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ACCOUNTABILITY AND CORRUPTION: POLITICAL INSTITUTIONS MATTER

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This study uses a cross-country panel to examine the determinants of corruption, paying particular attention to political institutions that increase accountability. Even though the theoretical literature has stressed the importance of political institutions in determining corruption, the empirical literature is relatively scarce. Our results confirm the role of political institutions in determining the prevalence of corruption. Democracies, parliamentary systems, political stability, and freedom of press are all associated with lower corruption. Additionally, common results of the previous empirical literature, related to openness and legal tradition, do not hold once political variables are taken into account.

1. INTRODUCTION

CORRUPTION IS generally regarded as one of the most serious obstacles to development. Recent evidence shows that indicators of corruption are negatively correlated with important economic outcomes. Mauro (1995) and Burki and Perry (1998) claim that corruption reduces economic growth, via reduced private investment; Kaufman et al. (1999) find that corruption limits development, as measured by per capita income, child mortality, and literacy; and Bai and Wei (2000) argue that corruption affects the making of economic policy. Therefore, it is important to understand the determinants of corruption, and the limitations that they impose on the prospects of growth and development.

The theoretical literature in political science and economics has made numerous efforts in this direction and has stressed the importance of political institutions in shaping the patterns of government corruption. Nevertheless, the corresponding empirical literature is relatively scarce.[1] The present study attempts to contribute to the emerging empirical literature on the determinants of government corruption across countries and over time, with particular attention devoted to the role of political institutions.

Our theoretical benchmark assumes that political institutions affect corruption through two channels: political accountability and the structure of

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[1]Though still scarce, the empirical literature on political institutions and corruption is growing. Some important contributions are Tanzi (1998), La Porta et al. (1999), Fisman and Gatti (2000), Treisman (2000), Persson et al. (2001), and Kunicova and Rose-Ackerman (2002). See section 2 below.

provision of public goods. Political mechanisms that increase political accountability, either by encouraging punishment of corrupt individuals or by reducing the informational problem related to government activities, tend to reduce the incidence of corruption. Likewise, institutions that generate a competitive environment in the provision of public services tend to reduce the extraction of rents, therefore reducing corruption.

The results show that some specific political institutions are strongly correlated with the prevalence of corruption. In short, democracies, parliamentary systems, political stability, and freedom of press are all associated with lower corruption. Additionally, we show that common results of the previous empirical literature – related to openness and legal tradition – do not hold once political variables are taken into account.

The remainder of the paper is organized as follows. Section 2 discusses the nature of corruption, by distinguishing corruption from other types of crimes and characterizing it as a political phenomenon. Section 3 presents the data on corruption, discusses its potential limitations, and describes the empirical approach and selected explanatory variables. Section 4 discusses the specification of the model and the results. Section 5 concludes the paper.

2. THE NATURE OF CORRUPTION

2.1 Corruption as a Crime

There is no question that corruption is a type of crime. Therefore, factors that affect the incidence of common crimes could also play an important role in determining the incidence of corruption, thus making corruption and other types of crimes highly correlated. Surprisingly enough, this is not the case. While the different types of "common" crimes are highly correlated in a cross-section of countries, none of them are significantly correlated with corruption. Table 1 shows the pairwise correlations between crime rates, taken from the International Crime Victimization Surveys, and a corruption index, taken from the International Country Risk Guide (discussed in section 3 below). Whereas the pairwise correlations among rates of thefts, burglaries, and contact crimes are all positive and significant at the 1% level – ranging from 0.55 to 0.76 – the correlations among the corruption index and the crime rates are quite small and never significant, being even negative for thefts.

This suggests that factors distinguishing corruption from other crimes, related precisely to its connections to government activities and authority, play an important role. Corruption is a different phenomenon with its own characteristics and determinants, as noted almost a century ago by Francis McGovern (1907, p. 266):

> [*Corruption's*] advent in any community is marked by the commission of bribery, extortion and criminal conspiracies to defraud the public, without a

TABLE 1 CORRELATION BETWEEN A CORRUPTION INDEX AND CRIME RATES

	Corruption	Burglary	Theft	Contact crimes
Corruption	1			
Burglary	0.12	1		
	(42)			
Theft	−0.12	0.58*	1	
	(42)	(45)		
Contact crimes	0.22	0.76*	0.55*	1
	(42)	(45)	(45)	

Notes: *Significant at 1%. Number of observations below the correlations. Corruption index from the ICRG (1999). Crime rates from ICVS, average for all years available.

> corresponding increase in other unrelated crimes. Its going, likewise, is accompanied by no abatement in the usual grist of larcenies, burglaries and murder. It is, indeed, a unique and highly complex thing; an institution, if you please, rather than a condition of society or a temper or tendency of any class of individuals.

The analysis of the determinants of corruption must consequently focus on its ''institutional'' features. From this perspective, political institutions would seem to be important determinants of corruption. By shaping the rules of the interaction between citizens and politicians, political institutions can affect the incidence of corruption. Ultimately, the political macrostructure – related to the political system, balance of powers, electoral competition, and so on – determines the incentives for those in office to be honest and to police and punish misbehavior.

2.2 The Political Determinants of Corruption

The theoretical literature on the determinants of corruption has experienced a boom in the last decades. A large part of this literature has concentrated on the political nature of corruption and on the impact of different institutional designs on the level of corruption. Here, we selectively review this literature, with the goal of setting up a theoretical benchmark to guide our empirical investigation. A broad review of the literature is contained in Bardhan (1997).

The problem of corruption in the public sphere is almost a direct consequence of the nature of government interventions. Transactions within the government always imply some asymmetry of information between citizens and politicians and, at the same time, governments intervene precisely in situations where there are market failures, such that private provision is not regarded as a viable alternative (Banerjee, 1997). In this context, corruption arises spontaneously as a consequence of the existence of rents and

monitoring failures. The possibility of rent extraction and the precise nature of the informational problem depend largely on the institutional design.

The specific design of political institutions will affect corruption mainly through two channels. The first one is related to political accountability: any mechanism that increases political accountability, either by encouraging the punishment of corrupt individuals or by reducing the informational problem related to government activities, tends to reduce the incidence of corruption. The other one is related to the structure of provision of public goods: institutions generating a competitive environment in the provision of the same public service tend to reduce the extraction of rents, thus reducing corruption via a straightforward economic competition mechanism. The following discussion further explores these two points.

Political Accountability and Corruption. The political science and economics literatures have extensively discussed the role of political accountability in generating good governance practices and, particularly, in reducing corruption; see, for example, Fackler and Lin (1995), Linz and Stepan (1996), Nas et al. (1986), Bailey and Valenzuela (1997), Persson et al. (1997), Rose-Ackerman (1999), Djankov et al. (2001), and Laffont and Meleu (2001). The central argument is that accountability allows for the punishment of politicians that adopt "bad policies," thus aligning politicians' preferences with those of their citizens. The degree of accountability in the system is determined, in turn, by the specific features of the political system. Three main characteristics can be identified in this respect: the degree of competition in the political system, the existence of checks-and-balances mechanisms across different branches of government, and the transparency of the system.

The first feature – political competition – has long been recognized as an important factor determining the efficiency of political outcomes (Downs, 1957). In brief, the existence of fair elections guarantees that politicians can, to some extent, be held liable to the actions taken while in public office (Linz and Stepan, 1996; Rose-Ackerman, 1999). Any institution or rule that provides a punishment mechanism for politicians, such as the loss of elections or the possibility of being forced out of office, can induce politicians to improve their behavior by aligning their own interests with those of their constituents. The more the system forces politicians to face the electorate, the higher are their incentives to stick to good governance. This would imply, for example, that political systems that allow for (clean and fair) executive reelections would have less myopic and more electoral-conscious politicians, and, therefore, less corruption; see Linz (1990), Linz and Stepan (1996), Bailey and Valenzuela (1997), and Rose-Ackerman (1999).

