Journal of Economic Perspectives—Volume 19, Number 3—Summer 2005—Pages 19–42

Eight Questions about Corruption

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Some years ago I interviewed the chief executive officer of a successful Thai manufacturing firm as part of a pilot survey project. While trying to figure out a good way to quantify the firm's experience with government regulations and corruption in the foreign trade sector, the CEO exclaimed: "I hope to be reborn as a custom official." When a well-paid CEO wishes for a job with low official pay in the government sector, corruption is almost surely a problem!

The most devastating forms of corruption include the diversion and outright theft of funds for public programs and the damage caused by firms and individuals that pay bribes to avoid health and safety regulations intended to benefit the public. Examples abound. A conservative estimate is that the former President of Zaire, Mobutu Sese Seko, looted the treasury of some $5 billion—an amount equal to the country's entire external debt at the time he was ousted in 1997. The funds allegedly embezzled by the former presidents of Indonesia and Philippines, Mohamed Suharto and Ferdinand Marcos, are estimated to be two and seven times higher (Transparency International, 2004). In the Goldenberg scam in Kenya in the early 1990s, the Goldenberg firm received as much as $1 billion from the government as part of an export compensation scheme for fictitious exports of commodities of which Kenya either produced little (gold) or nothing at all (diamonds) ("Public Inquiry into Kenya Gold Scam," 2003). An internal IMF report found that nearly $1 billion of oil revenues, or $77 per capita, vanished from Angolan state coffers in 2001 alone (Pearce, 2002). This amount was about three times the value of the humanitarian aid received by Angola in 2001—in a country where three-quarters of the population survives on less than $1 a day and where one

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in three children dies before the age of five. In Turkey, the effect of the earthquake that took thousands of lives in 2004 would have been much less severe, according to the government of Turkey, if contractors had not been able to pay bribes to build homes with substandard materials (Kinzer, 1999). Extrapolating from firm and household survey data, the World Bank Institute estimates that total bribes in a year are about $1 trillion (Rose-Ackerman, 2004). While the margin of error in this estimate is large, anything even in that general magnitude ($1 trillion is about 3 percent of world GDP) would qualify as an enormous issue.

This paper will discuss eight frequently asked questions about public corruption: 1) What is corruption? 2) Which countries are the most corrupt? 3) What are the common characteristics of countries with high corruption? 4) What is the magnitude of corruption? 5) Do higher wages for bureaucrats reduce corruption? 6) Can competition reduce corruption? 7) Why have there been so few (recent) successful attempts to fight corruption? 8) Does corruption adversely affect growth? These questions are not meant to be exhaustive, and readers interested in additional discussion might begin by turning to the reviews by Bardhan (1997) and Rose-Ackerman (1999).

What is Corruption?

A common definition of public corruption is the misuse of public office for private gain. Misuse, of course, typically involves applying a legal standard. Corruption defined this way would capture, for example, the sale of government property by government officials, kickbacks in public procurement, bribery and embezzlement of government funds.

Corruption is an outcome—a reflection of a country's legal, economic, cultural and political institutions. Corruption can be a response to either beneficial or harmful rules. For example, corruption appears in response to benevolent rules when individuals pay bribes to avoid penalties for harmful conduct or when monitoring of rules is incomplete—as in the case of theft. Conversely, corruption can also arise because bad policies or inefficient institutions are put in place to collect bribes from individuals seeking to get around them (Djankov, LaPorta, Lopez-de-Silanes and Shleifer, 2003).

A number of parallels have been proposed for thinking about corruption. Although each of these parallels can be illuminating in certain ways, none of them capture the phenomena perfectly.

As one parallel, corruption is often thought of as like a tax or a fee. Bribes, like taxes, create a wedge between the actual and privately appropriated marginal product of capital. However, along with the obvious point that bribes bring no money to government coffers, bribes differ from taxes in other ways. Bribes involve higher transaction costs than taxes, because of the uncertainty and secrecy that necessarily accompany bribe payments (Shleifer and Vishny, 1993). Corrupt contracts are not enforceable in courts. An official may renege on an agreement with

the bribe-payer or demand another bribe for the same service (Boycko, Shleifer and Vishny, 1995).

Bribing also has parallels to lobbying in the form of campaign contributions or influence buying through other means, but again, they are not perfect substitutes (Harstad and Svensson, 2004). Consider a situation in which a country has enacted tariffs or licence requirements for imports that affect all firms in a sector. A firm can avoid paying the tariff or buying a licence by bribing a custom official. Alternatively, firms in the sector may collectively lobby the government to provide the license for free or to remove the tariff. One difference between bribery and lobbying in this case is that a change in the trade regime through lobbying affects all firms in the sector, as well as future entrants. However, the return to bribing is typically firm specific, although potential externalities may arise both for other firms and consumers. A second difference is that a change in the trade regime through lobbying tends to be more permanent, because there is some cost to re-enacting the original law, while a bureaucrat cannot credibly commit not to ask for bribes in the future. A third difference is that decisions about government rule making involve officials weighing the benefits of income from lobbying against the cost to the government of a rule change, while decisions about bribes are made by individual public officials who consider their private costs and benefits. Finally, unlike bribing, where firms weight the private benefit and cost of the action, lobbying involves joint actions with associated collective action problems. The question why firms choose to lobby or bribe, and the consequences of this choice, is analyzed in Harstad and Svensson (2004).

Corruption, or more precisely bribes, is not the same as rent-seeking, although the terms are often interchanged. Rent seeking is the socially costly pursuit of rents, often created by governmental interventions in the economy (Tollison, 1997), while bribes are technically a transfer.

No definition of corruption is completely clear-cut. The emphasis in this paper is on public corruption, but corruption can also take the form of collusion between firms or misuse of corporate assets that imposes costs on consumers and investors. Some activities will hover on a legal borderline: for example, legal payments that involve lobbying, campaign contributions or gifts can seem quite close to illegal payments that constitute bribery, or legal offers of postretirement jobs in private sector firms to officials and politicians assigned to regulate these same firms can seem quite close to illegal kickbacks.

Which Countries are the Most Corrupt?

Measuring corruption across countries is a difficult task, both due to the secretive nature of corruption and the variety of forms it takes. However, since corruption reflects an underlying institutional framework, different forms of corruption are likely to be correlated.

The past decade has seen an exponential growth in cross-country studies on corruption. Three types of corruption measures have been exploited in the

literature. The first type, used initially by Knack and Keefer (1995) and Mauro (1995), is based on indicators of corruption assembled by private risk-assessment firms. Of these, the corruption indicator published in the International Country Risk Guide has become the most popular, due to better coverage across time and countries. According to its creators, the International Country Risk Guide's corruption indicator captures the likelihood that high government officials will demand special payments and the extent to which illegal payments are expected throughout government tiers.[1]

The second set of variables is averages of ratings reported by a number of perception-based sources. Among policymakers, the Corruption Perception Index produced by Transparency International is the most widely disseminated. The source of this index varies from year to year, but the data released in October 2004 is based on 18 rankings from 12 institutions.[2] According to Transparency International, the essential conditions for inclusion are that a source must provide an ordinal measurement, or ranking, of nations and that the data must measure the overall extent of corruption and not the expected impact. For this reason, the corruption indicator published in the International Country Risk Guide is not included because, according to Transparency International, it does not determine a country's level of corruption, but the political risk involved in corruption. These two issues can differ considerably, depending on, for example, whether public tolerance toward corruption is high or low.

Kaufmann, Kraay and Mastruzzi (2003) derive a complementary measure, Control of Corruption, drawn from a large set of data sources. They have a broader definition of corruption and include most cross-country indices reporting ranking of countries on some aspect of corruption. They also use a different strategy than Transparency International to aggregate the corruption indicators. In the end, definitions and aggregation choice seem to matter only marginally.[3] The simple correlation between Control of Corruption (from 2002) and the Corruption Perceptions Index (from 2003) is 0.97 and the correlation between Control of Corruption or the Corruption Perceptions and the corruption scores from the International Country Risk Guide (from 2001) is 0.75. The main difference between the three indicators is which countries and years are covered.[4]

[1] The data are produced by Political Risk Services—a private firm providing risk assessments across countries, ⟨http://www.prsgroup.com/countrydata/countrydata.html⟩. According to Political Risk Services, over 80 percent of the world's largest global companies (as ranked by *Fortune* magazine) use its data and information to make business and investment decisions. The current data are costly, although older versions are available on the web.

[2] The Corruption Perception Index is produced by the University of Passau in Germany and by Transparency International. Data for 2004 and previous years back to 1996 are available for free at ⟨http://www.transparency.org/surveys/index.html#cpi⟩.

