of aggregate rent-seeking, and hence the total social cost of seeking rent, is determined by the rent available to capture, ... and the number of players in the game' (Paul and Wilhite, 1994, p. 110). Other studies examine the effects of rent seeking on the market structure. Rent-seeking activities may also influence market equilibrium through their effects on the costs of resources (Zhou 1995).[54] In a study of the steel industry in the United States during the 1970s and 1980s, Lenway *et al.* (1996) conclude that import protection resulting from rent-seeking lobbying yields larger benefits for lobbying firms than for non-lobbying firms.[55] This study indicates, first, that rent seeking results in some income redistribution and, second, that there may be a bias in who engages in rent-seeking or corrupt activities in the first place.[56] Studies of rent-seeking behaviour come to a general conclusion that 'rent-seeking entails a welfare loss beyond that for an import restriction without rent-seeking'.[57]

Shleifer and Vishny (1993) develop a model of petty bureaucratic corruption that was first proposed by Rose-Ackerman (1978) taking into account the cost, demand, and supply functions faced by the bureaucrats. Costs for bureaucrats include costs of providing the services (usually borne by the government) and consideration of whether the bribe-revenues have to be shared with others. Demand refers to the competition between the bribers. On the supply side, the bureaucrats may have a monopoly over the service or may compete with other bureaux or other services. The challenge in building a model of corruption at this level is to incorporate uncertainties of information and enforcement. Given the nature of a deal, it is difficult for officials to negotiate levels of bribes openly with their clients. It is also difficult for the parties to ensure that contracts are enforced: a bureaucrat may accept a bribe but may refuse to provide the contracted service without further payments. A bureaucrat also cannot guarantee that some other bureaucrat will not block the transaction even when a bribe has been paid at one level. Most of the models of bureaucratic corruption either ignore the costs associated with the detection of bribery or incorporate them as a probability function (e.g., Rose-Ackerman 1978). Shleifer and Vishny (1993) show that in situations involving theft, '[C]ompetition between buyers of government services assures the spread of cost-reducing corruption' and '[C]orruption with theft

spreads because observance of law does not survive in a competitive environment' (p. 604). Gupta *et al.* (2000a) examine the relationship between corruption and the level of bureaucratic services using this model when there is some complementarity between services provided by different government departments.

Bliss and Di Tella (1997) model officials' ability to obtain corrupt payments because 'differences in the cost structures of the firms create surpluses' that can be milked (p. 1004). Their model allows for corrupt officials to maximise their graft payments by choosing a level of graft payment from each firm that will require some firms to exit. More competition between firms, in this case, does nothing to change the officials' demands. The graft payments shift the supply curve. Their model does not allow for penalties for corruption.

Bureaucratic-services-as-a-monopoly models can be further divided into situations where there is only one winner, for example, where the government chooses only one supplier to provide a service, and those where the bureaucrats provide a service repeatedly, for example, a building permit. Moreover, situations where the corrupt bureaucrat gains at the cost of public revenue (situations involving theft) can be separated from those where corruption increases the user's cost but does not affect the government's revenues.

4.3. *Corruption and internal markets*

One reason why corruption thrives may have to do with the development of internal markets between officials involved in corrupt transactions. One way to reduce uncertainties and penalties associated with corruption may be to share the gains of corruption with those who can inflict costs on the corrupt official. Once it becomes clear that it is possible to enhance earnings through such income, officials will begin to compete for the lucrative positions. In an attempt to secure these positions, officials may spend resources according to their expectations of potential earnings. Those able to award these lucrative positions may put a price on appointments. These positions may, therefore, become subject to an internal market. There is ample evidence that such internal markets exist. An internal market may also develop when an official who is in a position to earn corrupt income attempts to reduce the legal and social costs associated with such income. Once such mechanisms are developed, officials at all levels will have vested interests in the persistence of corruption. Bliss and Di Tella (1997, pp. 1003–4) provide two examples where potential for corruption leads to the creation of an 'internal' market.

In one of the most revealing studies about the spread of corruption, Wade (1985) has documented the mechanisms of such an internal market. Wade studied an irrigation department in one of India's states and showed how a whole administrative system can fall apart when corruption becomes endemic. Corruption in this department led to development of a sophisticated internal labour market and serious consequences for the department's performance.[58]

> Canal managers are under pressure to behave almost exactly contrary to the ostensible objectives of their job: instead of reducing water uncertainty, they

artificially increase it if they wish to maximise bribe revenue; instead of maintaining the canals in good conditions, they leave large stretches of the canal unmaintained so as to save maintenance funds for other purposes. Agricultural officers are under pressure ... to adulterate the special inputs ... . The effects of the transfer system are not only economic ... (but) also the undermining of the workable authority of government' (pp. 485–486).

Development of stable internal markets for corruption may, however, be impeded by the uncertainty characteristic of most bribery transactions. People undertaking a corrupt deal face the risk that the other party will not fulfil its obligations, despite the popular myth that there is 'honor among thieves', and that it will help the prosecutors should the authorities investigate the deal. Costs and risks at three stages of a corrupt deal can influence the level of corruption: searching and negotiating the contract, contract enforcement, and post-enforcement lock-in (Lambsdorff 1998c). How can an official announce that he or she is willing to enter a corrupt deal? While open dissemination of this information would attract the best buyer, it would also attract attention from controlling authorities and rivals or superiors who might wish to share the proceeds. Unless there are repeated transactions, how is an official to guarantee performance or a payee to guarantee payment if the service is provided prior to the payment? One solution to the enforcement problem is, of course, violence.[59]

4.4. The level, and persistence, of corruption

Given how little we understand about how corruption works, it is not surprising that no one has attempted to develop a comprehensive model that would explain the equilibrium level of corruption within a society. Given that corruption may have negative repercussions for some economic entities, why would they not develop mechanisms to control corruption and why would a market not develop to 'buy' the corruption out? Why do the formal and informal checks and balances within the system not work? What market failures allow corruption to persist?

Bardhan (1997, Figure 1, p. 1331) suggests that there may be multiple equilibria of corruption depending upon the number of officials that are corrupt. As the number of corrupt officials increases, marginal benefits for honest officials decrease. Marginal benefits for corrupt officials follow an inverted U-shaped curve, resulting in three equilibria. The first stable equilibrium occurs when all officials are honest; the second, when all are dishonest. An unstable equilibrium results between these two extremes and the behaviour of the marginal official determines whether the economy will move toward an honest or a dishonest equilibrium. Analysis of relationships between corruption and the type of political systems leads Rose-Ackerman (2000) to suggest possibilities of multiple equilibria under some political systems.

Failure of the principal-agent relationship is easy to explain. Agents with control over the political system can circumvent many of the checks and balances implemented by the principal (Rose-Ackerman 1978, p. 4, Etzioni-Halevy 1979,

North 1984, p. 34, Jain 1987). The principal could, therefore, be unable to enforce the implicit contract that it has with the agent. In theory, competitors who lose from corruption should be able to compete for the rents by offering larger bribes. Given the illegal nature of the collusion required by corruption, however, the agent will be unable to invite public bids for the purchase of rents associated with its regulatory powers. This type of collusion will require informal channels of communication between the agent and the organisation seeking benefits from the agent — perhaps even cultural and familial ties. Tanzi (1995) explores the importance of these ties for the existence of corruption. The market for this type of collusion may not develop because this activity requires suppression of information rather than its dissemination (Shleifer and Vishny 1993, pp. 611–5).

Krueger's (1993a) examination of the role of political regimes in the design of economic policies in developing economies may explain why corruption persists. Although her objective may have been to examine why inappropriate policies persist, her analysis helps us understand the persistence of corruption. Some countries 'created an economic environment so inimical to growth as to cause wonderment as to why economic decline was not more precipitous' (p. 13). She finds 'similarities in the policy stances across policies in those countries where economic performance has been poor' (ibid). It is possible that the economic policies that seem so undesirable may have been motivated by the self-interest of those in power, who, furthermore, possess the means to prevent opposition to their policies.

5. Consequences of corruption

Our analysis of the effects of corruption may overlap with the analysis of the causes of corruption. We must recognise that most macro-economic variables are determined simultaneously with corruption, and that there is a feed back effect between the two. Thus, much of the research outlined above is also crucial to understanding the consequences of corruption. Moreover, in measuring the consequences of corruption we must be careful not to compare situations with corruption '... against ideal political and economic results, but rather against what would have happened without corruption ...' (Johnston 1997, p. 61), a task that is easier defined than done. Keeping these difficulties in mind, we will summarise research that shows how corruption might influence economic performance.