The second point relates to the existence of check-and-balances mechanisms across different branches of power. Generally, separation of powers

together with checks and balances help prevent abuses of authority, with different government bodies disciplining each other in the citizens' favor; see McGovern (1907), Persson et al. (1997), Rose-Ackerman (1999), and Laffont and Meleu (2001). This is true regarding the relations among the executive, legislative, and judiciary powers, and also regarding the relations among different levels of the executive power. For example, parliamentary systems allow for a stronger and more immediate monitoring of the executive by the legislature because in this case parliaments have the power to remove politicians from executive office; see Linz (1990), Linz and Stepan (1996), Bailey and Valenzuela (1997). This oversight capacity in parliamentary systems might be weakened when a single party dominates the legislature. As long as it is not in the interest of one of the government branches to collude with the other branches, separation of powers creates mechanisms to police and punish government officials that misbehave, thus reducing the equilibrium level of corruption.

Moreover, developing adequate checks and balances for particular contexts may take time, either as a result of an institutional learning process or because of some inertial feature of corruption (Tirole, 1996; Bailey and Valenzuela, 1997; Treisman, 2000). Political stability under a democratic regime, in this case, is also an important factor determining the efficacy of the checks-and-balances mechanisms and the level of corruption.

Another feature of institutional accountability is related to transparency. Transparency depends crucially on freedom of press and expression, and on the degree of decentralization in the system. Freedom of press, so that right- and wrong-doings on the part of the government can be publicized, tends to reduce the informational problem between principals (citizens) and agents (governments), thus improving governance; see Fackler and Lin (1995), Rose-Ackerman (1999), and Djankov et al. (2001). Evidence on the importance of freedom of press for political outcomes is presented, for example, in Peters and Welch (1980), Fackler and Lin (1995), Giglioli (1996), and Djankov et al. (2001).

Transparency can also be improved by decentralization, since, because of easier monitoring, informational problems are less severe at the local level. Smaller constituencies facilitate the monitoring of the performance of elected representatives and public officials and, additionally, reduce the collective action problems related to political participation. Thus, in this sense, decentralized political systems tend to have stronger accountability mechanisms and lower corruption (Nas et al., 1986; Rose-Ackerman, 1999).

Structure of Provision of Public Goods. Corruption usually entails the extraction of rent by someone who is vested with some form of public power. Besides determining the incentives for politicians to fight corruption, the political structure determines the "market structure" of the provision of public goods, which in turn determines the capacity of public officials

to extract rents. The constraints that the institutional design imposes on public officials affect the level of corruption in a strictly economic way, equivalently to the effect that the market structure has on prices in any given industry.[2]

When several government agencies provide exactly the same service, and citizens can freely choose where to purchase it, competition among agencies will reduce corruption. Competition can drive corruption to zero, just as perfect competition among firms drives prices to equal the marginal cost of production. This is the case when different government agencies compete by providing substitutable or similar services, without any control over the services provided by each other (Shleifer and Vishny, 1993; Weingast, 1995).

The other extreme is when different government agencies provide complementary services. This occurs, for example, when several licenses are required for a particular activity or different levels of government legislate over the same activity. In this case, power is shared among different bureaucracies that extract rents from the same source. This institutional setup increases corruption and the inefficiency of the system (Shleifer and Vishny, 1993).

These two alternative structures can be associated with different types of decentralization of power. The first one refers to situations where, for example, several offices compete to issue the same license, so that each agency has lower monopoly power over licensing, and, thus, corruption is lower. Competition among public service providers refers to situations where different constituencies compete for the same citizens, and therefore their ability to extract rents is reduced by the possibility of migration of these constituents to other jurisdictions. The second structure, characterized by multiple agencies providing complementary services, refers to situations where different spheres of government are able to impose additional regulatory requirements on areas already legislated by others, thus increasing the number of bureaucracies that citizens have to deal with to obtain a certain service.[3]

Decentralization will thus reduce corruption as long as power is decentralized into units that can substitute (or compete with) one another and

[2]Therefore, the term "industrial organization of corruption" sometimes applies to this kind of analysis.

[3]As pointed out by Ahlin (2000), this apparent contradiction in results does not really indicate a theoretical indeterminacy in relation to the effects of decentralization on corruption. It indicates that different types of political decentralization will have different effects on corruption. This point is implicit in the discussion in Shleifer and Vishny (1993) and is explicitly analyzed in Ahlin (2000). In brief, political decentralization meaning that different bureaucracies/politicians compete for the provision of the same "good" to citizens – be it a license or a place to live and work – will lead to lower corruption; and political decentralization meaning that different bureaucracies provide complementary goods – such as different agencies overlapping in the regulation of the same activity – will lead to higher corruption.

that do not have overlapping responsibilities. In practice, political decentralization, in the sense of enhancing the autonomy of local (or provincial) governments, tends to bring together these two effects. On the one hand, it increases the ability of states to compete against each other for citizens, and, on the other hand, it allows states to increase regulation over areas already covered by the central government. Which effect predominates over the incidence of corruption remains an empirical question.

Existing Empirical Evidence. The goal of this paper is to analyze how important political institutions are in determining perceived corruption. We assume that the political macrostructure determines the incentives facing politicians and high-level officials, and that the reaction of these agents propagates the effects throughout the lower levels of government. Ultimately, the incentives imposed by the institutional design are reflected on the behavior of all those who represent the state.

This specific question has not received much attention, but a growing body of work has tried to link various dimensions of institutional development to the incidence of corruption. La Porta et al. (1999), in a paper focused on the quality of government, study the link between various forms of government (in)efficiency, including corruption, and the country's legal tradition. They find that countries with a French or socialist legal tradition are more prone to having corrupt government officials. Treisman (2000) reaches similar conclusions. He correlates corruption with a large set of variables, including political characteristics, and finds it to be negatively affected by British colonization and, in addition, political stability. Tanzi (1998), on the other hand, draws the connection between corruption and the transparency of bureaucratic rules and processes. Fisman and Gatti (2000) find a negative effect of fiscal decentralization on corruption, even after controlling for potential joint endogeneity.

Another group of papers relates corruption directly to specific features of the political system. Persson et al. (2001), for example, focus on the connection between electoral systems and corruption. Their results from traditional regression and non-parametric estimators suggest that corruption is negatively associated with political competition and individual accountability. Similarly, Kunicova and Rose-Ackerman (2002) study the effect of electoral rules in democratic systems on political corruption. They show that proportional representation systems are more prone to corruption than plurality (or majoritarian) systems. Furthermore, they find that the effect of proportional representation is worsened under presidential systems.

Finally, some papers have argued that corruption is directly related to some policy variables, such as relative public wages (Van Rijckeghem and Weder, 2001) and openness (Ades and di Tella, 1999; Laffont and N'Guessan, 1999).

All of these studies use cross-national data and treat the corruption indices as continuous variables. The aim of this paper is to understand the fundamental determinants of corruption by focusing on political institutions that determine specific policies as well as political outcomes. In tackling this matter, we also improve upon the previous literature by using a panel, and by treating the corruption index explicitly as a discrete variable. These issues are further discussed in the following section.

3. EMPIRICAL APPROACH

3.1 Indicators of Corruption

The greatest obstacle in the empirical analysis of corruption is the fact that, for obvious reasons, there is no directly observable indicator. Any study of the subject inevitably relies on some sort of survey. This would not be a problem if objective data, such as those derived from victimization surveys, were widely available. However, victimization surveys related to corruption are not so widespread as to allow the analysis of cross-country variations in the incidence of corruption. Hence, existing studies rely on subjective evaluation surveys, based on opinions of international businessmen, countries' citizens themselves, or experts on country risk analysis.

In spite of their weaknesses, these subjective indicators have several positive features. First, the results from surveys with very different methodologies are highly correlated. This point is discussed in some detail in Treisman (2000), who explores the correlation among several corruption indices. In Table 2, we follow his strategy and calculate the pairwise correlation among a somewhat different group of corruption indices for 1998.

The Appendix documents the sources of each one of these indices. They can be briefly described as follows:

- The International Country Risk Guide (ICRG) measures corruption as the likelihood that government officials (both high- and low-ranking) would demand and/or accept bribes in exchange for special licenses, policy protection, biased judicial sentences, avoidance of taxes and regulations, or simply to expedite government procedures. The index is based on the analysis of a worldwide network of experts, and treats corruption mainly as a threat to foreign investment.
- The World Development Report (WDR) uses a similar definition and treats corruption as an obstacle to business in general. The data are based on firm-level surveys that were conducted for the 1997 issue of the report.
- The index calculated by GALLUP International uses a survey of citizens to measure the frequency of cases of corruption among public officials.