[3] The Control of Corruption Index is available from the World Bank at ⟨http://info.worldbank.org/governance/kkz2002/tables.asp⟩.

[4] The aggregation procedures used by both Kaufmann, Kraay and Mastruzzi (2003) and Transparency International presume that the measurement errors associated with each subindicator are independent across sources. This assumption allows them also to report measures of the precision or reliability of the estimates. In reality, the measurement errors are likely to be highly correlated, because the producers

The subjective corruption measures discussed above are ordinal indices, although researchers have typically treated them as cardinal measures. At a minimum, this limitation should be kept in mind when interpreting changes in the indices across time and countries. At least two cross-country data sets on corruption provide cardinal measures of corruption, although few papers in the economic literature on corruption have utilized them. Both of them are based on survey data. The EBRD-World Bank Business Environment and Enterprise Performance Survey compiles the experiences of more than 10,000 firm managers in 1999 and 2002. Firm managers were asked to estimate the share of annual sales "firms like yours" typically pay in unofficial payments to public officials.[5] Unfortunately, these data are only available for 26 transition countries.

The International Crime Victim Surveys (ICVS), since 2003 under the responsibility of the United Nations Office on Drugs and Crime, focus on individuals rather than firms. The surveys are designed to produce comparable data on crime and victimization across countries, using a combination of computer-assisted telephone interviewing techniques in developed countries and face-to-face surveys in developing countries. In most developing countries, the survey data refer to the experience of urban households, since the surveys are only implemented in the capital (or largest) cities. With respect to corruption, respondents were asked if government officials asked, or expected the respondent, to pay bribes for their service during the last year. These data can be used to derive the incidence of bribes across countries. To date, over 140 surveys in four waves (1989, 1992, 1996/1997, 2000/2001) have been done in over 70 different countries, although the latest round includes fewer than 50 countries.[6] Incidence of bribes is highly correlated with the subjective measures (simple correlation lies between 0.57 and 0.67), but the best predictor of the share of households that need to pay bribes is actually GDP per capita.[7]

One obvious advantage with the EBRD-World Bank Business Environment and Enterprise Performance Survey and the International Crime Victim Surveys is that they provide hard evidence on corruption. However, collecting reliable data on corruption through traditional survey techniques is problematic. Respondents may choose to misreport or not report at all for many reasons. To the extent that these measurement error problems are not systematically related to country characteristics, however, this may be less of a concern when studying variations in corruption across countries.

A disadvantage is that the hard evidence is only available for a smaller sample

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of the different indices read the same reports and most likely gauge each other's evaluations. If the independence assumption is relaxed, the gain from aggregating a number of different reports is less clear. Moreover, the estimates would be less precisely estimated than the stated estimates suggest.

[5] The data are available for free at ⟨http://www.ebrd.com/pubs/econ/beeps/main.htm⟩.

[6] The data are available for free at ⟨http://www.unicri.it/icvs/data/index.htm⟩.

[7] In regressions using the incidence of bribes as the dependent variable and GDP per capita (in logarithms) and the subjective corruption indices (each entered one at the time) as the independent variables, the coefficient on GDP per capita is highly significant while the corruption indicators are insignificantly different from zero.

of countries. Moreover, the International Crime Victim Surveys only provide information on the incidence of corruption from a household perspective. The incidence and level of corruption are not necessarily highly correlated and may very well be driven by different factors. Clearly, they can also have differential impacts on economic and social outcomes. The subjective indices, on the other hand, are mainly constructed for the private sector, and particularly for foreign investors. Thus, they primarily measure corruption related to doing business—but corruption may take other forms as well.

Table 1 lists the 10 percent of countries that have the worst rankings for corruption according to the four measures with broad regional coverage: the Control of Corruption index, the Corruption Perceptions Index, the corruption score produced by the International Country Risk Guide and the Incidence of Bribes from the International Crime Victim Surveys. Note that not all countries are ranked and that country coverage differs. For example, the Control of Corruption index includes many more countries. All three measures are rescaled such that a higher value implies higher corruption.

What are the Common Characteristics of Countries with High Corruption?

Looking at the lists of most corrupt countries in Table 1 offers some hints about what characterizes countries with high corruption. All of the countries with the highest levels of corruption are developing or transition countries. Strikingly, many are governed, or have recently been governed, by socialist governments. With few exceptions, the most corrupt countries have low income levels. Of the countries assigned an openness score by Sachs and Warner (1995), all of the most corrupt economies are considered closed economies, except Indonesia.[8]

How do these intuitive connections about the common features of countries with high levels of corruption compare with more systematic research? Theories about the determinants of corruption emphasize the role of economic and structural policies and also the role of institutions. These theories are best viewed as complementary; after all, the choice of economic and structural policies is one channel through which institutions influence corruption. The literature is summarized in Acemoglu, Johnson and Robinson (2004), La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) and Djankov, Glaeser, La Porta, Lopez-de-Silanes and Shleifer (2003).

The institutional theories can be decomposed into two broad groups. The first set

[8] The Sachs and Warner (1995) measure of openness considered an economy to be "closed" if it met any of five criteria: 1) average tariff rates above 40 percent; 2) nontariff barriers that cover more than 40 percent of all imports; 3) a socialist economic system; 4) a state monopoly of major exports; and 5) the black market premium exceeded 20 percent during the 1970s or the 1980s. Note that by construction, all socialist economies are defined as closed economies. Rodrígues and Rodrik (2000) argue that the Sachs-Warner indicator serves as a proxy for a wide range of policy and institutional differences, not only differences in openness to trade.

Table 1
The Most Corrupt Countries
(the bottom 10 percent most corrupt countries from each data set)

Country	*CC*	*Country*	*CPI*	*Country*	*ICRG*	*Country*	*ICVS*
Equatorial Guinea	1.9[c,i,v]	Bangladesh	8.7[v]	Zimbabwe	5.8[v]	Albania	0.75
Haiti	1.7[v]	Nigeria	8.6	China	5[v]	Uganda	0.36
Iraq	1.4[v]	Haiti	8.5[v]	Gabon	5[c,v]	Mozambique	0.31
Congo, Dem. Rep.	1.4[c,v]	Myanmar	8.4[v]	Indonesia	5[v]	Nigeria	0.30
Myanmar	1.4[v]	Paraguay	8.4[v]	Iraq	5[v]	Lithuania	0.24
Afghanistan	1.4[c,i,v]	Angola	8.2[v]	Lebanon	5[v]		
Nigeria	1.4	Azerbaijan	8.2	Myanmar	5[v]		
Laos	1.3[c,i,v]	Cameroon	8.2[v]	Niger	5[c,v]		
Paraguay	1.2[v]	Georgia	8.2[i]	Nigeria	5		
Turkmenistan	1.2[c,i,v]	Tajikistan	8.2[i,v]	Russia	5		
Somalia	1.2[c,v]	Indonesia	8.2[v]	Sudan	5[v]		
Korea. North	1.2[c,v]	Kenya	8.1[v]	Somalia	5[c,v]		
Zimbabwe	1.2[v]	Cote d'Ivoire	7.9[v]	Congo, Dem. Rep.	5[c,v]		
Indonesia	1.2[v]	Kyrgyzstan	7.9[i,v]	Serbia and Montenegro	5[v]		
Angola	1.1[v]	Libya	7.9[v]	Haiti	4.8[v]		
Bangladesh	1.1[v]	Papua New Guinea	7.9[v]	Papua New Guinea	4.8[v]		
Cameroon	1.1[v]						
Niger	1.1[c,v]						
Sudan	1.1[v]						
Azerbaijan	1.1						
Tajikistan	1.1[i,v]						
Sample size	195		133		140		44

Notes: CC is the Control of Corruption Index for 2002 from Kaufmann, Kraay and Mastruzzi (2003). The index takes values between −2.5 to 2.5, with a higher score indicating higher corruption (rescaled). CPI is the Corruption Perception Index for 2003 from Transparency International. The index takes values between 0 to 10, with a higher score indicating higher corruption (rescaled). ICRG is the International Country Risk Guide's corruption indicator for 2001 (average over 12 months). The index takes values between 0 to 6, with a higher score indicating higher corruption (rescaled). ICVS is the incidence of bribes in 2000 (share of households responding they need or are expected to pay bribes in 2000) from the International Crime Victim Surveys.
[c] indicates that the country is not included in the Corruption Perception Index ranking.
[i] indicates that the country is not included in the ICRG ranking.
[v] indicates that the country is not included in the ICVS survey.

of theories argues that institutional quality (and thus corruption) is shaped by economic factors. In short, institutions develop in response to a county's income level and differential needs (Lipset, 1960; Demsetz, 1967). A related view—the human capital theory—argues that growth in human capital and income cause institutional development (Lipset, 1960; Glaeser, La Porta, Lopez-de-Silanes and Shleifer, 2004). For example, education and human capital is needed for courts and other formal institutions to operate efficiently, and government abuses are more likely to go unnoticed and unchallenged when the electorate is not literate. These theories suggest looking at per capita income and education as causes of corruption.