Corruption affects the pattern of resource allocation as well as the distribution of income within a society. We can look at the *primary*, or *immediate*, effects of corruption versus the *secondary*, or *subsequent*, effects of corruption. Some types of corruption cause, *primarily*, income redistribution whereas other types cause, *primarily*, resource misallocation. Research on the general equilibrium effects of corruption, that is, research that considers both of these effects and recognises that each gives rise to the other is just beginning (Gupta *et al.*, 1998, summarised in Section 5.4). The following classification of the effects of corruption has been used to make it easier to organise the material — in reality, allocation and distribution effects overlap.

5.1. *Positive effects of corruption?*

The main benefits from corruption would appear to be of the 'grease-the-wheels-of-bureaucracy' kind.[60] It is argued that corruption helps to overcome bureaucratic rigidities and helps maintain allocation efficiency when there is competition between bribers, but not, interestingly, between officials (Bardhan, 1997, p. 1322). Small side payments to officials could speed up bureaucratic processes and hence promote economic growth (Leff 1964, Leys 1970). Agents queuing for bureaucratic services would pay according to their opportunity costs (Lui 1985). If valid, these would be arguments for the second best. The arguments, however, are flawed both conceptually and empirically (Kaufmann 1997). Though Acemoglu and Verdier (1998) justify some corruption in the enforcement of property rights on the grounds that controlling corruption is costly.

Research fails to support the 'grease-the-wheels' argument for petty corruption.[61] Ades and Di Tella (1997a, p. 501) conclude that corruption acts mainly as 'sand-in-the-machine'. Their research does not uncover any benefits associated with corruption in countries mired in red tape. Kaufmann (1998, Exhibit 7.1, p. 133, also Kaufmann and Wei, 2000) shows that there is a *positive* relationship between the incidence of bribery in a country and the time that managers of international firms have to spend with bureaucrats. If the 'grease-the-wheels' argument were valid, higher levels of bribery would be associated with higher levels of bureaucratic efficiency requiring less managerial effort. Gupta *et al*. (2000a) show that the quality as well as the quantity of health care and educational services is lower in countries with higher corruption. The evidence indicates that once bureaucrats recognise the potential for enhancing their income through petty corruption, they enact regulations that require increased interaction between the managers and the bureaucracy or they refuse to provide 'free' services without a fee. Thus, even if bribery speeds up individual transactions, the number of required transactions in the presence of bribery may increase sufficiently to offset the efficiency with which each transaction is carried out. Petty corruption, moreover, rarely exists in a vacuum and small payments often lead to demands for larger payments. In turn, these lead to other distortions in the economy aimed at safeguarding the positions of those who benefit from petty corruption (Rose-Ackerman 1996, p. 367 and Kurer 1993, p. 261).

Some attempt has also been made to show that corruption may be beneficial when an agent can be induced to release information that has a bearing on the welfare of others. Olsen and Torsvik (1998) build a model in which a principal's welfare is enhanced when a side payment (which the authors label as corruption) can be made. The model, however, deals with the issue of monitoring an agent and the distribution of gains from the efforts extended by the agent. Corruption, as the term is normally used, deals with the distribution of the public's wealth by an agent.[62]

Rose-Ackerman (1997a, p. 33) best summarises the problem with petty corruption: 'Tolerating corruption that smoothes over the rough spots in the system and siphons off 5 or 10% of the value of public projects may generate

pressure to increase the take to 10 or 15%'. Porta and Vannucci (1997) document how petty corruption escalated to grand corruption within the Italian administrative system. The argument that 'corruption aids development in certain instances' does not merit much attention from serious scholars in the absence of some evidence that localised petty corruption can survive without serious effects on the rest of the economy or that it has some other positive impact on the economy in a general equilibrium framework. There may be some research opportunities for those who wish to pursue this line of argument from the standpoint of income distribution. When does petty administrative corruption, viewed in isolation from its other effects on the economy, lead to a more equitable income distribution? Under what conditions can such petty corruption exist without influencing the performance of the rest of the economy?

5.2. *Corruption and bureaucratic efficiency*

Corruption influences bureaucratic efficiency in two ways. First, a corrupt bureaucracy will not necessarily award service and purchase contracts to the most efficient producer (Rose-Ackerman 1997a, p. 42). Even if the most efficient producer has the largest surplus and hence the ability to offer the largest bribe, a corrupt producer who is willing to compromise on the quality of goods might be able to offer even larger bribes than the most efficient producer. Second, such producers could prevent the entry of new producers by exploiting their existing (corrupt) relationships within a bureaucracy, especially if the new entrant faces uncertain transaction costs (see the section below). When there is some uncertainty about the level of corruption, a newcomer will hesitate to discuss bribery. Corruption may, therefore, favour 'those with no scruples and those with connections over those who are the most productively efficient' (ibid). As discussed in the previous section, corrupt bureaucrats resort to delaying transactions in order to extract payments from the users of government services (see Rose-Ackerman, 1997a, p. 43, for some examples).

A special case for the study of the effects on bureaucratic efficiency would be the process of privatisation. It was argued above that privatisation reduces administrative discretion and hence reduces opportunities for corruption. Although successful privatisation may attain that goal, the process of privatisation itself can give rise to opportunities for corruption. If the information can be controlled, those with discretion over the process of privatisation can capture large rents associated with this process.[63] Thus, in the presence of corruption, privatisation may end up creating more imperfections than may have been the case before.[64]

5.3. *Effects on resources allocation*

Corruption can affect resources allocation in two ways. First, it can change (mostly) private investors' assessments of the relative merits of various investments. This influence follows from corruption-induced changes in the

relative prices of goods and services, and of resources and factors of production, including entrepreneurial talent. Second, corruption can result in resource misallocation when the decisions on how public funds will be invested, or which private investments will be permitted, are made by a corrupt government agency. The misallocation follows from the possibility that a corrupt decision-maker will consider potential 'corruption payments' as one of the decision criterion. Ranking of projects based on their social value may differ from ranking based on the corrupt income that the agent expects to receive.

Corruption affects investment levels and patterns directly, in three ways, and indirectly, by affecting tax collection and hence the volume of funds available to the government for allocation (Tanzi and Davoodi 1997). It affects government expenditures directly because some activities lend themselves to corruption more than others. Hence, funds will be allocated where the corruption is highest (Mauro 1997, Tanzi and Davoodi 1997). Corruption could also affect investments by altering the incentives for entrepreneurs in that they can expect to receive less for their efforts and face greater uncertainty (Murphy *et al.*, 1991). Corruption will also affect the allocation of human capital because it affects the returns on rent-seeking versus productive activities (Bhagwati *et al.*, 1984).

5.3.1. *Cost-enhancing consequences of corruption*

Corruption can be analogous to a tax when it raises the cost of a transaction. In terms of the resource allocation model, such changes in costs will cause a shift in the market equilibrium. Shleifer and Vishny (1993) analyse the equilibrium levels of services and corruption with bribe-taking officials. When these officials have a monopoly over government services, bribes seem to have the effect of transferring revenues from government to the corrupt officials. When there is some competition between officials, an internal labour market might develop leading to wasteful resource expenditures. These authors conclude that: 'Competition is the best, joint monopoly is the second best; and independent monopoly is the worst for efficiency' (p. 608).

Analysis by Ades and Di Tella (1997b) shows that industrial policies become less effective in the presence of cost-enhancing corruption. Governments encourage investments in preferred sectors of the economy by creating large rents for investors through an industrial policy. The existence of these rents, of course, creates incentives for policy-makers to capture a part of the rents. The authors used variables measuring the procurement policies of governments to estimate the strength of industrial policies, and examined the effects of these policies on the levels of corruption. They estimate that 'in the presence of corruption, ... the total effect of industrial policy on investment ranges between 84 and 56% of the direct impact' (p. 1041). Empirical analysis leads them to warn of '... dangers associated with enthusiastically pursuing interventionist industrial policies ... *in the presence of corruption*' (p. 1041; emphasis added).

Cost-increasing corruption may influence the level of cost-sensitive economic activities. Beck, Mahler, and Tschoegl (1991) found that the Foreign Corrupt

Practices Act of 1977 (FCPA) limits US firms' ability to compete against firms from other source countries that do not face such restrictions in host countries where the US firms do not have a geographical advantage. Hines (1995) found support for the importance of corruption for exporters within the aircraft industry. Although Lambsdorff (1998a) failed to find support for the importance of FCPA, he found that for a small number of countries, exports were influenced by the levels of corruption within the importing countries. Five exporting countries were found to have higher than predicted market shares in countries with corruption. In the case of Sweden, however, the presence of corruption within the importing countries actually discouraged Swedish exports.