TABLE 2 CORRELATION AMONG DIFFERENT CORRUPTION INDICES

	ICRG	WDR	GALLUP	GCS1	GCS2	CRR-DRI
ICRG	1					
WDR	0.58*	1				
	(65)					
GALLUP	0.71*	0.72*	1			
	(43)	(25)				
GCS1	0.64*	0.78*	0.78*	1		
	(75)	(44)	(35)			
GCS2	0.64*	0.75*	0.83*	0.90*	1	
	(53)	(31)	(33)	(53)		
CRR-DRI	0.63*	0.75*	0.70*	0.81*	0.79*	1
	(100)	(57)	(41)	(64)	(51)	

Notes: *Significant at 1%. Number of observations below the correlations. Indices refer to 1998; definitions contained in the Appendix.

- The Global Competitiveness Survey (GCS) indices measure the frequency of irregular payments connected with imports, exports, business licenses, police protection, loan applications, etc. (GCS1), and the frequency of irregular payments to government officials including the judiciary (GCS2). They are both based on surveys of business executives.
- Finally, the Country Risk Review (CRR-DRI) index is part of Standard & Poor's credit rating system for emerging markets. It uses analysts' opinions to measure the prevalence of corruption among public officials and the effectiveness of anti-corruption initiatives.

All the correlations across the different corruption indices are positive and significant at 1%, and with one exception they are all above 0.6. Table 2 suggests that the different indices are indeed measuring something very similar. But in regard to exactly what they are measuring, there is nevertheless the possibility that all the methodologies share the same bias. This could be the case if the bias is caused by the use of subjective evaluation methodologies. Since opinions expressed about corruption can be influenced, for example, by the overall economic performance of a specific country, the indices could be partly capturing economic outcomes rather than corruption. Fortunately, this does not seem to be the case. The correlation between the ICRG corruption index and the growth rate of per capita GDP is very low and not statistically significant. Moreover, the quality of governance, including the absence of corruption, does not appear to improve following economic growth (see Kaufman and Kraay, 2002). In addition, recent evidence shows that the ICRG index is strongly correlated with the fraction of crimes that ends up being reported to the police (see Soares, 2004). This is a variable generated by individuals' actual behavior and, in principle, should

be correlated with several dimensions of institutional development and efficiency. It is reassuring that the ICRG index, being one of the most popular corruption indices, is indeed highly correlated with citizens' willingness to report crimes. Nevertheless, although the overall evidence suggests that the indices are reasonable measures of corruption, it is important to keep in mind their potential limitations when interpreting the results.

In addition to the measurement problem, there is an issue of how one should interpret the indices themselves. Is the ordering of countries the only real meaning of the indices, or is there some cardinal value attached to them? For example, if all countries achieve a low level of corruption, will all of them be assigned the same value, or will different values yielding a ranking of countries still be used, but just reflecting smaller differences? We try to keep these issues in mind when choosing the estimation strategies and interpreting the results.

The subsequent analysis concentrates on the ICRG index, which is the only one covering a reasonable time span (from 1984 to 1999 in our dataset). Even though the time variation in the corruption index tends to be small, the period of the sample includes significant regime changes in some political systems – Latin America and Eastern Europe for example – that can help us identify the effects of the variables of interest. The use of a panel to analyze the determinants of corruption is an original contribution of this work. Our corruption variable (*corruption*) is constructed directly from the ICRG index, and varies discretely from 0 to 6, with higher values indicating more corruption.[4]

3.2 Estimation Strategy

The theoretical benchmark that guides our estimation is an economy where political institutions are given, and, within this structure, policy and economic decisions are made. This approach is supported by an increasing body of empirical evidence, which shows that the development of political institutions in different countries was strongly influenced by historical factors associated with geography and colonial heritage; see, for example, Acemoglu et al. (2001, 2002), Easterly and Levine (2002), and Rodrik et al. (2002). In our view, the institutional design of the political system is the ultimate

[4]As is the case with most governance data, the ICRG index on corruption presents a few values that can be regarded a priori as anomalous. For instance, in 1995, Italy appears as corrupt as Congo or Cameroon; and Spain almost doubles its corruption index from 1994 to 1995. The occurrence of these cases, however, does not appear to be correlated with our proposed explanatory variables. Given that corruption is the dependent variable of the empirical model, its (uncorrelated) measurement error can be subsumed in the regression residual without affecting the consistency properties of the estimated coefficients. The main results of the paper do not depend on the presence of these countries and, more generally, do not seem to be generated by outliers. Results qualitatively identical to the ones discussed in section 4 are obtained when Italy and Spain are removed altogether from the sample, and also when the model is estimated using median regressions.

determinant of corruption because it shapes the incentives facing government officials. Our set of core variables is related to these factors and tries to capture the main issues discussed in section 2.2. To this set of variables, we add sequentially controls that try to account for factors that might be correlated with both political institutions and corruption.

The first set of additional controls includes factors exogenous to political structure and corruption that might simultaneously determine both. These factors could generate a spurious correlation between corruption and political institutions that would be incorrectly interpreted as a causal relationship. What we have in mind here are the popular accounts of corruption being largely determined by culture, traditions, etc. In principle, these cultural aspects – related to natural characteristics, climate, region, and colonial heritage – may determine both the prevalence of corruption and the political institutions in a given society. If this were the case, the popular view that certain people and cultures are intrinsically more corrupt would be correct.

The other set of controls tries to account for the fact that policy is not determined exclusively by political structure, and different policy choices may end up having independent effects on corruption. This is clearly the case in relation to public wages and trade policies, which have direct effects on the costs and benefits of engaging in corrupt activities. These factors have been analyzed elsewhere – see Van Rijckeghem and Weder (2001) on public wages, and Ades and di Tella (1999) and Laffont and N'Guessan (1999) on openness and competition – and we introduce them in our empirical analysis as additional controls. Although not studied previously, we also introduce variables related to the size of government and the distribution of resources across different levels of government, which allows us to identify the effect of electoral decentralization, one of the political variables of interest.

Finally, there is the possibility that preventing corruption is simply a normal good, in the sense that when countries develop, corruption naturally falls. If certain political institutions are correlated with development, this could bias the results by assigning to political institutions effects that are actually caused by development alone.

We classify these three sets of controls as, respectively, cultural, policy, and development controls. In the estimation, we include first the cultural controls, which represent structural factors, as country-group common effects.[5] In turn, we include separately the policy and development controls, and then both of them simultaneously, in order to analyze whether and how the results concerning the main variables of interest change. The empirical specification is discussed in section 4.1.

[5]A lot of the variation in political variables comes from cross-country differences, so we opted not to include unobserved country-specific effects in the analysis. Rather, we include a large set of time-invariant characteristics under the "cultural" controls group listed below.

3.3 Variables

Political Variables. With the exception of freedom of press, political variables are constructed from the data contained in Beck et al. (2001). This study presents a database covering several countries in the period between 1975 and 1999.

The political variables are defined in the following way (more precise definitions and sources of all the variables discussed in this section are contained in the Appendix):

- Democracy (*democ*): dummy variable with value 1 if democratically contested elections are held in the country. As discussed previously, we expect a negative effect of democracy on the incidence of corruption.
- Presidential democracy (*presid*): dummy variable with value 1 if the country holds democratic elections and has a presidential system. Parliamentary systems have a value of zero. Since the legislatures in parliamentary systems can remove the leaders of the executive branch more readily than presidential systems, we expect this variable (*presid*) to have a positive impact on corruption, especially after accounting for the control of the legislature by the political party of the executive (see below).
- Reelection (*reelect*): dummy variable with value 1 if the country is a presidential democracy and the head of the executive can run for multiple terms. As mentioned, we expect that reelection in presidential systems will be associated with lower corruption because politicians have an incentive to behave according to their citizens' interests if they wish to be reelected.
- Democratic stability (*dstab*): time of uninterrupted democratic regime since 1930. Time of democratic stability allows for institutional learning and development of checks and balances adequate to the particular culture and political tradition. This increases accountability and gives time for other political institutions to materialize their effects; see Linz (1990), Linz and Stepan (1996), Tirole (1996), Bailey and Valenzuela (1997), Rose-Ackerman (1999), and Garman et al. (2001). Consequently we expect a negative relationship between *dstab* and the incidence of corruption.
- Closed lists (*lists*): dummy variable assuming value 1 if the country is democratic and there are closed lists in the election of the legislature. The use of closed lists in legislative elections creates incentives for individual politicians to worry about the reputation of the party as a whole, which could help reduce corruption; see Linz (1990), Linz and Stepan (1996), Bailey and Valenzuela (1997), Rose-Ackerman (1999), and Garman et al. (2001). On the other hand, the potential oversight by opposition parties on individual politicians is hampered by closed

lists, which could thus raise the incidence of corruption (Kunicova and Rose-Ackerman, 2002).