The second set of institutional theories stress the role of institutions more directly.

These theories often emphasize that institutions are persistent and inherited. Along these lines, Acemoglu, Johnson and Robinson (2001) argue that in former colonies, the institutions were set for the benefit of the colonizer and only when Europeans settled in large numbers did this also result in institutions aimed at benefiting residents of the colony. The disease environment in the colonies, in turn, explains why Europeans settled or not. Thus, according to Acemoglu, Johnson and Robinson, corruption should be more widespread in colonies with an inhospitable environment.

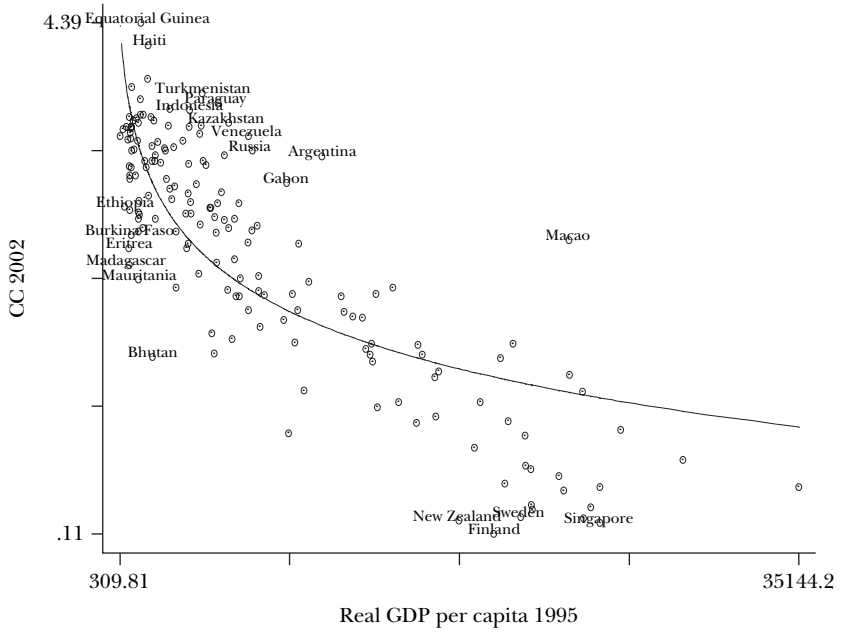
Alternatively, La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998, 1999) stress the identity of the colonizer and specifically the legal system transplanted from the colonizer to the colonies. In their view, French and Socialist legal origin countries (as opposed to former English colonies) regulate more, and regulation leads to corruption.

Yet another way in which historical traditions and colonization might affect the extent of corruption is through the influence of religion (Treisman, 2000). For example, the institutions of the Protestant church, which arose in part as an opposition to state-sponsored religion, may be more inclined to monitor abuses by state officials. Landes (1998) also argues that the spread of education and learning was, and potentially is, slower in Catholic and Muslim countries. Thus, politicians and public officials might be challenged less in Catholic and Muslim countries than in Protestant countries.

Economic and political institutions, in the view of the second set of theories, influence the extent of corruption, especially in the ways that they restrict market and political competition. Variables that capture restriction in the marketplace include openness to external competition from imports (Ades and Di Tella, 1999) and the extent of regulation of entry of start-up firms (Djankov, La Porta, Lopez-de-Silanes and Shleifer, 2002). On the political side, a free press provides greater information than a government-controlled press to voters on government and public sector misbehavior, including corruption (Besley and Burgess, 2001; Brunetti and Weder, 2001). More generally, the right to re-elect politicians can provide incentives for the incumbent to reduce rent seeking and corruption. The form of political institutions—parliamentary versus presidential and proportional versus majoritarian—can also affect the level of corruption as it influences the incentives of politicians and voters' ability to hold politicians accountable for abuse of power (as recently reviewed in this journal by Persson and Tabellini, 2004).

What is the empirical evidence on these various hypotheses? Figure 1 plots the relationship between corruption, proxied by the indicator with the largest country coverage (Control of Corruption), and GDP per capita (in logarithms), and draws the line implied by the estimated regression of corruption on GDP per capita. The graph illustrates two facts. First, richer countries have lower corruption. Second, corruption varies greatly across countries, even controlling for income. Some of the countries far away from the regression line—and thus the most and least corrupt for a given level of development—are highlighted in the graph. For example, Argentina, Russia and Venezuela are ranked as relatively corrupt given their level of income. Countries in sub-Saharan Africa are typically aligned close to the

Figure 1
Corruption and Income



Note: The graph depicts the regression line of corruption (CC 2002) on real GDP per capita (in logarithms) 1995.

regression line, which shows that their perceived corruption is close to the expected level given their per capita GDP.

The strong relationship between income and corruption is consistent with the theories of corruption that argue that institutional quality is shaped by economic factors. However, it is a weak test of these theories, since economic development not only may create a demand for good government and institutional change, but may also be a function of the quality of institutions. Moreover, the huge variation around the regression line suggests that these theories are at best incomplete.

What can account for this variation? To explore this, I carried out a series of regressions where the dependent variable is corruption, proxied with the three subjective measures of corruption described earlier. The explanatory variables in each regression include initial GDP per capita and initial human capital (both measured in 1970) as control variables. I then add a series of country characteristics, one at a time, and test if the coefficient is significantly different from zero. These partial correlations, of course, do not identify causal effects. Even so, the correlations are interesting because they reveal something about common characteristics of corrupt countries, adjusting for initial income and human capital.

What are the results? Table 2 shows that corrupt countries have significantly lower levels of human capital stock, proxied by years of schooling of the total population aged over 25. This relationship holds independent of what measure of corruption is used.

Table 2
Corruption and Country Characteristics: Human Capital

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–01)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.60***	−1.38***	−0.87***	−0.73***	−0.03**
	(.123)	(.33)	(.20)	(.19)	(.01)
Years of schooling (log)	−0.62***	−1.53***	−0.53**	−0.51***	−0.06*
	(.18)	(.52)	(.27)	(.28)	(.03)
Sample size	91	79	83	83	26

Notes: Control of Corruption Index for 2002 from Kaufmann, Kraay and Mastruzzi (2003). The index takes values between −2.5 to 2.5, with a higher score indicating higher corruption (rescaled). Corruption Perception Index for 2003 from Transparency International. The index takes values between 0 to 10, with a higher score indicating higher corruption (rescaled). ICRG is the International Country Risk Guide's corruption indicator for 2001 (average over 12 months). The index takes values between 0 to 6, with a higher score indicating higher corruption (rescaled). ICVS is the incidence of bribes in 2000 (share of households responding they need or are expected to pay bribes in 2000) from the International Crime Victim Surveys. Real GDP per capita in 1970 is from the Penn World Tables. Years of schooling of the total population aged over 25 in 1970 is from Barro and Lee (2000). Robust standard errors in parenthesis.
*** statistically significant at 1 percent level.
** statistically significant at 5 percent level.
* statistically significant at 10 percent level.

Corrupt countries do have some significantly different policy characteristics. Table 3 shows the regression results from a measure of openness to external competition from imports (imports of goods and services as percent of GDP). Table 4 shows the regression based on the extent of regulation of entry of start-up firms (time it takes to obtain legal status to operate a firm). Table 5 shows regression results based on freedom of the press (a subjective score from Freedom House). The findings are robust across data sets, although the openness proxy is insignificant in some regressions. Corrupt countries are less open and regulate both entry to the market and the press more. Replacing freedom of media with a broader measure of political freedom (like the broader Gastil index also produced by Freedom House) yields qualitatively similar results.[9]

Using the incidence of bribes from the International Crime Victim Survey as

[9] I also carried out parallel regressions using a variety of other explanatory variables that provided less robust results. Tables showing these regression results are in an appendix attached to the on-line version of this paper at the journal's website, ⟨http://www.e-jep.org⟩. A short summary of the results is that when settler mortality is included in this sort of regression (which is used as a proxy variable for whether it was attractive for Europeans to settle in a certain area), it cannot account for why some countries, given current levels of physical and human capital, are more corrupt than others. Countries with a French legal system or a socialist legal system tend to have more corruption, although the connection is not statistically significant in all data sets. The proportion of the population identified as Catholic is positively correlated with several corruption indicators; however, correlations between the proportion of the population that is Muslim and measures of corruption are not statistically significant. The religious and legal variables lose significance in a multiple regression with the policy variables as additional controls.