Wei (1997, p. 24) found that 'an increase in either the tax rate on multinational firms or corruption levels in the host governments would reduce inward foreign direct investment. An increase in the corruption level from that of Singapore ... to that of Mexico ... is equivalent to raising the tax rate by 21–24 percentage points'. Gray and Kaufmann (1998) point out that firms face higher cost of capital in countries where bribery is practised. Analysis by Hall and Yago (2000) provides support for the proposition that opacity (opposite of transparency — often a precondition for corruption) within countries results in higher costs for the country's foreign bonds. Fons (1998) argues that 'weak transparency increases funding costs, especially in times of financial distress ... . Poor transparency is often found in societies ... with corrupt business practices' (p. 1) and describes various areas where transparency is important together with examples of poor transparency.

5.3.2. *Project selection by a corrupt agent*

In one of the most innovative researches in the area of corruption, Mauro (1995) explored the possibility that corruption affects economic growth by influencing the choice of projects undertaken by the government. In an extension of this analysis, Tanzi and Davoodi (1997) showed that corruption leads to decisions on the allocation of public funds that have perverse effects on economic development. Mauro's objective was to '... identify channels through which corruption and other institutional factors affect economic growth and to quantify the magnitude of these effects' (1995, p. 682). His results indicate that corruption significantly lowers the levels of investment in an economy even when allowance is made for the level of bureaucracy within the country. Knack and Keefer (1995, p. 223) confirm that '... institutions that protect property rights are crucial to economic growth and to investment'. Mauro (1997) extended the study to a larger sample of countries and examined, in addition to the links between corruption and investments, the effects of corruption on the composition of government expenditures. The results of this extended study confirm Mauro's earlier results that corruption significantly affects economic growth and investments in the economy. Furthermore, '... when GDP per capita is controlled for, government expenditure on education is negatively and

significantly associated with higher levels of corruption ... Government expenditure on health is also found to be negatively and significantly associated with corruption' (p. 98).

Tanzi and Davoodi (1997) begin with an observation common to many countries where governments play a major role in the economy: the costs and the nature of public investment expenditures in these countries often defy common sense. Corruption motivates decision-makers to direct public expenditure through channels that make it easier to collect bribes. This creates a bias towards high-value and large-scale construction projects rather than value-enhancing maintenance expenditures or decentralised small-scale projects. The authors hypothesise that the self-interest of corrupt officials will lead them to increase the level of public investment in their economy. Their empirical tests provide strong support for their propositions. Public investment as a ratio of GDP is strongly related to a corruption index. The relationship, moreover, remains strong even when corrections are made for the levels of development and of economies (real per capita GDP is used as a proxy for these variables) and for the availability of funds to finance large-scale projects (measured here as government revenue to GDP ratio).

These authors also examine the link between the quality of investments and corruption. They estimate the quality of investments according to five proxy variables: the percentage of total paved roads that are in good condition, electrical power system losses as a percentage of total power output, faults in the telecommunication system, loss of water, and the percentage of railway diesel engines that are kept in working condition. As expected, the authors found a strong negative relationship between the level of corruption and how well the decision-makers emphasise the maintenance of past projects. These authors conclude that corruption 'reduces growth by increasing public investment *while reducing its productivity* [emphasis in the original] ... (and) by increasing government consumption ... (and) by reducing the quality of existing infrastructure ... (and) by lowering government revenue ...' (p. 20).

In research that combines the effects of cost enhancement as well as the process of project selection, Johnson *et al.* (1997) examine how the burden of corruption (and taxes and regulation) affects growth rates by influencing the choice of firms to operate either in the 'official' sector of the economy or to escape to the 'unofficial' sector which imposes a lower burden on the firms. Using a variety of instrument variables, the authors first establish that the greater the burden that is imposed on firms in the form of taxes, regulations, and corruption, the higher is the proportion of economic activity that moves to the unofficial sector. They then show that growth rates are higher for countries that impose a lower effective burden (which may be defined as the monetary value of the payments less that of the services received) on the firms. Note that the interaction between the level of burden imposed on the firms and the existence of the unofficial sector depends on the political system: the more repressive the regime, the more it is able to force firms to be in the official sectors. Similarly, fairness in administrative systems contributes to higher growth rates.[65]

5.3.3. *Corruption and allocation of entrepreneurial talent*

Although corruption would appear to affect entrepreneurs in the same manner as other investors — by changing the relative costs of products and services — its effect on entrepreneurs appears to be more serious because it changes the nature of the risks associated with entrepreneurial activities. These effects merit a separate section. It is commonly recognised that rent-seeking activities would lead to reallocation of talent if rent-seeking activities yielded higher returns than other activities. This would affect growth if the ablest entrepreneurs became rent-seekers (Murphy *et al.*, 1991, pp. 507–515; also see Braguinsky, 1996, for the role of corruption in the process of growth under different systems). The distortion of growth rates is even more pronounced if the '... production function for rent-seeking is more elastic ...' and property rights are poorly defined (p. 517 and Table I). Moreover, when public officials have an option to collect rents from future earnings associated with risky investments, entrepreneurs will hesitate to undertake projects with long gestation periods. The longer an entrepreneur has to wait to collect his/her rewards, the higher is the probability that some official will find a way to separate the reward from the entrepreneur (ibid, p. 521). Entrepreneurs are even more vulnerable to post-investment-rent-extraction since they (1) do not have a lobby group, (2) tend to be credit constrained, and (3) invest in innovative projects involving slow accumulation of capital (Murphy *et al.*, 1993, p. 413).

5.4. *Corruption and distribution of income and wealth*

Although arguments can be made that corruption affects the distribution of rents within a society (Kurer 1993, Rose-Ackerman 1997a, p. 44), research on the relationship between income distribution and corruption is almost non-existent except for one paper. One would expect, however, that corruption favours the rich.[66] 'Corruption can affect income inequality through.. . overall growth, biased tax systems, and poor targeting of social programs as well as through its impact on asset ownership, human capital formation, education inequalities, and uncertainty in factor accumulation' (Gupta *et al.*, 1998, p. 6). Empirical tests by the authors confirm their propositions. Their results show that '... higher corruption is indeed associated with higher income inequality ... . A worsening in the corruption index of a country by one standard deviation ... is associated with an increase in the Gini coefficient of about 4.4 points' (p. 14). They are also able to establish an association between corruption and poverty. More importantly, using instrument variables, they establish that corruption is the cause of both poverty and increased income inequality (pp. 18–21). Their research points to important policy implications. '... [A]dverse distributional consequences of corruption can be mitigated by (1) sound management of natural resources; (2) broad-based, labour-intensive growth; (3) efficient spending on education and health; (4) effective targeting of social programs; and (5) a low level of inequality in access to education' (p. 30).

6. Solutions and remedies

No one seems to doubt that reducing corruption will be beneficial. 'A central message of this paper is that corruption has significant distributional implications and, given its negative efficiency implications, should be considered harmful to both growth and equity. Therefore, policies that reduce corruption will also reduce income inequality and poverty' (Gupta *et al.*, 1998, p. 30). How it is to be done, however, is not at all clear although suggestions for fighting corruption abound (Coronel 1996, Eigen 1996, Klitgaard 1996, Leiken 1997). One of the most important questions about corruption is also the most difficult to research: how can we combat corruption? We have to think about what kind of approach is best and, given that approach, how it is to be implemented.

First, however, we must realise that corruption is a political as well as an economic problem. The section above on the determinants of corruption identified two variables whose interaction may be critical in combating corruption: economic rents associated with investments and the strength of political institutions. This is not merely a question of restoring democracy but rather of balancing economic and political pressures (Johnston 1997, p. 74, Rose-Ackerman 2000).