- State government (*state*): variable assuming value 0 if there are no local government elections, value 1 if state legislature is locally elected but the executive is not, and value 2 if both legislature and executive are locally elected. If there are multiple levels of sub-national government, the highest level is considered the "state/province" level (municipalities are not considered). If country does not have any level of sub-national government (state or province) above municipality, the variable is set to 0. As mentioned, decentralization affects several different aspects of the political system. First, decentralization tends to increase accountability via easier monitoring of governments at the local level. Through this channel decentralization would reduce corruption. Second, decentralization affects the structure of provision of public goods, possibly simultaneously increasing the competition among states and establishing overlapping bureaucracies from local and central governments. These two forces have opposite effects on corruption. Therefore, the effect of decentralization on corruption is, in principle, ambiguous; see Shleifer and Vishny (1993), Weingast (1995), Nas et al. (1986), Rose-Ackerman (1999), and Ahlin (2000).
- Executive control (*control*): dummy variable with value 1 if executive's party has control of all relevant chambers of the legislature. Since the oversight of the executive is weaker when the same party controls the legislature, we expect that this variable will have a positive effect on the incidence of corruption.
- Freedom of press (*press*): constructed from the freedom of press index from Freedom House, with values ranging between 0 and 100 (with higher values indicating more freedom). Freedom of press captures the transparency of the system. By increasing transparency, freedom of press reduces the informational problem in the political system, and increases accountability; see Peters and Welch (1980), Fackler and Lin (1995), Giglioli (1996), and Djankov et al. (2001).

Some of these variables are defined as subgroups of others. For example, a presidential system is a type of democratic system, and reelections are permitted in certain presidential democracies. Therefore, the effect of these variables has to be interpreted as conditional on the effect of the preceding one, as in "given that the country is democratic, this is the effect of presidential system on corruption," and so on. This structure is derived from our view of the sequence of relevant choices in terms of political institutions. This view is illustrated in the decision tree in Figure 1.

Control Variables. As mentioned above, our control variables are classified into three groups: cultural, policy, and development controls. The cultural

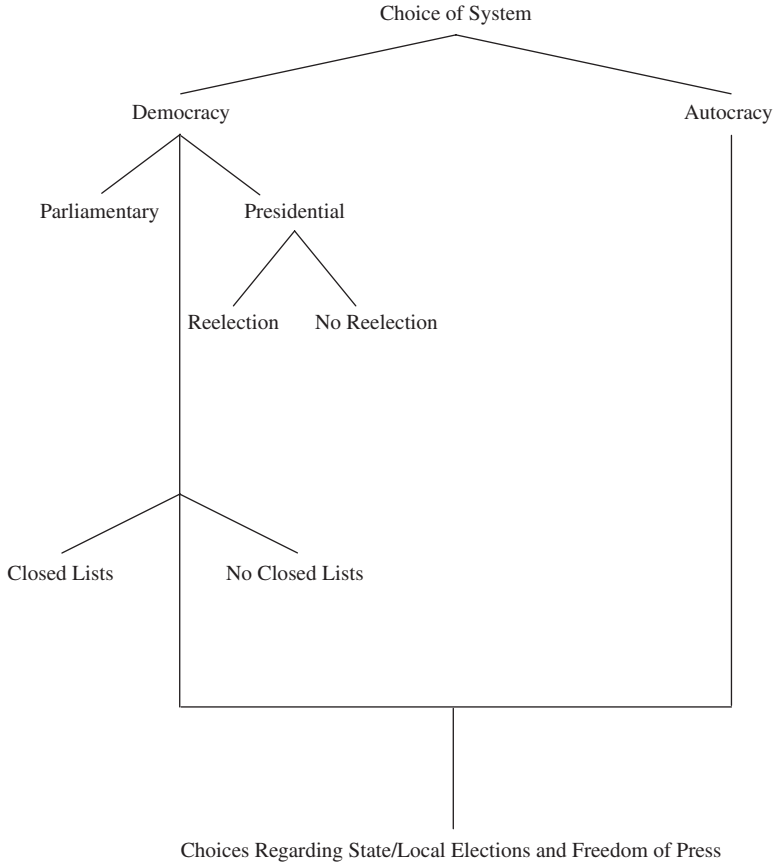

Figure 1. Political tree.

controls include a large set of variables related to climate, region, and ethnic characteristics of the countries. The goal is to include a set of human and geographic variables as broad as possible to account for all the possible determinants of cultural traditions that may affect simultaneously political institutions and the incidence of corruption. The selected variables are the following:

- Variables for natural and historical conditions: region dummies (*reg_**); landlocked country dummy (*landlock*); longitude and latitude position of the country (*longit* and *latit*); size of the country (*area*); tropical area dummy (*tropic*); and British legal tradition dummy (*leg_brit*); all these variables are taken from the World Bank's Global Development Network Growth Database; and

- Ethno-linguistic fractionalization (*elf*): index of ethno-linguistic fractionalization, from Collier and Hoefler (1998).

The policy controls concentrate on government wages, openness, and size and composition of the government. These variables are represented by the following series:

- Relative government wages (*wages*): government wages in relation to manufacturing sector wages, from Van Rijckeghem and Weder (2001);
- Economic openness (*open*): imports as a share of GDP, from the World Bank's World Development Indicators;
- Size of the government (*govrev*): total government revenue as a share of the GDP, from the IMF's Government Financial Statistics; and
- Expenditures decentralization (*transf*): transfers from central government to other levels of national government, as a percentage of GDP, from the IMF's Government Financial Statistics.[6]

The last set of control variables is related to development, and tries to capture unspecified dimensions of development that may directly affect corruption. We choose income and education measures as indicators of development levels. They are defined as follows:

- Income (*lngdp*): natural logarithm of the per capita GDP (PPP adjusted), from the World Bank's World Development Indicators; and
- Education (*tyr15*): average schooling in the population aged 15 and above, from the Barro and Lee dataset.

Descriptive Summary of the Data. Table 3 presents summary statistics of all the variables discussed above. Table 4 decomposes the standard deviations into within and between components, for those variables that change across countries and time. The variables related to ethno-linguistic fractionalization (*elf*) and freedom of press (*press*) are country specific in our sample due to data limitations.

In spite of the usual claim that corruption does not vary much over time within a country, Table 4 shows that the ratio of between- to within-country variation of the corruption index is actually lower than that of most of the explanatory variables. Although this is partly due to the discrete and limited nature of the variable itself, it shows that there is some time variation to be explored in the corruption index. Figure 2 illustrates this point by plotting the evolution of the corruption index through time by regions of the world (simple averages for the countries belonging to the respective

[6]Though the ideal variable in this case might be the share of sub-national governments expenditure in total public expenditure, the limited availability of this variable greatly reduces the sample size. Nevertheless, in the next section we comment on how the results change when we use the share of local expenditures on total public expenditures, instead of transfers from central government.