Table 3
Corruption and Country Characteristics: Openness

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–01)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.67***	−1.43***	−0.90***	−0.71***	−0.06***
	(.12)	(.32)	(.21)	(.20)	(.01)
Years of schooling (log)	−0.51***	−1.36***	−0.47*	−0.53*	
	(.18)	(.50)	(.27)	(.28)	
Imports/GDP	−0.01**	−0.03***	−0.00	−0.01	−0.00
	(.00)	(.01)	(.00)	(.00)	(.00)
Sample size	89	77	83	81	44

Notes: For details on sources of data, see Table 2. Imports/GDP is imports of goods and services as percentage of GDP (average from 1980–2000) from World Development Indicators (2004).
*** statistically significant at 1 percent level.
** statistically significant at 5 percent level.
* statistically significant at 10 percent level.

Table 4
Corruption and Country Characteristics: Regulation of Entry

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–01)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.70***	−1.65***	−0.79***	−0.74***	−0.05***
	(.17)	(.37)	(.24)	(.22)	(.01)
Years of schooling (log)	−0.18	0.12	−0.17	−0.03	
	(.31)	(.61)	(.40)	(.34)	
No. of business days to obtain legal status (log)	0.33***	0.98***	0.27***	0.34***	0.01
	(.09)	(.20)	(.10)	(.10)	(.01)
Sample size	61	60	61	61	35

Notes: For details on sources of data, see Table 2. Number of business days to obtain legal status is the time it takes to obtain legal status to operate a firm, in business days (a week has five business days and a month has 22) from Djankov, La Porta, Lopez de Silanes and Shleifer (2002).
*** statistically significant at 1 percent level.
** statistically significant at 5 percent level.
* statistically significant at 10 percent level.

the dependent variable, rather than one of the subjective measures of corruption, drastically reduces the sample size, as shown in the final column of the tables. Somewhat surprisingly, only GDP per capita, the proxy for initial human capital stock, and regulation of the press remain significantly correlated with corruption.

These associations suggest some general conclusions. First, corruption is closely related to GDP per capita and to human capital. These correlations are consistent with the economic and human capital theories of institutional development, but the correlations could also be driven by reverse causality or omitted

Table 5
Corruption and Country Characteristics: Freedom of Media

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–01)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.55***	−1.29***	−0.81***	−0.68***	−0.06***
	(.11)	(.31)	(.20)	(.19)	(.01)
Years of schooling (log)	−0.65***	−0.97*	−0.18	−0.22	
	(.12)	(.59)	(.28)	(.36)	
Freedom of media index	−0.05**	−0.10*	−0.06**	−0.05*	−0.01**
	(.02)	(.06)	(.03)	(.03)	(.00)
Sample size	91	79	83	83	44

Notes: For details on sources of data, see Table 2. Freedom of media index is the average score of the four criteria "Laws and regulations that influence media content," "Political pressures and controls on media content," "Economic influences over media content," "Repressive actions" for print and broadcast media, average over 1994–2001, from the Freedom House.

variables. Second, for a given level of income, the extent of corruption still varies greatly. The cross-country evidence suggests that this variation can partly be accounted for by the degree of market and political competition.

What is the Magnitude of Corruption?

The rankings of countries as more or less corrupt are based on subjective judgments and as such cannot be used to quantify the magnitude of corruption. Thus, until recently, the magnitude of corruption had to be assessed using anecdotal or case-study evidence.[10] However, the past few years has seen a small but growing body of research on identifying and quantifying corrupt behavior.[11]

There is some firm-survey evidence on the magnitude of corruption. Svensson (2003) presents survey data from Ugandan firms. Although the survey was adjusted in several ways to encourage managers to report graft payments truthfully, some misreporting surely remains in the sample. Nonetheless, the results provide a gloomy picture of entrepreneurship in one of the fastest growing countries in sub-Saharan Africa in the last 10–15 years. Over 80 percent of Ugandan firms reported needing to pay bribes. Avoiding graft comes at a cost, since the 20 percent

[10] As an example in this journal, see McMillan and Zoido (2004). They use recorded bribe transactions of and by Peru's former secret-police chief Montesinos and find that Montesinos paid television-channel owners 100 times in bribes what he paid judges and politicians. Using a revealed preference argument, they conclude that news media, consistent with the cross-country evidence discussed above, are the strongest check on the government's power.

[11] Again, the focus of this paper is on public corruption. There is a related literature on private corruption or collusion (for instance, McAfee, 1992; Porter and Zona, 1993; Duggan and Levitt, 2002). There is also a related literature on the value of political connectedness (for instance, Fisman, 2001; Khwaja and Mian, 2004).

of firms reporting that they had not paid had also chosen to minimize contacts with the public sector. Of the graft-paying firms, graft, on average, corresponds to roughly 8 percent of total costs.

Corruption is also widespread in public procurement and service delivery programs. In another study in Uganda, Reinikka and Svensson (2004a) examine a public education program that offered a per-student grant to cover nonwage expenditures in primary schools. To estimate the magnitude of corruption, or diversion of funds, they compared the flows disbursed from the central government to the school districts with survey data from 250 schools on the actual receipts of cash and in-kind school material. Over the period 1991–1995, schools received only 13 percent of central government spending on the program. Most schools received nothing, and the evidence suggests that the bulk of the grants was captured by local government officials and politicians. Subsequent studies have indicated that the situation is similar in other sub-Saharan African countries (Reinikka and Svensson, 2004a). Olken (2003, 2004), using a similar methodology, finds that 29 percent of funds allocated to a road building project and 18 percent of subsidized rice in a large antipoverty program in Indonesia were stolen.

Price comparisons can be another fruitful method to infer the magnitude of corruption. Di Tella and Schargrodsky (2003) compare prices paid for basic homogeneous inputs at public hospitals in the city of Buenos Aires. They show that prices paid fell by 15 percent during the first nine months of a crackdown on corruption in 1996–1997, providing a lower bound of corruption in procurement in Buenos Aires hospitals in the late 1990s. Hsieh and Moretti (2005) estimate the extent of underpricing of Iraqi oil during the United Nations Oil for Food Program by comparing the gap between the official selling price and various estimates of the market price of Iraqi oil during and prior to the program. They argue that underpricing was a way for the Iraq regime to obtain illegal kickbacks from oil buyers and estimate that Iraq collected $1 to $4 billion in bribes from 1997 to 2001, or about 2–10 percent of the total amount spent under the auspices of the program.

The literature on quantifying and identifying corruption is still at its infancy. The existing contributions are scattered and often context specific. Still, the literature conveys that corruption can be quantified in a variety of ways. As more studies and data points become available, one should also be able to say something convincingly about aggregate corruption. As of now, the studies discussed above suggest a huge variation in corruption, ranging from a few percent in the Oil for Food Program that affected Iraq to 80 percent in the primary education program in Uganda. When comparing numbers, it is important to keep in mind that most studies do not claim to capture all corruption within the program or sectors. For example, the hospital procurement study in Argentina estimates the extent of corruption affected by an increase in monitoring, and Hsieh and Moretti (2005) note that there likely were other irregularities in the Oil for Food Program that allowed Iraq to siphon funds from the program.

How do these micro findings on the magnitude of corruption relate to the macro literature on the institutional determinants of corruption? Here the

evidence is even more limited. For example, in the study discussed above, Reinikka and Svensson (2004) estimate the extent of corruption in a national school grant program and argue that economic development, here conceptualized as the community's ability to organize and exercise voice, affects the local government's incentives for corrupt actions. This hypothesis is confirmed in the data: schools in better-off communities, controlling for other community and school-specific fixed effects, experience a significantly lower degree of corruption, and the size of the effect is economically important.

Di Tella and Schargrodsky (2003) and Svensson (2003) also relate quantitative measures of corruption to policy. In a cross-section of Ugandan firms, Svensson finds that the incidence of corruption is highly correlated with the extent to which rules and regulations give public officials the bargaining rights to extort bribe payments from firms. The level of reported graft payment, on the other hand, is driven by firm-specific factors, suggesting that corrupt officials condition their bribe requests on the firm's ability to pay bribes. An implication of this finding is that research on corruption should focus not only on the macro question of how institutional frameworks affect corruption but also on the micro question of how corruption varies across a given institutional framework.

Do Higher Wages for Bureaucrats Reduce Corruption?