There are three possible approaches to reducing corruption (Ades and Di Tella, 1997a). A 'lawyer's' approach would increase the costs and risks of corruption by toughening the laws and their enforcement (Ades and Di Tella 1997a, p. 508, Rose-Ackerman 1997a, pp. 46–50, and Tanzi 1998, p. 126). Increasing the risks associated with corrupt deals may have the effect of raising their transaction costs and hence, may, discourage corruption. A 'businessman's' approach would 'buy out' the corruption by offering incentives to officials to not engage in corrupt activities. This could be done, for example, by offering them higher wages and by offering investors legitimate routes for earning rents.[67] Chand and Moene (1997), while giving an example where offering incentives to tax collectors helped reduce corruption (Ghana in the 1980s), argue that this approach will not work in isolation from other reforms. Fiscal incentives are unlikely to work if 'it is generally perceived that the administrative structures are being used to promote the self-interest of their management' and if there are contagion effects (p. 5). Finally, a 'market' or an 'economist's' approach would increase the role of competition and markets, thus reducing the range and value of transactions that can potentially be exploited by corrupt officials. Reduced official discretion will reduce the potential for corruption (Rose-Ackerman 1997a, pp. 50–51). One way to reduce official discretion would be to increase competition between bureaucracies by allowing clients to obtain services from more than one organisation (Shleifer and Vishny 1993, p. 610). In addition, these approaches would include transparency and free flow of information on the actions of bureaucrats as well as the private activities that these bureaucrats supervise (Kaufmann 1998, p. 150–51, Fons 1998). In terms of the determinants of corruption discussed in a previous section, the lawyer's approach would be useful in reducing the impact of the discretionary powers and in increasing the costs associated with one of the deterrents to corruption. The businessman's approach aims to improve performance along another dimension of the deterrents. The

economist's approach reduces the discretionary powers as well as the values of the rents associated with those powers.

Johnston (1997) offers some suggestions for combating the four types of corruption that can be combined with the typology of approaches proposed by Ades and Di Tella (1997). Corruption arising from 'interest-group bidding' may be best dealt with through a mixture of the businessman's and market approaches. 'Fragmented patronage' as well as 'patronage machines' may require a lawyer's approach and the 'elite hegemony' may be best tackled by a mixture of lawyer's and market approaches (Johnston 1998a and 1998b).

Institutionally, fighting corruption would require a commitment from the leadership (Ruzindana 1997, Tanzi 1998, p. 123) together with a strategy that includes a thorough diagnostic of the existing state of corruption in a country (Kaufmann, 1998). Commitment from the leadership raises the question of the link between corruption and politics. A corrupt regime that sees opportunities for earning rents is unlikely to commit to eliminating corruption. Chand and Moene (1997) show the importance of controlling corruption at the higher levels if other control measures are to have an effect. 'Corruption diagnostics' would include measurement of the types of corruption within a country as well as the extent of corruption in various government agencies (Kaufmann 1998). Kaufmann has also identified the challenges posed by implementation of an anti-corruption program (pp. 160–161). Klitgaard (2000) and Klitgaard *et al.* (2000) offer specific suggestions for fighting systemic corruption, recognising that the fight against corruption has entered its third stage.

There also seems to be little disagreement that international private firms and organisations can play a very important role in combating corruption (Rose-Ackerman 1997a, p. 53, Klitgaard 1996, 1998, Leiken 1997). As Rose-Ackerman points out, however, private firms face the dilemma of balancing their own long-term interests — of having less corruption in host countries — with their short-term interests — of being able to get more business with bribes.[68] International organisations can play an important role by influencing policies on governance, including policies on projects they themselves fund (Rose-Ackerman, 1997b), and by helping create an international environment that rewards growth-oriented policies. International organisations could also play an important role by encouraging and helping countries to develop laws that would make it difficult for corrupt income to be invested outside the country where it is earned. In addition, laws need to be developed that help countries recover the proceeds of corruption from past despots. International pressures that attempt to isolate and penalise countries that protect terrorists may have to be extended to countries that protect earnings from corruption.[69]

7. Directions for future research and concluding remarks

Current research on corruption has tended to be fragmented[70] and researchers often show very little understanding of work in academic disciplines other than their own area of expertise. Future research in this area is likely to take one or more of three

approaches. First, and we believe the most important, corruption has to be studied as an interdisciplinary phenomenon. Second, research into the conceptual links between corruption and other phenomena in society has to continue. Third, as better measures of governance and corruption become available, tentative conclusions based on imprecise measures will have to be re-confirmed. Suggestions for future research given below are only indicative of the type of work that could be useful. A few other research questions have been raised in various sections above.

Much more research is required to distinguish between a simple 'involvement of the government in the economy' and the interplay of the three determinants of corruption. As noted above, the mere existence of discretionary powers will not result in corruption if these powers are exercised openly and with known rules of the game. Government in Singapore plays a major in the economy, yet the country consistently receives one of the highest scores in the world for a corruption-free economy.[71] Presumably, the government's discretionary powers are applied relatively fairly. Thus, the research reported in the section on the determinants of corruption needs to be extended to include other measures of the interaction between the regulators and the private actors in the economy. These measures should be able to distinguish between the economies where interactions between the owners of property rights and the regulators are open and those where lots of deals can be, and are made, 'under-the-table'. Similarly, we need much more research into the political determinants of corruption: what types of regimes give rise to what types of corruption? Johnston (1997) provides an excellent framework for this type of analysis (see also Weyland, 1998, and the papers in Jain, 2000).

The second requirement for the existence of corruption — economic rents associated with discretionary powers of governments — would seem to offer substantial research potential. Very little work has been done on measuring the relationship between the extent of corruption and potential for rents.[72] We need to distinguish between areas of discretionary powers that have economic value for identifiable groups — and hence offer potential for corruption — and those where the public-goods nature of these discretionary powers is unlikely to lead to corruption.

There is strong evidence that the organisation of political institutions has a strong influence on the type of corruption that can prevail in a society. Democracies are less prone to corruption (Treisman 2000) without guaranteeing probity (Rose-Ackerman 2000). Even in a non-democratic system, the extent of centralisation of power can influence the level of corruption. A corrupt dictator who can centralise rent extraction may be more desirable than a fragmented system (Bardhan 1997, pp. 1324–25, Freeland 2000).

Academics who have studied the interaction between culture and management may have an advantage in doing research on the importance of culture as a determinant of corruption For studies on the impact of culture on management, we need to identify attributes of culture as well as those of management. For studies on corruption, our dependent variable is somewhat easier to identify, even if it is equally, or even more, difficult to measure. What aspects of culture contribute to the growth of corruption, determine its impact, and offer clues to

how it can be tackled? What attributes of culture lead to acceptance or rejection of corruption? What are the causal links between these attributes and corruption? Are there some attributes of culture that lead to control of corruption more easily than others? Which aspects of culture will make it difficult to fight corruption? Culture, for example, may make it difficult to introduce transparency that helps reduce corruption (Fons 1998).[73] While we examine the cultural attributes that allow corruption to grow, we must not forget to study cultural attributes in countries where corruption does not grow. Scandinavian countries and New Zealand tend to head the league of countries with low levels of corruption. What is it about the cultures of these countries that does not allow corruption to grow? Answers to these questions may have a significant impact on the strategy that is chosen to combat corruption. Similarly, we may wish to ask how corruption-free and very efficient administrative systems can co-exist with corrupt-higher-levels-of-government in countries like Japan.[74]

Some issues concerning the impact of corruption would interest academics with roots in consumer behaviour and anthropology. If income earned from corruption is seen differently from 'honest' income, then the simple redistribution of income resulting from a bribe will have second order impact on the economy. Corrupt income may be lead to different expenditure patterns than 'honest' income for two reasons. First, some expenditures may be necessitated by a need to reduce the chances of being caught.[75] Corrupt income earners, in order not to be caught, may invest it differently, may hide it outside the country, and may change expenditure patterns.[76] This may explain the link between corruption and capital flight.[77] Part of the expenditures may be used to purchase non-interference from legal authorities. Thus, income from corruption may lead to further corruption/bribery expenditures.[78] Tanzi (1997a) provides examples of how consumption habits of tax officials provide clues to such income and hence the presence of corruption. Second, corrupt income may differ from legitimate income in a subtle manner. Zelizer (1994) describes how an 'honest' dollar is viewed differently from a 'dishonest' dollar — analysis that flies directly in the face of economists' idea that one-dollar is as good as any other.[79] What is the impact of this perception on the expenditure patterns and savings and investment behaviour of those who receive corrupt income?[80] More research needs to be done to find out if money earned through corruption is, *ceteris paribus*, viewed and spent differently than honest income, abstracting from the possibility that corrupt income may necessitate some expenditures not associated with legitimate income. Such differences could have significant impact on economic growth. Some related research questions on the income-redistribution impact of corruption were raised above at the end of Section 5.1.