TABLE 3 SUMMARY STATISTICS

Variable	No. obs.	Mean	Std. dev.	Min.	Max.
corruption	2,082	2.67	1.40	0	6
democ	2,486	0.49	0.50	0	1
presid	2,490	0.21	0.41	0	1
reelect	2,490	0.14	0.34	0	1
dstab	2,275	12.66	19.63	0	68
state	1,863	0.75	0.83	0	2
list	2,367	0.22	0.41	0	1
control	2,439	0.73	0.44	0	1
press	2,237	51.74	24.78	0	95
wages	436	1.12	0.52	0.10	6.06
open	2,183	40.18	24.80	1.35	199.82
govrev	1,217	26.43	11.07	0.03	81.54
transf	1,214	3.30	3.21	0	17.13
reg_eap	2,766	0.14	0.34	0	1
reg_eca	2,766	0.15	0.36	0	1
reg_mena	2,766	0.12	0.33	0	1
reg_sa	2,766	0.05	0.21	0	1
reg_ssa	2,766	0.27	0.44	0	1
reg_lac	2,766	0.17	0.37	0	1
landlock	2,766	0.21	0.41	0	1
longit	2,606	18.45	63.91	−172.43	177.97
latit	2,606	17.56	24.03	−36.89	63.89
area	2,606	178,377	233,792	105	977,956
leg_brit	2,622	0.32	0.47	0	1
tropic	2,766	0.51	0.50	0	1
elf	1,968	41.89	29.45	0	93
lngdp	2,162	8.17	1.09	5.77	10.42
tyr15	913	6.04	2.54	0.90	11.94

Notes: Variables defined in section 3.3, and explained in detail in the Appendix. All observations available in the period 1984–1999 used in the calculations. Region dummies refer to: East Asia and Pacific, East Europe and Central Asia, Middle East and North Africa, South Asia, Sub-Saharan Africa, and Latin America and Caribbean.

region). Although there seem to be some co-movements of the series across the different regions, there are also some independent patterns. For example, as Latin America and South Asia have experienced a decline in corruption since the late 1980s, Western Europe and North America experienced a slight increase during the same period. Hence, the time dimension of the data seems to present enough variation to justify its exploration.

We also summarize here the simple pairwise relation between the corruption index and the main explanatory variables. For the dichotomous political variables, Table 5 presents the mean of the corruption index for mutually exclusive categories, and indicates for which cases the difference between the means is statistically significant.

The simple difference in means goes generally in the expected direction: democracy, the possibility of reelection, and the existence of local elections

TABLE 4 BETWEEN AND WITHIN VARIATION IN THE DATA

Variable	No. countries	Std. dev. of country means (between) (1)	Mean of country std. deviations (within) (2)	(1)/(2) (between/within)
corruption	146	1.20	0.52	2.30
democ	179	0.41	0.20	2.09
presid	179	0.33	0.15	2.26
reelect	179	0.26	0.13	2.02
dstab	179	18.76	2.39	7.86
state	157	0.80	0.07	11.58
list	178	0.37	0.08	4.66
control	178	0.39	0.11	3.53
wages	62	0.46	0.14	3.32
open	164	23.28	7.42	3.14
govrev	112	10.78	2.77	3.89
transf	102	2.84	0.89	3.21
lngdp	154	1.06	0.20	5.33
tyr15	83	2.54	0.28	9.14

Notes: Variables defined in section 3.3, and explained in detail in the Appendix. All observations available in the period 1984–1999 used in the calculations.

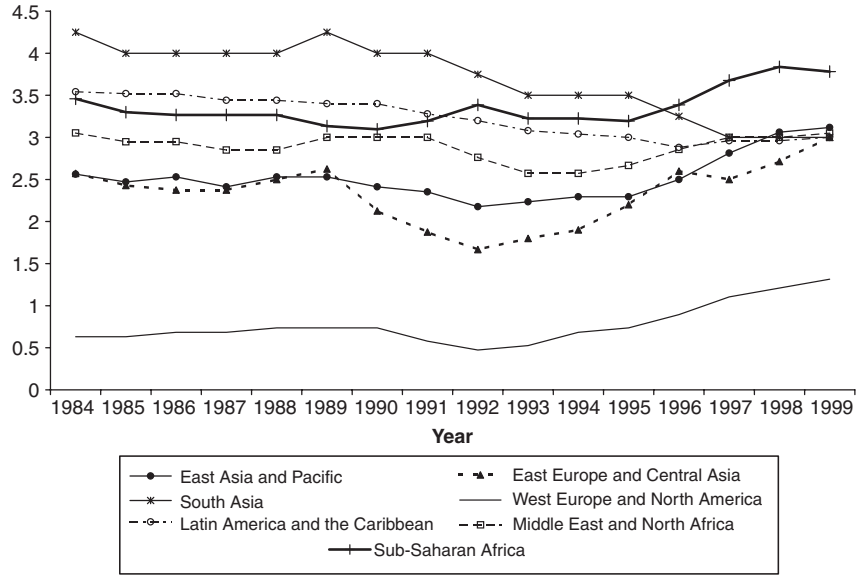

Figure 2. Evolution of corruption by regions of the world, 1984–1999.

are associated with lower corruption, while presidential system and government control of all houses are associated with higher corruption. Closed lists do not appear to be significantly correlated with corruption.

TABLE 5 MEAN OF THE CORRUPTION INDEX ACROSS DIFFERENT POLITICAL INSTITUTIONS

Group		No. obs.	Mean	Std. error
*democ**	0	802	3.25	0.0409
	1	972	2.11	0.0447
*presid**	0	538	1.58	0.0613
	1	434	2.76	0.0497
*reelect**	0	197	2.97	0.0681
	1	238	2.58	0.0689
*state**	0	543	3.01	0.0619
	1	801	2.03	0.0452
*control**	0	543	1.72	0.0595
	1	1,200	3.02	0.0358
list	0	435	1.98	0.0693
	1	468	2.09	0.0629

Notes: *Difference between group means is statistically significant at 1%. Value 1 indicates that the observation is included in the respective category. For presidential system and closed lists, averages calculated only on the sub-sample of democratic countries. For reelection, averages calculated only on the sub-sample of presidential democratic countries. For state elections, group 1 defined as to include groups 1 and 2 defined before.

Table 6 presents the correlation of corruption with the remaining explanatory variables. Most of the correlations also have the expected sign: democratic stability, freedom of press, relative wages in the public sector, economic openness, transfers from central to other levels of government, income level, and education are associated with lower corruption, whereas ethno-linguistic fractionalization is associated with higher corruption. The correlation between government revenues as a share of GDP and corruption is surprisingly negative and significant. Some endogenous response of government expenditures to the level of corruption is probably at work here, so that less corrupt governments end up having higher revenues as a share of GDP.

Judging from simple correlations, most of the selected variables have the expected relationship with corruption. Whether this is a causal relationship or a spurious correlation is the question that we try to address in the remaining sections of the paper. In what follows, we discuss the specification adopted in our multivariate analysis and discuss the results.

4. SPECIFICATION AND RESULTS

4.1 Specification

The ICRG corruption index varies discretely between 0 and 6. Strictly speaking, it cannot be treated as a continuous variable. With this in mind, we estimate the model using ordered probit and simple OLS techniques, following the approach of Dutt (1999). The ordered probit allows for a discrete

TABLE 6 CORRELATION BETWEEN CORRUPTION INDEX AND EXPLANATORY VARIABLES

Variable	Correlation with corruption index	No. obs.
dstab	−0.6465*	1,752
press	−0.5727*	1,711
wages	−0.2335*	369
open	−0.0977*	1,670
govrev	−0.4820*	1,035
transf	−0.4215*	697
elf	0.3235*	1,705
lngdp	−0.5991*	1,624
tyr15	−0.6471*	835

Notes: *Significant at 1%. Correlations calculated using pooled data.

dependent variable in which the actual values are irrelevant, except that higher values correspond to higher outcomes. Given that the precise meaning of the cardinal values in the corruption index is unclear, this class of models seems to be appropriate for our purposes (for details on ordered probit models, see Maddala, 1983).

As discussed in section 3.2, we estimate five specifications to check the robustness of the results to different alternative hypotheses. In brief, the first equation contains only the core variables, the second specification contains the core variables plus the cultural controls, the third and fourth specifications add, respectively, the policy and development controls, and the last specification includes all the independent variables at the same time. In all specifications, dummy variables for different sub-periods of the sample are included (1987–1990, 1991–1994, and 1995–1997) to account for possible spurious co-movements of the corruption index across countries. Also, the economic variables (*govrev*, *transf*, *open*, *lngdp*, and *tyr15*) are included with a lag of one period, to account for potential problems of simultaneous endogeneity.