Aid donors and international organizations routinely recommend fighting corruption by paying higher wages to public servants. As a historical example of this policy, Sweden, which ranks among the least corrupt countries on all current cross-country rankings, was considered as one of the most corrupt countries in Europe in the seventeenth and eighteenth centuries. Increased remuneration of civil servants combined with deregulation have been put forward as important explanations for the emergence of an honest and competent public administration in Sweden in the late nineteenth century (Lindbeck, 1975).

The analytical underpinning to the policy recommendation to increase public sector wages stems from a seminal paper by Becker and Stigler (1974), who show that by paying the official a wage above the official's opportunity wage, one can ensure, under certain conditions, that the official will behave honestly. However, when the bribe level is not fixed and third-party enforcement does not exist, the theoretical relationship becomes ambiguous. For example, if the official and bribe-giver bargain over the bribe, a higher wage strengthens the official's bargaining power as it raises the expected cost of being corrupt and thus leads to higher bribes (Mookherjee and Png, 1995).

The systematic evidence on the relationship between pay and corruption is ambiguous. In cross-country studies, Rauch and Evans (2000) and Treisman (2000) find no robust evidence that higher wages deter corruption, while Van Rijckeghem and Weder (2001) find that it does. These cross-country studies, however, are fraught with problems. Measuring the extent of corruption using rankings is problematic. It is difficult to tell whether higher wages are a function of low

corruption or vice versa. In addition, these studies have aggregate data on wages, so that the data on corruption and the data on wages may refer to different groups of individuals.

Di Tella and Schargrodsky (2003) avoid most of these problems in their study of how a crackdown on corruption in Buenos Aires affected the procurement policies of public hospitals. They divide the 19 months of data into three distinct periods: a period with low, high and intermediate audit intensity from the city government. Linking the wage premium—the difference between the procurement officer's wage and an estimated opportunity wage—to the price paid for a set of homogeneous hospital inputs, they conclude that higher wages have a negative and quantitatively important effect on procurement prices, but only when audit intensity takes intermediate levels. These results are not indisputable; in particular, there is some concern that variation in the wage premium is driven primarily by variation in the determinants of the opportunity wage—and these determinants may have a direct bearing on the incentives for corrupt behaviour. Still, the findings provide fairly convincing evidence that paying higher wages can deter corruption under certain circumstances.

Should countries facing a high level of corruption react with a policy of higher wages for bureaucrats? Many poor developing countries with widespread corruption probably lack the third-party enforcement assumed in Becker and Stigler (1974) or the outside audits examined in Di Tella and Schargrodsky (2003). Yet the effectiveness of anticorruption wage policies hinges on the existence of an honest third party that can monitor the agent. Similarly, Besley and McLaren (1993) show that paying high wages maximizes tax revenues only when the share of dishonest employees available to the government is high and the monitoring apparatus is effective.

Thus, wage incentives can reduce bribery, but only under certain conditions. This strategy requires a well-functioning enforcement apparatus; the bribe being offered (or demanded) must not be a function of the official's wage; and the cost of paying higher wages must not be too high. In many poor developing countries where corruption is institutionalized, these requirements appear unlikely to hold.

Can Competition Reduce Corruption?

Another common approach to control corruption is to increase competition among firms. One argument is that as firms' profits are driven down by competitive pressure, there are no excess profits from which to pay bribes (Ades and Di Tella, 1999). In reality, however, the connections between competition, profits and corruption are complex and not always analytically clear.

For example, Bliss and Di Tella (1997) construct a model where public officials have the power to extract rents from firms. In the model, corruption does not need any pre-existing rents or imperfect competition, since the excess profits from which to pay bribes may be created by the official by inducing exit. The level of graft demanded per firm depends on the likelihood that firms in the market are more

or less likely to exit due to a marginal increase in graft demand, not on the number of firms in the market or the degree of "natural" competition.

What then can account for the positive relationship between corruption and regulation of markets discussed above? One plausible mechanism has to do with bureaucratic powers. Government regulations that raise barriers to entry are often enacted because they give public officials the power to demand and collect bribes (De Soto, 1989; Shleifer and Vishny, 1993). Thus, deregulation may reduce corruption not so much by increasing competition, but by reducing the extent to which public officials have the power to extract bribes.

At least in theory, increased competition at the level of the official receiving the bribes may also reduce corruption (Rose-Ackerman, 1978). When officials dispense a government-produced good, such as a passport, the existence of a competing official to reapply to in case of being asked for a bribe will bid down the equilibrium amount of corruption (Shleifer and Vishny, 1993). However, there is as yet no convincing empirical evidence that competition among officials actually reduces corruption. Moreover, the mechanism will only work if the multiple officials can individually produce the good. If multiple officials must sign off on the good, each with the power to stop a project, extremely high bribe levels may result.

In public service delivery, competition may not necessarily lead to lower corruption.[12] Consider a parent in Uganda, faced with the diversion of public funds from schools. Such parents have two choices: voice and exit (Hirschman, 1970). That is, they can either voice a complaint with some formal or informal authority, or they can send their children to some other school (or have them drop out of school altogether). But if parents react to public corruption through exit and by sending their children to competing schools, the likelihood of voice as the response to corruption is reduced—and corrupt local officials may be able to extract an even greater share of the school's entitlements. A variety of evidence suggests that increased competition, due to deregulation and simplifications of rules and laws, is negatively correlated with corruption. But it can be a difficult task to strike the right balance between enacting and designing beneficial rules and laws to constrain private misconduct while also limiting the possibilities that such laws open the door for public corruption (Djankov, Glaeser, La Porta, Lopez-de-Silanes and Shleifer, 2003).

Why Have There Been So Few (Recent) Successful Attempts To Fight Corruption?

Most anticorruption programs rely on legal and financial institutions—judiciary, police and financial auditors—to enforce and strengthen accountability in the public sector. The tacit assumption is that more and better enforcement of

[12] There is a large literature on school competition in developed countries focusing on other implications of competition. As a starting point, see Hoxby (2003) or the exchange between Ladd (2002) and Neal (2002) in this journal.

rules and regulations will reduce corruption. However, in many poor countries, the legal and financial institutions are weak and often corrupt themselves. In such a setting, providing more resources to enforcement institutions may not be the right solution to the problem of corruption. An illustrative example is given in Hay and Shleifer (1998). When the elite units of the Russian police obtained more advanced guns to combat crime, they simply sold these guns to the mafia at higher prices than the previous, less powerful, weapons could fetch.

To date, little evidence exists that devoting additional resources to the existing legal and financial government monitoring institutions will reduce corruption. Hong Kong and Singapore are the most cited exceptions. In both countries, the reduction in corruption went hand in hand with the establishment and strengthening of an independent anticorruption agency with widespread powers. For example, in Hong Kong, the Independent Commission Against Corruption created legal precedents such as "guilty until proven innocent" (Klitgaard, 1988; UNDP, 1997). However, the same types of anticorruption agencies have in many other countries been used as an instrument of repression against political opponents, not to fight corruption. Why then did they work in Hong Kong and Singapore? In those countries, several reforms were implemented simultaneously with the strengthening of the enforcement agencies. For example, in Singapore, civil servants' pay relative the private sector increased substantially; public officials were routinely rotated to make it harder for corrupt official to develop strong ties to certain clients; rewards were given to those who refused bribes and turned in the client; and importantly, rules and procedures were simplified and often published, permits and approvals were scrapped, and fees (including import duties) were lowered or removed. In both Hong Kong and Singapore, the top political leadership was committed to fighting corruption. In many developing countries, this commitment cannot be taken for granted.

Alternative approaches to fighting corruption exist. One method is to replace public with private enforcement of public laws through lawsuits, at least for a time (Hay and Shleifer, 1998). But litigation, just as deregulation, has its limitations. Another complementary approach turns to citizen enforcement, by providing easy public access to information on the workings of public programs. This information enables citizens to demand certain standards, to monitor service quality and to challenge abuses by officials.

Some data suggests that improving citizen access to information and giving citizens a greater right to action can reduce corruption. As discussed above, in the mid-1990s, a survey revealed that primary schools in Uganda received only a small fraction of the funds allocated to them by the central government. As this evidence became known, the central government began to publish newspaper accounts of monthly transfers of the capitation grants to districts, so that school staff and parents could monitor local officials. Reinikka and Svensson (2004b) find that the newspaper campaign brought a large improvement. In 2001, schools received an average of 80 percent of their annual entitlements.