Much research needs to be done to build comprehensive models of how corruption works at the micro as well as at the macro levels. With a few exceptions, most of the existing models have not been subjected to empirical tests. One approach to solving corruption may involve raising risks associated with contracting corrupt deals. We need much more research on the factors that increase uncertainty associated with such deals — either in terms of the chances of being prosecuted or in terms of the other side in a corrupt deal not fulfilling its

obligations. More research can be done to understand what steps corrupt officials and their corrupt clients take to ensure compliance of the other side.

With one exception (Andvig and Moene 1990), models of corruption have tended to avoid answering one uncomfortable question: Why does corruption persist when it is clearly harmful for some entities? Why would the price mechanism not eliminate corruption? If a certain bureaucratic position provides bribe income, why would the competition not lower the wages for the job to a level that first, it becomes costless for the government to allow some degree of corruption and then second, the corruption itself would become unprofitable? In other words, we would like to know why market mechanisms do not buy out corruption? Why does corruption continue to exist in market economies?[81]

With the exception of Ades and Di Tella (1997b) the research on the consequences of corruption has tended to examine effects of corruption on economic, political, or social variables in isolation. Research that can examine consequences under a general equilibrium framework, or that can examine the simultaneous influence of corruption on economic, political or social variables may add a lot to our understanding of what would be the effective remedies to fight corruption. It would be useful, for example, to extend Ades and Di Tella's (1997b) model to compare marginal utilities of efforts to fight corruption versus reduction in the role of industrial policies. Given the level of corruption, should the government reduce its role in the economy or should it spend some efforts to reduce corruption? Such questions would be especially useful in relation to specific elements of government policy, for example, privatisation.

Research on effective mechanisms to solve corruption is even scarcer. Although we have a good idea of what approaches are possible, we do not have more than anecdotal information on which approaches work. Some approaches may work under restrictive political systems, but their general applicability can be questioned (Ades and Di Tella, 1997a). Researchers will have to examine the low as well as the high corruption countries and isolate factors that have given rise to changes in the levels of corruption in these countries. Kaufmann (1998) provides a useful framework for the analysis of tools to fight corruption. Validity of these tools, however, has to be verified in future research.

Acknowledgements

Notes

1. Bank president James Wolfenson brought world attention to the importance of corruption at the joint annual meeting of IMF and the World Bank in 1996, and then announced at the 1997 meeting that fighting corruption would be a top priority of his institution.
2. The bibliography at the end of this article shows a dramatic increase in the number of

articles published during the past five years. Liken (1997) reports that the number of media articles mentioning corruption in 1995 has quadrupled since 1984. Glynn, Kobrin, and Naim (1997) make the same point based upon the number of times 'corruption' is mentioned in the financial press. This does not imply that useful analysis of corruption did not exist before this surge of interest; see Rose-Ackerman (1978), Klitgaard (1988, 1990, 1991), and Wade (1985), among others.

3. For a partial list, see Elliott (1997 pp. 2–3) and Collier (1999, pp. 1–2). In addition, see Glynn, Kobrin, and Naim (1997) and Pieth (1997) for OECD's attempts to combat bribery in international transactions. For information on the IMF and the World Bank efforts, see Rose-Ackerman (1997b, p. 93). In October 1999, the president of World Bank renewed his organization's commitment to fighting corruption when he announced at an anti-corruption conference that 'There is nothing more important than the issue of corruption. ... At the core of the issue of social equality is the issue of corruption'. (Steven Swindells, 'World Bank boss vows corruption fight', *Globe and Mail*, October 11, 1999, page B12). NGOs devoted to fighting corruption include Transparency International (*www.ti.org*), Community Information, Empowerment and Transparency (*www.ciet.org*) and many others. Those who benefit from corruption, of course, try to stay one step ahead of the officials. In response to OECD anti-bribery laws, arms makers were reported to have been 'building up bribery funds' in offshore accounts (*Financial Times*, June 29, 2000, p. 3).

4. 'Governance' is even more difficult to define than corruption. Kaufmann *et al.* (1999, p. 2) include three concepts in an attempt to quantify governance: '... "probity" (i.e. the opposite of corruption), "bureaucratic quality", and "rule of law"'. See Appendix I for some details. See Burnside and Dollar (1997) for current thought on aid and development. Cynics will note, with some justification, that the OECD governments' efforts are directed mostly at reducing bribery, not all forms of corruption. This may be motivated by the interests of OECD firms that operate abroad and are at a disadvantage against the domestic businesses in a corrupt system. Since operating within any system requires some familiarity with the 'rules of the game', a corrupt system may discriminate against outsiders.

5. In the words of a former president of the World Bank, for example: 'If we are to achieve development, we must aim for growth that cannot be easily reversed through the political process of imperfect governance' (Conable 1992, p. 6). Also see World Bank (1998).

6. Readers may wish to consult Beoninger (1992), among others, for a framework to study the relationship between governance and development. The increase in corruption since the advent of globalization is often cited as a reason for focusing more attention on corruption (Glynn, Kobrin and Naim, 1997). There is no evidence to support this claim of increased corruption over the past decade. Globalization may have, however, increased our awareness of how much corruption impacts business. Increased competition in the global markets probably has had two effects that have drawn more attention to corruption. First, globalization has reduced the traditional spheres of influence of exporters of capital — most of all the United States. Success in a globally competitive market depends more on a firm's competence than on its national origin or the hegemonic powers of its government. Second, US managers have probably felt the disadvantage of the Foreign Corrupt Practices Act (FCPA) which makes it illegal for US businesses to bribe foreign officials. Most likely, these changes brought about by globalization have raised demands from US businesses to level the playing field against other OECD firms on the one hand, and against

domestic capital on the other. In a corrupt environment, domestic firms may have an advantage if they know the rules of the game better than foreign firms. See Pieth (1997) for some issues concerning FCPA and Lambsdorff (1998a) for empirical analysis of its impact.

7. Respondents to a survey conducted by Kaufmann (1997, p. 127) rank 'public sector corruption' as the most severe impediment to development out of a total of 11 variables that were presented to them. Public sector respondents found the same variable to be the second most severe impediment, after 'infrastructure constraints'. It may be argued that the public's tolerance for corruption also changed in the 1990s (Heywood 1997, p. 419). There is, however, no evidence, as Heywood recognizes, to show that public opinion was 'leading' and not merely 'following' other organizations' increased attention to corruption.

8. There are, of course, other surveys, some quite recent, on academic work dealing with corruption. See Bardhan (1997) and Rose-Ackerman (1998) for discussions of the links between corruption and development. Also, see Ades and Di Tella (1997a). A special issue of *Political Studies* (Volume 45, Paul Heywood, ed.) was devoted to the study of political corruption.

9. See Celarier (1997) for another example of this feed-back effect. Absence of a regulatory and enforcement system allows corruption to creep into the privatization process, making it more difficult to fight corruption or to carry out effective privatization.

10. Kaufmann and Siegelbaum (1996, p. 428–29) make a similar point about the connection between privatization and corruption. 'While it is undeniable that, in the transition economies, an increase in corruption coincided with the process of privatization, it does not necessarily follow that this increase was actually caused by the privatization process. Privatization may, in fact, have been no more than a convenient vehicle for corruption that was ongoing and unchecked at that time'. For links between privatization and corruption in Russia, see Freeland (2000).

11. One sign of the difficulty of defining corruption is that almost everyone who writes about it first tries to define it. For a brief summary of various definitions, see Jain (1998c, pp. 13–19). For a discussion of the importance of the definition of corruption, see Johnston (2000a), Lancaster and Montinola (1997) and Philp (1997). Collier (1999, p. 4) attributes the absence of a theory of corruption partly to the lack of an agreed upon definition of corruption. For an earlier attempt to define various types of corruption, see Johnston (1986). Johnston (1996) differentiates between 'behavior-classifying' and 'principal-agent-client' definitions of corruption.

12. No one, however, can deny that some of these phenomena are closely connected to corruption. Vogl (1998, p. 32), for example, highlights the importance of combating money laundering. See Quirk (1996) for the economic importance of money laundering. Naylor (1987, 1996) links the drug trade, black markets and corruption. Also see Paul and Wilhite (1994). Glynn, Kobrin and Naim (1997, p. 13) include even the problem of trust in private strategic alliances as related to corruption. For the connection between corruption and the rise of electronic communications, see Shelly (1998).

13. Illustrations provided by Naylor (1998), however, demonstrate that the distinction between 'illegal activities' and 'corrupt' activities is sometimes not very precise.

14. We will exclude, for the most part, activities that may involve the use of public power for monetary gains through legal channels. The most prominent example of the excluded activities is that of political action committees (PACs) in the United States.