Table 7 presents the results. Columns (1) to (5) present the different specifications mentioned above for the ordered probit model, and columns (6) to (10) present the same specifications for the corresponding OLS estimates. The variable concerning government wages (*wages*) is not presented in Table 7 because it enormously reduces the sample; however, below we discuss how its inclusion affects the estimated coefficients. The following discussion also mentions how certain results change when the models are estimated with different samples.

Table 8 is a companion table. It contains the marginal effects of the key political variables on the incidence of corruption, based on the ordered probit coefficients from specification (2) in Table 7. These results show the change in the probability that a given country will fall under one of the six levels of corruption, as a result of a marginal change in the explanatory

TABLE 7 RESULTS: CORRUPTION REGRESSIONS

	Ordered probit					OLS				
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
democ	−0.1580	−0.5238	−1.8054	−0.7097	−1.7602	−0.2078	−0.4598	−1.2111	−0.6140	−1.1894
	(0.1302)	(0.1547)	(0.3149)	(0.2368)	(0.3878)	(0.1195)	(0.1227)	(0.2009)	(0.1870)	(0.2499)
	[0.2250]	[0.0010]	[0.0000]	[0.0030]	[0.0000]	[0.0820]	[0.0000]	[0.0000]	[0.0010]	[0.0000]
presid	1.0367	0.4324	1.2732	1.1194	2.3203	0.9261	0.3591	0.7589	0.8403	1.3148
	(0.1030)	(0.2028)	(0.3340)	(0.2710)	(0.4719)	(0.0907)	(0.1679)	(0.2237)	(0.2150)	(0.3066)
	[0.0000]	[0.0330]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0330]	[0.0010]	[0.0000]	[0.0000]
reelect	−0.2244	0.0429	−0.3354	−0.3062	−0.7244	−0.2329	0.0385	−0.1668	−0.2676	−0.4100
	(0.1375)	(0.1810)	(0.2929)	(0.2609)	(0.4471)	(0.1254)	(0.1477)	(0.2153)	(0.2149)	(0.2955)
	[0.1030]	[0.8130]	[0.2520]	[0.2410]	[0.1050]	[0.0630]	[0.7940]	[0.4390]	[0.2140]	[0.1660]
dstab	−0.0340	−0.0423	−0.0410	−0.0453	−0.0343	−0.0272	−0.0307	−0.0234	−0.0284	−0.0124
	(0.0024)	(0.0032)	(0.0055)	(0.0049)	(0.0097)	(0.0019)	(0.0022)	(0.0033)	(0.0035)	(0.0054)
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0220]
state	−0.0968	0.1525	0.4359	0.1625	0.6253	−0.1039	0.0828	0.1693	0.0759	0.2512
	(0.0425)	(0.0543)	(0.1015)	(0.0768)	(0.1545)	(0.0370)	(0.0407)	(0.0618)	(0.0557)	(0.0741)
	[0.0230]	[0.0050]	[0.0000]	[0.0340]	[0.0000]	[0.0050]	[0.0420]	[0.0060]	[0.1730]	[0.0010]
list	−0.1654	0.0426	−0.0817	0.3171	−0.2797	−0.1553	−0.0018	−0.0501	0.1937	−0.1237
	(0.0860)	(0.1035)	(0.1733)	(0.1472)	(0.2319)	(0.0683)	(0.0689)	(0.0904)	(0.0909)	(0.1103)
	[0.0550]	[0.6810]	[0.6370]	[0.0310]	[0.2280]	[0.0230]	[0.9790]	[0.5800]	[0.0330]	[0.2630]
control	0.1628	−0.0574	−0.4270	−0.1001	−0.4251	0.1419	−0.0413	−0.3092	−0.0667	−0.2448
	(0.0955)	(0.1068)	(0.1864)	(0.1429)	(0.2221)	(0.0825)	(0.0808)	(0.1112)	(0.1028)	(0.1278)
	[0.0880]	[0.5910]	[0.0220]	[0.4830]	[0.0560]	[0.0860]	[0.6090]	[0.0060]	[0.5170]	[0.0560]
press	−0.0113	−0.0056	−0.0210	−0.0014	−0.0199	−0.0099	−0.0043	−0.0152	−0.0006	−0.0128
	(0.0022)	(0.0031)	(0.0061)	(0.0043)	(0.0081)	(0.0020)	(0.0024)	(0.0042)	(0.0033)	(0.0048)
	[0.0000]	[0.0690]	[0.0010]	[0.7500]	[0.0140]	[0.0000]	[0.0740]	[0.0000]	[0.8500]	[0.0080]
govrev			0.0389		0.0362			0.0239		0.0209
			(0.0098)		(0.0124)			(0.0065)		(0.0082)
			[0.0000]		[0.0040]			[0.0000]		[0.0120]

transf			−0.0632		−0.1042			−0.0184		−0.0243
			(0.0221)		(0.0349)			(0.0110)		(0.0171)
			[0.0040]		[0.0030]			[0.0950]		[0.1560]
open			0.0000		0.0099			−0.0015		0.0041
			(0.0030)		(0.0037)			(0.0019)		(0.0022)
			[0.9930]		[0.0070]			[0.4510]		[0.0640]
lngdp				−0.1826	−0.9208				−0.1940	−0.6105
				(0.1412)	(0.3702)				(0.1056)	(0.2290)
				[0.1960]	[0.0130]				[0.0670]	[0.0080]
tyr15				−0.1090	−0.1093				−0.0469	−0.0302
				(0.0443)	(0.0617)				(0.0304)	(0.0315)
				[0.0140]	[0.0770]				[0.1230]	[0.3390]
leg_brit		0.2598	0.3293	0.6279	0.1304		0.1518	0.1735	0.3470	−0.0061
		(0.1122)	(0.2510)	(0.1672)	(0.3161)		(0.0844)	(0.1485)	(0.1216)	(0.1673)
		[0.0210]	[0.1900]	[0.0000]	[0.6800]		[0.0730]	[0.2430]	[0.0040]	[0.9710]
elf		0.0123	0.0210	0.0109	0.0163		0.0100	0.0132	0.0103	0.0110
		(0.0021)	(0.0040)	(0.0029)	(0.0052)		(0.0016)	(0.0024)	(0.0020)	(0.0032)
		[0.0000]	[0.0000]	[0.0000]	[0.0020]		[0.0000]	[0.0000]	[0.0000]	[0.0010]
Period	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Reg./nature vars	no	yes	yes	yes	yes	no	yes	yes	yes	yes
No. obs.	1,158	1,010	490	605	364	1,158	1,010	490	605	364
Pseudo-R^2/R^2	0.24	0.33	0.45	0.38	0.50	0.57	0.70	0.79	0.74	0.81

Notes: Obs.: Std. errors and *p*-values below coefficients in parentheses and square brackets, respectively. Dep. var. is ICRG corruption index (0 to 6, higher values more corruption). Ind. vars. are (*d* for dummy): democracy *d*, presidential *d*, possibility of reelection *d*, time of democratic stability, indicator of local elections for state govs., gov. control of legislative *d*, freedom of press index, gov. revenues (% GDP), transfers from central gov. to other levels (% GDP), openness to trade (imports as % GDP), ln of per capita GDP, avg. schooling in the pop. above 15, British legal tradition *d*, index of ethno-linguistic fractionalization, period *d*'s, region *d*'s (E. Asia and Pacif., E. Eur. and C. Asia, M. East and N. Afr., S. Asia, Sub-Saharan Afr., and L. Am. and Carib.), and nature variables (landlock *d*, area, tropical *d*, long., and lat.). *govrev*, *transf*, *open*, *lngdp*, and *tyr15* lagged. Regressions include all obs. available between 1984 and 1997. Robust std. errors used. Intercept terms for each level of corruption (1–6) are not reported.