How can one estimate the causal effects of improved access to public information? Reinikka and Svensson (2004b) employ a two-step procedure. First, they

use a simple test administered to head teachers to measure knowledge of the program. Second, they measure the distance to the nearest newspaper outlet from the school. They find that head teachers in schools closer to a newspaper outlet know more about the rules governing the grant program and the timing of release of funds by the central government. Using distance as an instrument, they show that the more informed schools experienced a dramatic reduction in the share of funds captured by corruption. Importantly, prior to the newspaper campaign, proximity to a newspaper outlet and changes in capture were uncorrelated.

The success of the newspaper campaign happened in a particular context. The program was a simple entitlement program, which made monitoring easier, and parents and school staff in Uganda had institutions already in place to handle collective decisionmaking. But in general, citizen enforcement or grass-root monitoring are subject to possibly large free-riding problems (Olken, 2004). At the same time, grass-root monitoring initiatives are becoming increasingly popular in many places. Examples include participatory budgeting in Porto Allegre, Brazil; citizen report cards in Bangalore, India; and right to information on public works and public hearings, or *jan sunwais,* in Rajasthan, India. Although there is no robust scientific evidence yet on the impact of these initiatives, the preliminary evidence suggests that corruption has been dramatically reduced.

Yet another strategy to fight corruption is delegation, or hiring integrity, from the private sector. In the past two decades, over 50 developing countries have hired private (international) firms to conduct preshipment inspection of imports and in few cases also handed over the responsibility for collecting customs duties (Yang, 2005). Preshipment inspection can reduce customs corruption in various ways: for example, it improves the monitoring ability of higher-level enforcers, and it generates independent information on the contents of a shipment that could increase the importer's bargaining power vis-à-vis a corrupt customs officer. Yang finds that preshipment programs are associated with increases in the growth rate of import duties of 6 to 8 percentage points annually. The preshipment programs are accompanied by an increase in imports (possibly due to reductions in importers' bribe payments) and a decline in measures of misreporting in customs.

Does Corruption Adversely Affect Growth?

Corruption could conceivably have a positive effect on economic growth. The proponents of "efficient corruption" claim that bribery may allow firms to get things done in an economy plagued by bureaucratic hold-ups and bad, rigid laws (Leff, 1964; Huntington, 1968). A system built on bribery for allocating licenses and government contracts may lead to an outcome in which the most efficient firms will be able to afford to pay the highest bribes (Lui, 1985). However, these arguments typically take the distortions circumvented by the corrupt actions as given. In most cases, distortions and corruption are caused by, or are symptoms of, the same set of underlying factors. As Myrdal (1968) pointed out, corrupt officials may not

circumvent distortions, but instead actually cause greater administrative delays to attract more bribes.

In most theories that link corruption to slower economic growth, the corrupt action by itself does not impose the largest social cost. Instead, the primary social losses of corruption come from propping up of inefficient firms and the allocation of talent, technology and capital away from their socially most productive uses (Murphy, Shleifer and Vishny, 1991, 1993). When profits or potential profits are taken away from firms through corruption, entrepreneurs choose not to start firms or to expand less rapidly. Entrepreneurs may also choose to shift part or all of their savings toward the informal sector, or to organize production in a way that the need or demand for public services is minimized. Moreover, if entrepreneurs expect they will be forced to bargain over bribes in the future, they have incentives to adopt inefficient "fly-by-night" technologies of production with an inefficiently high degree of reversibility, which allows them to react more flexibly to future demands from corrupt officials—and more credibly threaten to shut down operations (Choi and Thum, 1998; Svensson, 2003).

Corruption also affects the allocation of entrepreneurial skills. When corruption is widespread and institutionalized, some firms may devote resources to obtaining valuable licenses and preferential market access, while others focus on improving productivity (Murphy, Shleifer and Vishny, 1991). In the extreme, it may be financially more rewarding for an entrepreneur to leave the private sector altogether and instead become a corrupt public official.

What does the evidence say? The micro and case study evidence tend to support to the theoretical predictions laid out above, but the macro evidence is inconclusive.

Bates (1981), for example, shows that in many sub-Saharan African countries, peasant farmers avoided corruption by taking refuge in subsistence production, with a consequent subsequent decline in productivity and living standards. Many formal sector firms, on the other hand, specialized in securing special advantages that they were unable to secure by competing in the marketplace. De Soto (1989) documents similar effects in Peru, where high start-up costs due to regulatory constraints and corruption forced entrepreneurs to establish new firms underground and on a smaller scale.

Does corruption affect firms' choice of technology and the allocation of talent? Exploiting firm-level capital stock data on reported resale and replacement values, Svensson (2003) provides evidence suggesting that the amount of bribes a firm needs to pay is negatively correlated with the degree of reversibility of the capital stock—a result consistent with the "fly-by-night" hypothesis discussed above. Fisman's (2001) findings on political connectedness in Indonesia suggest that some firms do specialize in corruption and rent seeking as means of growth and Khwaja and Mian's (2004) results on borrowing and default rates of politically connected firms in Pakistan suggest that one of the reasons politicians start firms, or join existing ones, is that it enables them to capture public resources through corruption.

Specialization in corruption also occurs in the public sector. Wade's (1982)

vivid account of corruption in the canal irrigation department in a south Indian state describes how some irrigation engineers raise vast amounts in bribes from the distribution of water and contracts, and redistribute part to superior officers and politicians. The system of corruption is institutionalized, and there is even a second-hand market for posts that provide the holder an opportunity to extract bribes. Thus, politicians and senior officers are able to obtain for themselves part of the engineers' income from corruption by auctioning available posts. Moreover, those specializing in corruption—and thereby able to earn many times their annual official income though bribes—will be able to outbid other contenders less able or less inclined to exploit their official powers to extract bribes. In this example, competition results in higher corruption.

Micro studies on corruption have also yielded insights about the long-run cost of corruption. Reinikka and Svensson (2005), building on the Ugandan newspaper campaign study by Reinikka and Svensson (2004b), find that the reduction in corruption caused by the information campaign had a significant and economically large effect on school enrollment and academic achievement. To the extent that human capital accumulation drives long-run growth, the results suggest an important mechanism through which corruption can hurt growth. Social service delivery in developing countries is often plagued by corruption of a variety of forms—bribes are charged for services to be provided and public funds are embezzled. Corruption is therefore a leading candidate to explain why the impact of public spending on growth and social welfare has been so disappointingly low in many countries.

Some suggestive evidence also exists on the relationship between corruption and growth at the firm level. Fisman and Svensson (2001) use firm-survey data on the estimated bribe payments of Ugandan firms to study the relationship between bribery payments, taxes and firm growth over the period 1995–1997. Using industry-location averages to circumvent the potential problem of endogeneity, they find that both the rate of taxation and bribery are negatively correlated with firm growth. For the full data set, a one percentage point increase in the bribery rate is associated with a reduction in firm growth of three percentage points, an effect that is about three times greater than that of taxation.

What about the macro evidence? Mauro (1995) is the first attempt to study the relationship between corruption and growth in a large cross-section of countries. Contrary to what is sometimes claimed, Mauro does not find robust evidence of a link between corruption and growth, although a broader measure of bureaucratic efficiency is correlated with investment and growth. In Table 6, I updated Mauro's calculations. I ran regressions with economic growth (over the period 1980–2000) as dependent variable and corruption (the International Country Risk Guide's corruption indicator averaged over 1982–2000), initial GDP per capita and human capital as the explanatory variables. The estimated coefficient on corruption in this regression is negative—that is, less corruption is correlated with higher growth—but it is not significantly different from zero. I then added broad range of explanatory variables that have been suggested in the growth literature, but the coefficient on corruption remained insignificantly correlated with growth. Exploiting the panel dimension; that is, using five-year averages for corruption and growth and

Table 6
Growth and Corruption

Dep. variable	*Growth (1980–2000)* *Ordinary least squares*	*Growth (1980–2000)* *Fixed effects*
Real GDP per capita (log)	−0.82*	−6.50***
	(.47)	(1.03)
Years of schooling (log)	1.86***	6.63***
	(.66)	(1.36)
Corruption	−0.33	0.11
	(.24)	(.24)
Countries	85	86
Observations	85	335

Notes: For details on sources of data, see Table 2. Growth is growth in real GDP per capita over the period 1980–2000 in specification (1) and growth in real GDP per capita over the periods 1981–1985, 1986–1990, 1991–1995, 1996–2000 in specification (2). Real GDP per capita and years of schooling are measured at the start of the sample period (in 1980 for specification (1) and in 1980, 85, 90, 95 for specification (2)). Corruption is the International Country Risk Guide's corruption indicator, average for 1982–2000 in specification (1) and average over 1982–1985, 1986–1990, 1991–1995, 1996–2000 in specification (2).

country-specific fixed effects to control for time-invariant country characteristics, also yields insignificant results.[13]

This finding seems to lead to a puzzle. Most of the theoretical literature as well as case study and micro evidence suggest that corruption severely retards development. However, to the extent we can measure corruption in a cross-country setting, it does not affect growth. The puzzle may arise from econometric problems involved in estimating the effects of corruption on growth using cross-country data. For example, the difficulties of measuring corruption may include omitted variables, like the extent of market regulation, and reverse causality, like whether modernization and rapid growth may increase corruption, as Huntington (1968) argued. Another plausible explanation for the mismatch between the micro and macro evidence is that corruption takes many forms, and there is no reason to believe that all types of corruption are equally harmful for growth. Existing data, however, are by and large too coarse to examine different types of corruption in a cross-section of countries.