15. It should be borne in mind that some acts of government officials will not be labeled as illegal since the legal code can never be comprehensive enough to define every

single possible policy alternative. Also see Johnston (1997, p. 62). Rose-Ackerman emphasizes the illegal nature of corruption (1978) and provides a comprehensive list of activities that constitute corruption (1997, pp. 34–38). While most analyses of corruption focus on the conduct of public officials who receive corruption income, the supply side of bribes, or those who offer bribes, should not be ignored (Vogl 1998). Heywood (1997) makes a similar distinction between the conduct of public and private officials for the definition of corruption.

16. Within each of these 'types', corruption can take many complex forms. For a description of the many variations of corruption, see Kaufmann (1998, pp. 135–7).

17. Rather than enter into a semantic debate about who exactly is included in the term 'political elite', we define this term to mean the collective of executive, legislative, and administrative positions that has worked out an equilibrium relationship between its constituents and is able to make and implement economic and political decisions.

18. A related term often used by political scientists, 'political corruption', may be somewhat redundant given our definition of corruption. All corruption involves political systems.

19. For some models of such behavior, see Barro (1973), Becker (1983), Grossman and Helpman (1994), and Dixit, Grossman and Helpman (1997), Rose-Ackerman (1999, Chapter 8). Grossman and Helpman (1994, p. 848) base their analysis on the realistic view of '... politicians as maximizing agents who pursue their own selfish interests rather than as benevolent agents seeking to maximize aggregate welfare'. Rose-Ackerman (1999, p. xi) focuses on '... the tension between self-seeking behavior *(of public officials)* and public values'.

20. The Philippine government is still trying to estimate the size of Marcos's loot. See Montinola (1998) for more details. More recently, the former prime minister of Pakistan, Benazir Bhutto has been accused of generating more that $1.5 billion in illicit profits through kickbacks while she was in power (Globe and Mail, January 26, 1998, p. D4). Majul (1994) and Walger (1995) describe corruption in Argentina. Klitgaard (1998) refers to a two-volume dictionary of government corruption in Venezuela and a similar volume for France. Cameron (1994) chronicles corruption under a Prime Minister in Canada. Freeland (2000) traces corruption in Russia. Naylor (1998) links corruption and political power in the arms trade. In many of these cases, the elite benefited not from 'bribery' or side payments, but from more sophisticated and complex access to the rents associated with their decisions.

21. Rose-Ackerman (1998) includes bribes to privatize firms in this type of corruption and discusses some of its consequences.

22. Consider the decision made by the Harris government regarding the privatization of a road in the province of Ontario in Canada in March 1999. Under its privatization policy, the government wanted to privatize part of an existing highway and consider building an extension to it. The private owners would collect tolls on the existing sections of the highway, as well as on any extensions they would agree to build. Two contractors offered between $2.4 and 2.8 billion for the existing section but placed a cost of about $1.2 billion on building the existing section (net of expected revenues). A third contractor, however, placed a small positive value on the new sections to be built. The government chose to reject the offer of additional construction since the rules allowed it to invite a price war for the existing section of the highway. This war resulted in additional revenue of about $0.3 billion up front — revenue which the government was able to use to offer programs just before the elections had to be called. The government, in this case, traded off construction which would have saved the tax-payers about $1.5 billion in exchange for $0.3 billion in immediate revenues

which served the needs of the party — and the decision-makers — in control. Was there corruption in this case? It is possible to justify the decision as serving public interest by providing funds now instead of more convenient highway in the future. It is doubtful, however, if the tax-payers would have made the same decision. For details, see John Ibbitson, 'Cash grab prompted Tories' sale of Hwy. 407', *Globe and Mail*, February 21, 2000, pp. A1, A7.

23. Much rent-seeking work may come under this category. The clearest example of this type of activity is provided by lobbying activities. See the summary below of a recent study (Lenway *et al.*, 1996) on the consequences of lobbying for the steel industry in the United States.

24. Klitgaard (1990) provides an excellent study of such a regime in West Africa. Also see Kurer (1993). For an example of how such links are ignored by traditional economists, see Jain (1998b, p. 2). Estimates of wealth acquired by dictators and autocratic rulers are merely the lower bound of the costs to the society.

25. The most recent example would be Mobutu of Zaire. Rose-Ackerman (1998) distinguishes between a pure kleptocracy (perhaps like Zaire) in which 'the head of government organizes the political system to maximize the possibilities for extracting rents and reallocates these rents for personal use' and a variant where 'the mafia-dominated state, is weak and disorganized, with many officials engaged in freelance bribery' (pp. 42–43). She further distinguishes between types of corrupt states according to the number of potential bribers. Colazingari and Rose-Ackerman (1998) describe how corruption grows in a paternalistic democracy.

26. Rose-Ackerman (1998) identifies three variations of bribes that constitute bureaucratic corruption: bribes that equate supply and demand, bribes as incentive payments for bureaucrats, and bribes that lower costs (pp. 37–39).

27. Kaufmann (1997, p. 117) provides an amusing variation of this type of corruption. Officials in India, it appears, cannot 'speed up' bureaucratic processes but can promise to slow down the approval process for rival companies.

28. Bardhan (1997) provides examples of interesting variations of simple bribery. In Russia, *mzdoimstvo* — taking of remuneration to do what you are supposed to do — is distinguished from *likhoimstvo* – taking a remuneration for what you are not supposed to do (p. 1323). Bliss and Di Tella (1997) distinguish between 'cost-reducing' corruption and 'surplus shifting' corruption.

29. In mid-2000, the head of Lesotho Highlands Water Project was being prosecuted for demanding and accepting bribes from large foreign companies working on a $8 billion project partly aided by the World Bank. The official was using the monopoly powers given to him. See 'Corruption trial of building companies gets underway in Lesotho', *Financial Times*, June 5, 2000, p. 4.

30. In an entirely different context, La Porta *et al.* (1997) demonstrate the value of openness of information in financial markets. They demonstrate that countries with better investor protection through laws and information requirements have deeper and wider financial markets.

31. Since we limit the discussion of corruption to powers associated with public office, we exclude the discretionary powers associated with 'market power'. In contrast, Bliss and Di Tella (1997, p. 1002) include the case where a 'purchasing agent for a monopoly over-invoices his transactions and the lack of yardstick comparison disguises his corruption'.

32. According to Kaufmann (1998, p. 149), '... monopolistic power ... may be one of the most insidious forms given the huge rents and bribes involved ... These mammoth

monopolistic rents, in turn, can alter the balance of power as well as how government is run and by whom'.

33. When the principal consists of the populace, then that 'someone' is one of the principals. The idea, however, is that that 'someone's' marginal benefit from corruption is positive.

34. Tanzi (1995: 8–11) defines corruption in a similar manner and discusses some difficulties with such a definition. See Jain (1998c) for details on this relationship.

35. In other words, there is independence of state and society. Johnston and Hao (1995) emphasize the importance of the lack of such independence for the growth of corruption in China.

36. Johnson, Kaufmann, and Shleifer (1997) include the following in the control rights of politicians: '... regulatory powers over privatized and private firms, the ability to regulate and restrict entry, control over the use of land and real estate that private business occupies, the determination and collection of taxes on business, the right to inspect firms and close them if regulations are violated, control over international trade and foreign exchange transactions, and in some cases, even the power to set prices' (1997, pp. 159–60).

37. Heywood (1997) even implies that if the state fails to obtain the best price for assets being privatized, one of the motivations may be corruption. Governments are often motivated by a desire to spread the ownership of privatized assets to large segments of the society. See his discussion of the privatization of British Telecom in 1984 (p. 423). Corruption associated with privatization should not be seen as a 'third world' phenomenon. It has been alleged that multi-billion D-mark sales of two former East-German petrochemical giants, Leuna and Minol to France's Elf group, under the former German chancellor Helmut Kohl were accompanied by large kickbacks (*Financial Times*, June 29, 2000, p. 16).

38. In the authors' opinion, corruption changed from 'discreet, *guanxi*' based in the pre-reform days to socially and politically disintegrated corruption in the post-reform period.

39. According to one view, 'the presence of rents (...) is the single most important prerequisite of corruption' (Braguinsky 1996, p. 14).

40. Van Rijckeghem and Weder (1997) include these variables in their study of the relationship between fair wages and corruption. Equation 1 proposed here provides a convenient framework to discuss the relative importance of the determinants of the legal deterrents to corruption.