TABLE 8 MARGINAL EFFECTS OF POLITICAL VARIABLES: ORDERED PROBIT REGRESSIONS FROM TABLE 7, SPECIFICATION (2)

	Corruption level						
Variable	0	1	2	3	4	5	6
democ	0.0109	0.1245	0.0707	−0.1343	−0.0667	−0.0047	−0.0005
	(0.0040)	(0.0340)	(0.0254)	(0.0362)	(0.0231)	(0.0024)	(0.0003)
	[0.0070]	[0.0000]	[0.0050]	[0.0000]	[0.0040]	[0.0440]	[0.1280]
presid	−0.0036	−0.0726	−0.0883	0.0717	0.0824	0.0090	0.0013
	(0.0019)	(0.0316)	(0.0430)	(0.0278)	(0.0452)	(0.0066)	(0.0012)
	[0.0600]	[0.0220]	[0.0400]	[0.0100]	[0.0680]	[0.1700]	[0.2970]
reelect	−0.0004	−0.0078	−0.0085	0.0083	0.0076	0.0007	0.0001
	(0.0016)	(0.0324)	(0.0364)	(0.0343)	(0.0325)	(0.0032)	(0.0004)
	[0.8020]	[0.8080]	[0.8160]	[0.8080]	[0.8150]	[0.8210]	[0.8210]
dstab	0.0004	0.0079	0.0083	−0.0084	−0.0074	−0.0007	−0.0001
	(0.0002)	(0.0014)	(0.0011)	(0.0019)	(0.0010)	(0.0002)	(0.0001)
	[0.0080]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0030]	[0.0640]
state	−0.0015	−0.0284	−0.0298	0.0304	0.0265	0.0025	0.0003
	(0.0008)	(0.0112)	(0.0109)	(0.0121)	(0.0102)	(0.0013)	(0.0002)
	[0.0550]	[0.0110]	[0.0060]	[0.0120]	[0.0090]	[0.0490]	[0.1260]
list	−0.0004	−0.0079	−0.0084	0.0084	0.0075	0.0007	0.0001
	(0.0010)	(0.0190)	(0.0205)	(0.0200)	(0.0184)	(0.0018)	(0.0002)
	[0.6780]	[0.6780]	[0.6830]	[0.6750]	[0.6860]	[0.6970]	[0.7030]
control	0.0006	0.0106	0.0113	−0.0113	−0.0100	−0.0010	−0.0001
	(0.0010)	(0.0196)	(0.0212)	(0.0208)	(0.0190)	(0.0019)	(0.0002)
	[0.5850]	[0.5870]	[0.5950]	[0.5850]	[0.5970]	[0.6070]	[0.6240]
press	0.0001	0.0010	0.0011	−0.0011	−0.0010	−0.0001	0.0000
	(0.0000)	(0.0006)	(0.0006)	(0.0007)	(0.0005)	(0.0001)	(0.0000)
	[0.1660]	[0.0990]	[0.0610]	[0.1110]	[0.0600]	[0.0930]	[0.1810]
leg_brit	−0.0023	−0.0459	−0.0522	0.0475	0.0475	0.0048	0.0006
	(0.0012)	(0.0195)	(0.0238)	(0.0200)	(0.0231)	(0.0030)	(0.0004)
	[0.0460]	[0.0190]	[0.0280]	[0.0170]	[0.0400]	[0.1060]	[0.1440]
elf	−0.0001	−0.0023	−0.0024	0.0024	0.0021	0.0002	0.0000
	(0.0001)	(0.0005)	(0.0005)	(0.0006)	(0.0005)	(0.0001)	(0.0000)
	[0.0130]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0100]	[0.0930]

Notes: Std. errors and *p*-values below coefficients in parentheses and square brackets, respectively. Dependent variable is ICRG corruption index (0 to 6, higher values, more corruption). Specification 2 corresponds to the one in Table 7. Independent variables are described in Table 7. Marginal effects calculated at *democ* = 0 and at the mean of the other independent variables. Marginal effects of dummy variables calculated as discrete changes from 0 to 1. Regressions include all observations available between 1984 and 1997.

variables (in the case of dummy variables, a one-unit change). The results are discussed below.

4.2 *Results*

Political Variables. Table 7 shows that the most consistent results regarding the political variables are related to democracy, presidential systems, time of democratic stability, and freedom of press. These are the variables

that have the expected signs and are statistically significant in most of the ordered probit and OLS regressions.

Based on the ordered probit estimates of model (2), Table 8 shows the marginal effects of the key variables on the probability that a country will fall under each corruption level. Transitions from authoritarianism to democracy (i.e. going from 0 to 1 in the democracy dummy variable) reduce the probability of having corruption between levels 3 and 6, and raise the probability of having low levels of corruption ranging from 0 to 2. Similarly, a one-unit increase in the number of years under democratic governance is associated with declines in the probability of having high levels of corruption (levels 3–6), and with increases in the likelihood of having low levels of corruption. In contrast, the transformation of a democracy from parliamentary to presidential leads to increases in the probability of having high levels of corruption (3 to 6). Moreover, the results show substantial non-linear effects, since the magnitude of the marginal effects vary widely for the different corruption levels.

One disadvantage of the ordered probit estimates is that they are quite difficult to interpret quantitatively because they do not represent overall marginal effects, but probabilities for each particular category. For example, from Table 8 it is difficult to assess which variables have the largest effects on corruption, because their impacts vary by corruption level.[7] Hence we also discuss the OLS results in order to compare the relative magnitudes of the effects of each key explanatory variable.

The estimated OLS coefficients in Table 7 imply the following average relations between the independent variables and perceived corruption: democracy reduces corruption by 0.7 points; presidential systems in a democracy, as opposed to parliamentary systems, increase corruption by 0.8 points; each additional 20 years of uninterrupted democracy reduce corruption by 0.5 points; and 50 points more in the freedom of press index (as from the level of Turkey to the level of the United Kingdom) reduces corruption by 0.5 points. These results are robust to the inclusion of the government wages variable in the right-hand side, which typically reduces the sample to less than 200 observations.

Using a common yardstick to translate these results into comparable units, we have that a one standard deviation increase in the democracy variable, or a one standard deviation reduction in the presidential system variable, reduces the corruption index by approximately 0.3. A one standard deviation increase in the time of democratic stability reduces the corruption index by 0.54, while a one standard deviation increase in the freedom of press index reduces it by 0.19. If we restrict ourselves to the within-country

[7]More precise predictions require cumbersome calculations of linear combinations (and associated standard errors) of the impacts of each variable on the probabilities that countries fall under each group. This quantitative analysis is beyond the scope of this paper.

variation in these variables, which gives a more accurate picture of the extent of political changes within a country during the sample period, a one (within-country) standard deviation increase in these variables has the following effects on corruption: a reduction of 0.12 for democracy, an increase of 0.11 for presidential systems, and a reduction of 0.07 for democratic stability. Overall, time of democratic stability seems to be the variable with the most important effect on corruption; but in the short run (that is, considering the within-country changes), democracy and presidential systems acquire more importance.

The effects of presidential system and democratic stability are reasonably stable across all specifications. The effect of democracy starts being insignificant in the simplest specification but becomes significant once the first (non-political) controls are introduced. It seems that cultural and historical factors determine simultaneously democracy and corruption, but democracy alone reduces corruption once these factors are accounted for. With freedom of press, the case is the opposite. Freedom of press is significantly related to less corruption in the first three specifications, but once economic development is taken into account, its effect falls to close to zero, and is no longer statistically significant.[8] The results suggest that freedom of press may be actually capturing the effect of economic development on corruption.

Also worthy of note, but apparently less strong than the previous results, is the effect of local government autonomy. It starts being negative and borderline significant in the simplest specification, and becomes positive and significant (for most of the cases) as soon as the first controls are introduced. This means that cultural and historical factors that are positively correlated with decentralization are negatively so with corruption: the simple correlation between corruption and state autonomy is negative, but once these factors are accounted for, the independent effect of decentralization becomes positive. This suggests that the congestion of different bureaucracies regulating the same activities dominates the potentially beneficial effects of decentralization.

Not all of these effects could be captured in a cross-sectional analysis, but we conduct some exercises of this type to check the robustness of some of the results discussed above. When we run specification (2) in a sample of 70 countries – using the graft variable from Kaufmann et al. (1999) as the measure of corruption – the qualitative results related to presidential system, time of democratic stability, and freedom of press are maintained.[9] However, the results related to democracy and state autonomy become non-significant. As mentioned before, most of the effect of democracy on corruption seems to come from within-country changes, or processes of

[8]The behavior of the democracy and freedom of press coefficients is not due to changes in the sample when new variables are included. They still hold when the different specifications are run on the common smaller sample.