Conclusion

In this paper, I posed eight questions about corruption. The answers are often not clear-cut, and there are many issues about corruption we simply know too little about. As the study of corruption evolves, three areas are of particular importance.

[13] Using the two other subjective corruption indicators yields, in some specifications, a statistically significant negative effect of corruption on growth. However, these indicators are measured at the end of the sample period, thus making it even more difficult to draw causal interpretations from corruption to growth.

First and most urgently, scant evidence exists on how to combat corruption. Because traditional approaches to improve governance have produced rather disappointing results, experimentation and evaluation of new tools to enhance accountability should be at the forefront of research on corruption.

Second, the differential effect of corruption is an important area for research. For example, China has been able to grow fast while being ranked among the most corrupt countries. Is corruption less harmful in China? Or would China have grown even faster if corruption was lower? These types of questions have received some attention, but more work along what context and type of corruption matters is likely to be fruitful.

Finally, the link between the macro literature on how institutions provide a more-or-less fertile breeding ground for corruption and the micro literature on how much corruption actually occurs in specific contexts is weak. As more forms of corruption and techniques to quantify them at the micro level are developed, it should be possible to reduce this mismatch between macro and micro evidence on corruption.

■ *I am grateful for comments and suggestions by Nicola Gennaioli, Assar Lindbeck, Torsten Persson and David Strömberg, as well as editors James Hines, Andrei Shleifer, Timothy Taylor and Michael Waldman. The views expressed here do not represent the official opinion of the World Bank.*

References

Acemoglu, Daron, James A. Robinson and Simon Johnson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review.* December, 91, pp. 1369–401.

Acemoglu, Daron, Simon Johnson and James A. Robinson. 2004. "Institutions as the Fundamental Cause of Long-Run Growth." Manuscript, MIT.

Ades, Alberto and Rafael Di Tella. 1999. "Rents, Competition, and Corruption." *American Economic Review.* 89:4, pp. 982–93.

Albouy, David. 2004. "The Colonial Origins of Comparative Development: A Reinvestigation of the Data." Mimeo, UC Berkeley.

Bardhan, Pranab. 1997. "Corruption and Development: A Review of Issues." *Journal of Economic Literature.* 35:3, pp. 1320–346.

Becker, Gary and George Stigler. 1974. "Law Enforcement, Malfeasance and the Compensation of Enforcers." *Journal of Legal Studies.* 3:1, pp. 1–19.

Besley, Timothy and Robin Burgess. 2002. "The Political Economy of Government Responsiveness: Theory and Evidence From India." *Quarterly Journal of Economics.* 117:4, pp. 1415–451.

Besley, Timothy and John McLaren. 1993. "Taxes and Bribery: The Role of Wage Incentives." *Economic Journal.* 103:416, pp. 119–41.

Bliss, Christopher and Rafael Di Tella. 1997. "Does Competition Kill Corruption?" *Journal of Political Economy.* 105:5, pp. 1001–023.

Boycko, Maxim, Andrei Shleifer and Robert Vishny. 1995. *Privatizing Russia.* Cambridge Mass.: MIT Press.

Brunetti, Aymo and Beatrice Weder. 2003. "A Free Press is Bad News for Corruption." *Journal of Public Economics.* 87:7–8, pp. 1801–824.

Choi, Jay P. and Marcel P. Thum. 1998. "The

Economics of Repeated Extortion." Columbia University Working Paper No. 9899-03.

De Soto, Hernando. 1989. *The Other Path.* New York: Harper and Row.

Demsetz, Harold. 1967. "Towards a Theory of Property Rights." *American Economic Review.* 57:2, pp 61–70.

Di Tella, Rafael and Ernesto Schargrodsky. 2003. "The Role of Wages and Auditing during a Crackdown on Corruption in the City of Buenos Aires." *Journal of Law and Economics.* 46:1, pp. 269–92.

Djankov, Simeon, Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer. 2003. "The New Comparative Economics." *Journal of Comparative Economics.* 31:4, pp. 595–619.

Djankov, Simeon, Rafeal La Porta, Florencio Lopez-De-Silanes and Andrei Shleifer. 2002. "The Regulation of Entry." *Quarterly Journal of Economics.* 117:1, pp. 1–37.

Duggan, Mark and Steven D. Levitt. 2002. "Corruption in Sumo Wrestling." *American Economic Review.* 92:5, pp 1594–605.

Fisman, Raymond. 2001. "Estimating the Value of Political Connections." *American Economic Reviev.* 91:4, pp. 1095–102.

Fisman, Raymond and Jakob Svensson. 2001. "Are Corruption and Taxation Really Harmful to Growth? Firm Level Evidence." Manuscript, IIES, Stockholm University.

Glaeser, Edward, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer. 2004. "Do Institutions Cause Growth?" *Journal of Economic Growth.* 9:3, pp. 271–303.

Harstad, Bard and Jakob Svensson. 2004. "Bribes, Lobbying and Development." Mimeo, IIES, Stockholm University.

Hay, Jonathan and Andrei Shleifer. 1998. "Private Enforcement of Public Laws: a Theory of Legal Reform." *American Economic Reviev.* 88:2, pp. 398–403.

Hirschman, Albert O. 1970. *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States.* Cambridge, Mass.: Harvard University Press.

Hoxby, Caroline. 2003. "School Choice and School Productivity: Could School Choice be a Tide that Lifts All Boats?" in *The Economics of School Choice.* Caroline Hoxby, ed. Chicago: University of Chicago Press, pp. 287–342.

Huntington, Samuel P. 1968. *Political Order in Changing Societies.* New Haven: Yale University Press.

Jacob, Brian and Steven D. Levitt. 2003. "Rotten Apples: An Investigation of the Prevalence and Predictors of Teacher Cheating." *Quarterly Journal of Economics.* 118:3, pp. 843–77.

Kaufmann, Daniel, Aart Kraay and Massimo Mastruzzi. 2003. "Governance Matters III: Governance Indicators for 1996–2002." World Bank Policy Research Working Paper No. 3106, Washington, D.C.

Khwaja, Asim I. and Atif Mian. 2004. "Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market." Manuscript, Kennedy School of Government, Harvard University.

Kinzer, Stephen. 1999. "The Turkish Quake's Secret Accomplice: Corruption." *New York Times.* August 29, sec. 4, p. 3.

Klitgaard, Robert. 1988. *Controlling Corruption.* Berkeley, Calif.: University of California Press.

Knack, Stephen and Philip Keefer. 1995. "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures." *Economics and Politics.* 7:3, pp. 207–27.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny. 1998. "Law and Finance." *Journal of Political Economy.* 106, pp. 1113–155.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert Vishny. 1999. "The Quality of Government." *Journal of Law, Economics and Organization.* 15:1, pp. 222–79.

Ladd, Helen. 2002. "School Vouchers: A Critical View." *Journal of Economic Perspectives.* 16:4, pp. 3–24.

Landes, David. 1998. *The Wealth and Poverty of Nations.* New York, N.Y.: W. W. Norton.

Leff, Nathanial H. 1964. "Economic Development through Bureaucratic Corruption." *American Behavioral Scientist.* 82:2, pp. 337–41.

Lindbeck, Assar. 1975. *Swedish Economic Policy.* London: MacMillan Press.

Lipset, Seymour M. 1960. *Political Man: The Social Basis of Modern Politics.* New York: Doubleday.

Lui, Francis T. 1985. "An Equilibrium Queuing Model of Bribery." *Journal of Political Economy.* 93:4, pp. 760–81.

Mauro, Paolo. 1995. "Corruption and Growth." *Quarterly Journal of Economics.* 110, pp. 681–712.

McAfee, R. Preston. 1992. "Bidding Rings." *American Economic Review.* 82:3, pp. 681–711.

McMillan, John and Pablo Zoido. 2004. "How to Subvert Democracy: Montesinos in Peru." *Journal of Economic Perspectives.* 18:4, pp. 69–92.