41. Van Rijckeghem and Weder cite the example of public support for teachers in Tanzania whom they thought were being paid wages that were too low (1997, fn. 7). Acceptance also seems to depend on the level at which the corrupt activity takes place. In the fall of 1998, Mike Espy was charged with having taken about $35,000 in illegal gifts from companies that were regulated by his department while he was the Agriculture Secretary under President Clinton. The investigation and the trial had cost, by then, about $17 million (*USA Today*, October 2, 1998, p. 5A).

42. The collection of papers in Langford and Tupper (1993) discuss the relationship between ethical norms of the society and the behavior of politicians and the public officials within various political jurisdictions in Canada. Reed (1996) identifies the cultural origins of corruption in Japan. One does not have to agree with the ethnocentric analysis of Heidenheimer (1996, p. 339: ... baksheesh as a practice of 'developing countries', or p. 337: 'Protestant heritage followed by Britain ...) to accept that the interaction of social and political norms of a society will influence the acceptance of corruption within the society. Among other factors, the author identifies 'lack of trust' among citizens as a factor that leads to corrupt practices.

43. Johnston and Hao (1995, p. 86) illustrate how moral values have impacted on the changes in corruption in China since the market reforms were introduced. These reforms have created what the authors call 'incoherence of values'. Klitgaard (1992) also refutes the arguments that corruption could be acceptable if it were based on culture. Treisman (2000), however, seems to accept the importance of familial ties in influencing nepotism and corruption. Even where gifts and exchanges are acceptable, the public does not necessarily condone corruption (Rose-Ackerman, 1999, p. 177).

44. Politicians could justify resorting to corruption to serve important goals of society. One explanation for the scandal involving financing of the CDU under Helmut Kohl in Germany is that such financing, in Germany and elsewhere in Europe, provided a 'bulwark against a communist dictatorship' (See John Lloyd, 'In Praise of corrupt Cold Warriors', *Globe and Mail*, January 28, 2000, p. A13). Lloyd argues that due to greater need for media exposure during political campaigns, 'Politics need for money will grow, and thus corruption will grow'.

45. See Giglioli (1996) for a description and analysis of the Italian media's involvement in the Tangentopoli affair. Cameron's exposé (1994) of Mulroney's activities while in office reflects Canadian unacceptance of corruption among public officials. Brunetti and Weder (1995) emphasize the importance of free press in determining the extent of corruption.

46. Van Rijckeghem and Weder (1997, p. 7) cite evidence that inequality of access to the legal system may also affect situations where harsh penalties are imposed on the few individuals that get caught in a corrupt system. The public may be reluctant to punish some individuals as opposed to others who may have also committed the same offences.

47. What is important here is the balance between political forces that determine government policies. See Johnston (1997) for a discussion of political powers and their links with corruption. Also see Jain (1987) and Rose-Ackerman (1998, 1999) for discussions of the powers of the political elite as well as the formal and informal controls to which they can be subjected.

48. It is not clear whether the authors imply a causal relationship between the two when they state that '... if the country were to move from having the worst civil liberties observed to the best ...' or if the results are presented merely as a correlation.

49. Most of the analysis under the rubric of 'rent-seeking' is based upon resource allocation models. These models assess the consequences of resource allocation for rent-seeking activities — activities requiring input of labor and subject to a production function. In these models, rent-seeking activities compete with productive activities for resources. See Krueger (1974), Bhagwati (1982), Buchanan, Tollison, and Tullock (1980), or Tullock (1993).

50. It is not clear if in such a case the political elite can be called an 'agent' since the populace may have had no voice in appointing the agent. More research is needed to model the actions of such *de facto* agents.

51. Collier (1999) uses an institutional choice approach to explain the level of corruption within a society.

52. An approach that views governments as balancing interests of various groups is at least more sophisticated than the older assumption that governments are 'benevolent social guardians' — a term used by Krueger (1993).

53. Buchanan, Tollison, and Tullock (1980), Collander (1984), and Tullock (1993) review issues on rent-seeking and Bhagwati (1982), and Bhagwati, Brecher and Srinivasan (1984) analyze DUP activities.

54. Zhou (1995) distinguishes between the behavior of insiders who have established political links and compete with each other in a political game, and outsider who are trying to enter an industry to compete with the insiders in an economic game. The author also distinguishes between positive sum rent-seeking and negative sum rent-seeking.

55. There is no reason to believe that these firms made *secret* side payments to the legislators or politicians. We ignore the contributions made by the firms in this industry to PACs, which, under the US election laws, are legal. Lenway *et al.* find that shareholders, managers, and workers in the lobbying firms benefit from the protection that is granted. Unlike non-lobbying firms, however, lobbying firms show no evidence of using the period of protection to improve their productivity.

56. For more details on this and other rent-seeking studies since Krueger's study in 1974, see Jain (1998d). Rent-seeking studies have attempted to estimate the costs as well as the consequences of these activities in far greater depth than has been the case, at least so far, for corruption.

57. Krueger (1974, p. 299). It appears that licenses cost about 5% of the national income in India in 1964 and about 15% of the GNP in Turkey in 1968 (p. 294). For a brief summary of rent-seeking models, see Jain (1998c). Grossman and Helpman (1994) model some of the losses from rent-seeking behavior. They conclude that '... lobby groups may support institutions that constrain the government to transfer income as inefficiently as possible' (p. 847).

58. Different positions within this department offered different opportunities for administrators to earn illicit revenues. Positions were therefore ranked according to their earning potential and candidates for these positions offered a portion of their anticipated illicit earnings to those with the power to allocate the positions. Since there were many opportunities for all involved in these situations to renege on their promises, thus threatening the future earnings of others or diminishing the chances for recuperating past payments, the administrators focused their attention on developing and implementing a mechanism that would protect their illicit earnings rather than on carrying out their official duties. There were also incentives for the administrators to increase their illicit earnings above those which they may have 'purchased'. This could only be done by diverting government revenues to tasks other than those for which they were allocated. Moreover, the illicit earnings could only have been earned if the required tasks were not carried out according to the expected standards. In addition, simple technical decisions were politicized to the extent that elected politicians were more interested in the allocation of positions than in their legislative duties. Corruption, in this case, had completely undermined the objectives of the department, affecting the use of resources within the department, as well as the earnings of the officials involved with the department. Clearly, no one had an interest in combating corruption.

59. See Lambsdorff (1998c) for details and examples. Johnston's (1997) categories of 'elite hegemony' and 'patronage machines' rely upon such techniques.

60. When bureaucrats are engaged in the distribution of government services, corruption may lead to increased efficiency and a lower budget if the promise of corrupt income leads to lower salaries (Rose-Ackerman 1978, p. 61).

61. Anyone who has studied corruption seriously, however, must agree with Tanzi (1997, p. 164): 'I must confess I have little patience for those who try to find benefits in corruption'.

62. Olsen and Torsvik's model is at least more sophisticated than the simplistic model presented by Braguinsky (1996). Braguinsky attempts to show that corruption increases welfare when emulating firms obtain innovative technology by bribing one

(or more) partner in a team that has developed a new technology that carries 'intramarginal' returns. This analysis, however, ignores any possibility that the partners that would lose due to the illegitimate sale of the technology will anticipate such actions and attempt to mitigate the consequences of potential corruption through appropriate design of initial contracts between the innovating partners. If such contracts and safeguards were not available, entrepreneurs would not invest resources in innovations. Murphy *et al.* (1991) also discuss how corruption will deter investments in innovations.

63. This point is made by Celarier 1997 and Rose-Ackerman 1997a (pp. 42–43). Rose-Ackerman (1999, pp. 35–38) gives a number of examples of situations in which political authorities took advantage of their powers to gain from the process of privatization.

64. Rose-Ackerman (1999) provides another example of a situation in which corruption in the process of transition may end up being worse than what it would be when the goals of the transition process have been achieved. A corrupt autocratic ruler may resort to more rent-generating policies if a democratic movement creates threats to the position and tenure of the ruler (p. 31).

65. Interestingly, the authors also conclude that '... in transition economies, the mafia should not be viewed entirely as a social pathology. Rather, it is a market accommodation to the failure of the state to deliver an attractive combination of taxes and public goods' (p. 205).

66. Naylor's (1998) descriptions of how economic power is used illustrates this point.

67. Ades and Di Tella, (1997a). The research by Van Rijckeghem and Weder (1997), summarized above, however, points to difficulties with this approach.

68. See Eigen (1996) or Lambsdorff (1998b) for a brief description of the activities of Transparency International in this field.