Mookherjee. Dilip and I. P. L. Png. 1995. "Corruptible Law Enforcers: How Should They Be Compensated?" *Economic Journal.* 105, pp. 145–59.

Murphy, Kevin, Andrei Shleifer and Robert Vishny. 1991. "The Allocation of Talent: Implications for Growth." *Quarterly Journal of Economics.* 106, pp. 503–30.

Murphy, Kevin, Andrei Shleifer and Robert Vishny. 1993. "Why is Rent-seeking so Costly to Growth?" *American Economic Review*. 83:2, pp. 409–14.

Myrdal, Gunnar. 1968. *Asian Drama*. New York: Random House.

Neal, Derek. 2002. "How Vouchers Could Change the Market for Education." *Journal of Economic Perspectives*. 16:4, pp. 24–44.

North, Douglass C. and Robert P. Thomas. 1973. *The Rise of the Western World: A New Economic History*. Cambridge, UK: Cambridge University Press.

Olken, Benjamin. 2003. "Corruption and the Costs of Redistribution: Micro Evidence from Indonesia." Manuscript, Harvard University.

Olken, Benjamin. 2004. "Monitoring Corruption: Evidence from a Field Experiment in Indonesia." Manuscript, Harvard University.

Pearce, Justin. 2002. "IMF: Angola's 'missing millions.'" *BBC News,* October 18; Available at ⟨http://news.bbc.co.uk/2/hi/africa/2338669.stm⟩.

Persson, Torsten and Guido Tabellini. 2004. "Constitutions and Economic Policy." *Journal of Economic Perspectives*. 18:1, pp. 75–98.

Porter, Robert H. and J. Douglas Zona. 1993. "Detection of Bid Rigging in Procurement Auctions." *Journal of Political Economy*. 101:3, pp. 518–38.

"Public Inquiry into Kenya Gold Scam." 2003. *BBC News*, March 14; Available at ⟨http://news.bbc.co.uk/1/hi/business/2851519.stm⟩.

Rauch, James and Peter Evans. 2000. "Bureaucratic Structure and Bureaucratic Performance in Less Developed Countries." *Journal of Public Economics*. 75:1, pp. 49–71.

Reinikka, Ritva and Jakob Svensson. 2004a. "Local Capture: Evidence from a Central Government Transfer Program in Uganda." *Quarterly Journal of Economics*. 119:2, pp. 679–705.

Reinikka, Ritva and Jakob Svensson. 2004b. "The Power of Information: Evidence from a Newspaper Campaign to Reduce Capture." Manuscript, IIES, Stockholm University.

Reinikka, Ritva and Jakob Svensson. 2005. "Fighting Corruption to Improve Schooling: Evidence from a Newspaper Campaign in Uganda." *Journal of European Economic Association*. Forthcoming.

Rose-Ackerman, Susan. 1978. *Corruption: A Study in Political Economy*. New York: Academic Press.

Rose-Ackerman, Susan. 1999. *Corruption and Government: Causes, Consequences, and Strategies for Reform*. Cambridge: Cambridge University Press.

Rose-Ackerman, Susan. 2004. "Governance and Corruption," in *Global Crises, Global Solutions*. B. Lomborg, ed. Cambridge: Cambridge University Press, chapter 6.

Sachs, Jeffrey D. and Andrew M. Warner. 1995. "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity*. 1, pp. 1–118.

Shleifer, Andrei and Robert Vishny. 1993. "Corruption." *Quarterly Journal of Economics*. 108:3, pp. 599–617.

Svensson, Jakob. 2003. "Who Must Pay Bribes and How Much?" *Quarterly Journal of Economics*. 118:1, pp. 207–30.

Transparency International. 2004. *Global Corruption Report 2004*. London: Pluto Press.

Treisman, Daniel. 2000. "The Causes of Corruption: A Cross-National Study." *Journal of Public Economics*. 76:3, pp. 399–457.

UNDP. 1997. "Corruption and Good Governance." Discussion Paper No. 3, Management Development and Governance Division.

Van Rijckeghem, Caroline and Beatrice Weder. 2001. "Bureaucratic Corruption and the Rate of Temptation: Do Wages in the Civil Service Affect Corruption, and by How Much?" *Journal of Development Economics*. 65:2, pp. 307–31.

Wade, Robert. 1982. "The System of Administrative and Political Corruption: Canal Irrigation in South India." *Journal of Development Studies*. 18:3, pp. 287–328.

Yang, Dean. 2005. "Integrity for Hire: An Analysis of a Widespread Program for Combating Customs Corruption." Manuscript, Gerald R. Ford School of Public Policy, University of Michigan.

Appendix Table 1
Corruption and Country Characteristics: Settler Mortality

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–2001)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.42**	−0.79*	−0.75***	−0.53***	−0.05
	(.20)	(.47)	(.24)	(.22)	(.04)
Years of schooling (log)	−0.40	−1.03	−0.11	−0.64	
	(.33)	(.82)	(.35)	(.42)	
Mortality (log)	0.20	0.58	−0.27*	−0.02	0.03
	(.17)	(.41)	(.16)	(.13)	(.03)
Sample size	47	42	47	47	9

Notes: For details on sources of data, see Table 2 in main text. Mortality is settler mortality between 1604–1848 from Acemoglu, Robinson and Johnson (2001).

Appendix Table 2
Corruption and Country Characteristics: Socialist Legal System

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–2001)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.60***	−1.25***	−0.88***	−0.68***	−0.06***
	(.12)	(.32)	(.21)	(.20)	(.01)
Years of schooling (log)	−0.66***	−1.83***	−0.49*	−0.60**	
	(.18)	(.51)	(.28)	(.29)	
Socialist legal system	0.45***	2.19***	−0.32	0.78***	0.05
	(.12)	(.47)	(.20)	(.23)	(.03)
Sample size	91	79	83	83	44

Notes: For details on sources of data, see Table 2. Socialist legal system is a binary variable (0, 1) indicating if the legal origin of the company law or commercial code is socialist (=1) from La Porta, Lopez de Silanes, Shleifer and Vishny (1999).

Appendix Table 3
Corruption and Country Characteristics: French Legal System

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–2001)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.75***	−1.72*	−1.03***	−0.77***	−0.06
	(.12)	(.32)	(.18)	(.20)	(.01)
Years of schooling (log)	−0.32	−0.75	−0.14	−0.40	
	(.21)	(.60)	(.28)	(.33)	
French legal system	0.52***	1.38***	−0.67***	0.19	−0.02
	(.16)	(.41)	(.19)	(.23)	(.04)
Sample size	91	79	83	83	44

Notes: For details on sources of data, see Table 2. French legal system is a binary variable (0, 1) indicating if the legal origin of company law or commercial code is French (=1) from La Porta, Lopez de Silanes, Shleifer and Vishny (1999).

Appendix Table 4
Corruption and Country Characteristics: Muslim
(percentage of population)

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–2001)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.61***	−1.33***	−0.85***	−0.71***	−0.06***
	(.12)	(.34)	(.21)	(.20)	(.01)
Years of schooling (log)	−0.69***	−1.87***	−0.60*	−0.56*	
	(.20)	(.56)	(.32)	(.32)	
Muslim	0.00	−0.01	−0.00	−0.00	0.00
	(.00)	(.01)	(.00)	(.00)	(.00)
Sample size	91	79	83	83	44

Notes: For details on sources of data, see Table 2. Muslim is percentage of the population identified as Muslim in 1980 (for countries of recent formation, the data are for 1990–1995) from La Porta, Lopez de Silanes, Shleifer and Vishny (1999).

Appendix Table 5
Corruption and Country Characteristics: Catholic
(percentage of population)

Dep. variable	*Control of Corruption (2002)*	*Corruption Perception Index (2003)*	*ICRG Corruption Score (1982–2001)*	*ICRG Corruption Score (2001)*	*IVSC Incidence of Bribes (2000)*
Real GDP per capita (log)	−0.65***	−1.45***	−0.89***	−0.74***	−0.06***
	(.11)	(.31)	(.19)	(.19)	(.01)
Years of schooling (log)	−0.65***	−1.62***	−0.58**	−0.53*	
	(.17)	(.49)	(.28)	(.28)	
Catholic	0.01***	0.02***	0.01***	0.00	−0.00
	(.00)	(.00)	(.00)	(.00)	(.00)
Sample size	91	79	83	83	44

Notes: For details on sources of data, see Table 2 in main text. Catholic is the percentage of the population identified as Catholic in 1980 (for countries of recent formation, the data are for 1990–1995) from La Porta, Lopez de Silanes, Shleifer and Vishny (1999).