69. Such efforts are beginning to be made. In the summer of 2000, the attention was directed to tax havens when OECD announced that it will 'name and shame' 35 tax havens unless they cooperated with a global crackdown on tax evasion (*Financial Times*, June 26, 2000, p. 1, 16).

70. Authors of various chapters in two recent books on corruption, Elliott (1997) and Jain (1998a), tend to cover similar issues, sometimes from the perspectives of different academic disciplines. This appears to be a characteristic of research topics in the introductory phase of their product life cycle.

71. The Transparency International's corruption index, in 1998, ranked Singapore seventh out of 85 countries. This, however, does not mean that there is no corruption in Singapore.

72. Schlesinger (1997) describes how deregulation in Japan since 1993 has reduced opportunities for corruption.

73. Cultural biases may make it difficult to accept the failure of firms and of their supervising bureaucrats — something that may follow full disclosure on firms (Fons 1998, p. 4). The author then goes on to measure transparency with the corruption index.

74. Interested readers may wish to start with Schlesinger (1997). Among other things, the author describes how some of the most corrupt Japanese leaders made bribes more acceptable within the Japanese cultural norms.

75. There may be 'inefficient use of corrupt payments' by those who receive it. For a brief discussion, see Rose-Ackerman (1997, pp. 43–44).

76. Among others, see Rose-Ackerman (1996) for this point.

77. Jain (1988) has suggested an indirect link between corruption and capital flight. There may be other, more direct, links (Naylor 1987, 1990).

78. Wade (1985) provides an excellent study of how corruption at one level can lead to corruption at other levels in order to protect the spoils of corruption and to create a network that can institutionalize such acts. Furthermore, Wade outlines how lucrative jobs are 'sold' once such an income has been institutionalized within the system — thus creating a market for corruption-earning jobs.

79. Zelizer provides two examples that illustrate this distinction. A gang recruit would offer only the money his mother had given him — hard-earned money — to his church, not the money he acquired through his gang's robberies. Prostitutes in Oslo in 1980 s were found to spend thousands of crowns on 'going-out' while failing to make ends meet with the 'legal' money they received. 'Dirty money, it seems, burns a hole in your pocket ...' (p. 3).

80. Jain and Joy (1997) have studied how the cultural origins of individuals' perception of assets affect their consumption and investment behavior.

81. A rich area for research would appear to be the influence of transitional states of societies on the level of corruption. At least two areas where politics during the transitional periods would be very important have been identified above. First, it was argued that corruption during the process of privatization would be very different than the level of corruption in the society after the process of privatization would have been completed. Second, as Rose-Ackerman (1999, p. 31) has hinted, the level of corruption of an unstable despot may be higher than that of a stable one since the corrupt leader may wish to take advantage of the narrow remaining 'window of opportunity'. The study of corruption during politically unstable periods may offer fertile ground for further work.

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Appendix 1

Variables used in corruption studies

Variable to be studied	Estimator	Source of information	Studies using the variable		
			Study	Sample	Findings
Bureaucratic harassment	Time spent with bureaucrats	Global Competitiveness Report, 1997	Kaufmann and Wei (2000) Kaufmann (1998) Gray and Kaufmann (1998)	Firm surveys in 53–59 countries	Corruption leads to more harassment, not less
	Effective red tape	World Development Report 1997	Kaufmann and Wei (2000)	3866 firm surveys in 73 countries	Corruption leads to more red tape, not less
Civil liberties	Riots Demonstrations	Freedom House, *Freedom in the World.*	Prichett and Kaufmann (1998)	1984–95; different number of countries	Civil liberties lead to better performance of projects
	Strikes Index of civil liberties		Van Rijckeghem and Weder (1997)	1982–94, 25 countries	(Used as an instrument variable)
Controls, internal	Bureaucratic quality (see 'Official's discretionary powers' below)				
Controls, external	Rule of law (See 'Legal Environment' below)				
Economic freedom	Indicator for democracy	Institutional Reform and Informal Sector	Prichett and Kaufmann (1998) (See under 'civil liberties')		

Table continued

Variable to be studied	Estimator	Source of information	Studies using the variable		
			Study	Sample	Findings
Legal environment	Rule of law	International Country Risk Guide	Johnson *et al.* (1998)	Rule of law leads to reduction in the level of the unofficial economy	
			Van Rijckeghem & Weder (1997) (See under 'civil liberties')		
	Index of property rights	Heritage Foundation	Johnson *et al.* (1998)	49 countries, 1990s data	Protection of property rights leads to decrease in the level of the unofficial economy
	Equality of citizens under the law and access of citizens to a non-discriminatory judiciary	Fraser Institute	Johnson *et al.* (1998)	49 countries, 1990s data	Equality of citizens leads to decrease in the level of the unofficial economy
	'Confidence that property and person are adequately protected'	World Competitiveness Report	Ades and Di Tella (1997b)	1989–1992, 32 countries	Protection is associated with lower corruption
Liberalization and economic reform	Private sector share of GDP, Scale of privatization, Price, trade, foreign exchange liberalization, Interest rates and securities markets liberalization, Legal rules on investments, Measures of economic reform:, Legal safeguards, Crime and corruption, Tax fairness, Rule of law, Measures of political reform: Political process, Independent media, Rule of law, Government and public administration (Used in various studies)				
Managerial efficiency	(See Bureaucratic harassment)				

Officials' discretionary powers and provision of services by government	Measure of regulation	Heritage Foundation	Johnson *et al.* (1998)	49 countries, 1990s data	Better regulation leads to decrease in the size of the unofficial economy
	Regulatory discretion	Global Competitiveness Survey	Johnson *et al.* (1998)	49 countries, 1990s data	
			Kaufmann and Wei (2000)	Firm surveys in 53–59 countries	Countries with more regulatory discretion have more bribery
	Bureaucratic quality	International Country Risk Guide	Johnson *et al.* (1998) (Also Van Rijckeghem and Weder (1997))	49 countries, 1990s data	Better quality of bureaucracy leads to lower levels of unofficial economy
	Quality and efficiency of government services for health and education (Also see 'Value of economic rents)	World development report, 1997	Gupta *et al.* (2000a)	71 countries, 1995 to 1997	Quality and quantity of these services declines with corruption
Opacity	Accounting transparency (Extent to which information is freely available)	International accounting and auditing trends	Hall and Yago (2000)	1995–1998, 32 countries	Opacity leads to increased cost of capital
Political liberties	Index of political liberties	Freedom House, *Freedom in the World*	Prichett and Kaufmann (1998) Van Rijckeghem and Weder (1997) Johnson *et al.* (1997)		(See under 'civil liberties')
Size of the economy	Electricity consumption	(World Bank studies)	Johnson *et al.* (1997)	1989–1995. Transition countries	Unofficial economy expands with corruption

Table continued

Variable to be studied	Estimator	Source of information	Studies using the variable		
			Study	Sample	Findings
Taxation	Tax burden	Global Competitiveness Survey	Johnson *et al.* (1998)	49 countries, 1990s data	Corruption increases tax burden on firms
			Kaufmann and Wei (2000)	Firm surveys in 53–59 countries, 1995–1996	
	Top marginal tax rate	Fraser Institute	Johnson *et al.* (1998)	49 countries, 1990s data	
Transparency	(See 'Opacity')				
Unofficial Economy	(See 'Size of the Economy' above)				
Unpredictability of corruption	(Questions on whether bribery-related contracts are fulfilled or not)	World Development Report 1997 Private Sector Survey	Kaufmann and Wei (2000)	3866 firms in 73 countries, 1995–1996	Unpredictability leads to higher expenditure of management time with bureaucracy

Value of economic rents	Budget related measures	US government	Goel and Nelson (1998)	1980s, US states	Higher government budgets correlate with more criminal convictions
	Scope of industrial policy – as measured by: 'Extent to which public procurement is open to foreign bidders' 'Extent to which there is equal fiscal treatment of all enterprises'	World Competitiveness Report	Ades and Di Tella (1997b)	1989–1992, 32 countries	Industrial policy — as reflected in preference for local firms — fosters corruption'
	Extent to which government expenditures cannot be scrutinized	(Estimates of military expenditure)	Gupta *et al.* (2000b)	128 countries, 1985–97	Military expenditure increases with corruption
(Fair) Wages	Pay of civil servants to those in the manufacturing sector	IMF-Government Finance Statistics	Van Rijckeghem and Weder (1997)	1982–94, 25 countries	Wages influence corruption but unable to distinguish the causal connection