[9]Results available from the authors upon request.

democratization, rather than from cross-country variations. This highlights the importance of using a panel in our analysis, and the real gains that come along with it.

Control Variables. As expected, size of the government (*govrev*) increases corruption, while distribution of resources from the central government to other levels of national government (*transf*) reduces corruption.[10] This last effect may be associated with the fact that monitoring at the local level is easier than at the central level, so that more resources used by local government translates into more resources falling under closer control by citizens. In contrast with the state autonomy variable (*state*), this variable may reflect a positive dimension of decentralization: whereas *state* captures the autonomy of the state to interfere on spheres already being partly legislated by the central government (which might increase inefficiency and corruption), *transf* captures the distribution of a given amount of resources between central and local governments (which might increase accountability and reduce corruption).

The effects of economic openness and British legal tradition that we find do not agree with the previous literature. Openness has no significant effect here, while it was found to reduce corruption in Ades and di Tella (1999), Dutt (1999), and Laffont and N'Guessan (1999). This difference is not generated by different samples or statistics used: if we omit the political variables from our regression, openness does show up as having a negative and significant effect on corruption. In addition, if we eliminate the government revenue and transfer variables and run the same regressions with openness in a much larger sample (994 observations), openness remains non-significant. These results should not be interpreted as evidence that trade competition is ineffective to reduce corruption but, rather, as indication of the supremacy of political institutions as determinants of both trade policies and corruption.

The negative effect of British legal tradition on corruption, which is one of the main results in Treisman (2000), is also absent here. British legal tradition usually appears as having a positive and significant effect in our regressions. Again, this is not due to differences in the data used. If we omit the political variables from our regression, British legal tradition does show up as having a negative and significant effect on corruption. This is also not caused by the absence of a variable accounting for religious preferences in

[10]When we use the share of sub-national governments expenditure on total public expenditure (from the IMF's *Government Finance Statistics Yearbook*) as a measure of expenditure decentralization, the sample is reduced to 190 observations. In this case, the qualitative effects of democracy, presidential system, state autonomy and expenditure decentralization remain similar to the ones estimated in Table 7, while most of the other coefficients become insignificant. It is difficult to tell how much of this change comes from the variable being used, and how much comes from the radical change in the sample size and composition.

the estimation. If we include the fraction of the population that is Protestant as an additional control, it does show up as being systematically related to lower corruption. However, the same basic results, including the absence of significance of British legal tradition, still hold (with the only caveat of less precision in the estimation of the freedom-of-press coefficient).

In our view, the differences in relation to the previous literature come from our focus on the importance of political mechanisms. Political institutions are the main exogenous force shaping the incentive structure that determines both corruption and the implementation of specific policies. Thus, in our sample, openness is correlated with democracy, parliamentary systems, freedom of press, and absence of corruption, but the political variables seem to be determining openness and corruption.[11]

Also, rather than having a direct negative effect on corruption, British legal tradition is strongly associated with democracy, stability, freedom of press, and parliamentary systems, and these political variables tend to reduce corruption.[12] Thus, once the political system is taken into account, the norms associated with the British legal tradition by itself may in fact increase corruption. Analyzed alone, the informality of the British law, where practices are strongly based on unwritten rules, seems to be more subject to corruption than other traditions, where rules are explicitly defined. In this light, our result would not be surprising.

We also experimented with including government wages as an additional explanatory variable. We did not include these results in Table 7 because the sample size drops considerably in this case, making it difficult to draw comparisons with the previous cases. At any rate, our core political results survive the inclusion of government wages in the regression. Moreover, there is some evidence that the effect of government wages on corruption is actually driven by political institutions. When the political variables are excluded, the effect of government wages is negative and borderline significant. However, once political factors are accounted for, government wages become insignificant.

Finally, in relation to the regional dummies, the most consistent results across the different specifications refer to ''East Europe and Central Asia'' and ''Latin America and the Caribbean.'' Both these regions have higher levels of perceived corruption than would be expected from the values of the other independent variables. The estimated coefficients imply that, for constant values of the other variables, ''East Europe and Central Asia''

[11]This result is also in line with the literature on institutions and development, which finds that the effect of institutions dominates that of policies in shaping long-term phenomena; see Easterly and Levine (2002) and Rodrick et al. (2002).

[12]Both openness and British legal tradition are significantly correlated to the above-mentioned political variables. For all cases mentioned, pairwise correlations are statistically significant at 1%, apart from freedom of press, for which correlations are smaller and only significant at the 5% level.

and "Latin America and the Caribbean" have corruption indices approximately 1 point higher than the control group (West Europe and North America). There seems to be some truth to the popular belief that these places of the world are particularly prone to the problem of corruption, although their recent transitions to democracy bodes well for the future of governance in these regions.

5. CONCLUDING REMARKS

This paper explores the link between political institutions and corruption. We show that the behavior of corruption is very distinct from the behavior of common crimes, and argue that this indicates the relevance of explanatory variables that are unique to corruption. These factors are mainly associated with the environment in which relations between individuals and the state take place. We argue that political institutions, by determining this environment, are crucially important in determining the incidence of corruption. Ultimately, the political macrostructure – related to the political system, balance of powers, electoral competitiveness, and so on – determines the incentives for those in office to be honest and to police and punish misbehavior of people inside and outside the government bureaucracy.

We analyze the available data on corruption, and argue that, despite their limitations, subjective indices do seem to capture the prevalence of corruption in different countries and over time. The empirical analysis uses panel data with the ICRG corruption index as dependent variable, characteristics of political institutions as main explanatory variables, and a large array of control variables that may determine simultaneously political institutions and corruption or may be correlated with both. The control variables include a large set of cultural and natural factors (from region and climate to legal tradition and ethnic composition), a set of policy variables, and a group of economic development variables. Our results show that corruption tends to decrease systematically with democracy, parliamentary systems, democratic stability, and freedom of press. These results survive the inclusion of the different sets of controls, with the exception of freedom of press, which seems to be partially capturing the effect of economic development on corruption.

Another interesting result is related to decentralization. According to the theoretical literature, different types of decentralization may have different effects on corruption. Political decentralization in the sense that states are more autonomous, potentially being able to legislate over areas already covered by the central government, seems to increase corruption, while decentralization in the sense that expenditures are more decentralized through the different levels of national government seems to reduce corruption.

The inclusion of political variables in the empirical analysis of the determinants of corruption turns out to be refreshing. Justifying all the

attention given by the theoretical literature to the institutional determinants of corruption, our results indicate that political variables are indeed among the most important determinants of corruption across countries and over time. After political institutions are accounted for, variables usually found to be important – such as openness, wages in the public sector, and legal tradition – lose virtually all their independent relevance.

Generally, this study should raise the attention given to formal accountability mechanisms. Future research could explore whether agencies subject to different accountability mechanisms within a given country (such as transparency standards) also differ in terms of the corruption they engender. Discussion on the actual mechanisms of political decentralization should also be encouraged. Efforts should be targeted at creating competition in all levels of the political structure, avoiding regulations in which different agencies – or levels of power – have overlapping jurisdictions. Finally, the results of this study should help in designing and assessing the impact of anti-corruption efforts. Political institutions do matter for corruption and they should be centerpieces in the preparation and evaluation of anti-corruption reforms.

APPENDIX. DATA DEFINITIONS AND SOURCES

Name	Variable	Source	Description
		Corruption	
CRR-DRI	Corruption	Standard & Poor's DRI/McGraw-Hill	Corruption among public officials, effectiveness of anti-corruption initiatives. Based on country analysts' opinion. Detailed in Kaufman et al. (1999) (http://www.standardandpoors.com/)
GALLUP	Corruption	Gallup International	Frequency of "cases of corruption" among public officials. Based on survey of citizens. Detailed in Kaufman et al. (1999) (http://www.gallup-international.com/)
GCS1	Corruption	Global Competitiveness Survey	Irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection or loan applications. Based on survey of executives. Detailed in Kaufman et al. (1999) (http://www.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme)
GCS2	Corruption	Global Competitiveness Survey	Frequency of "irregular payments" to officials and judiciary. Based on survey of executives. Detailed in Kaufman et al. (1999) (http://www.weforum.org/site/homepublic.nsf/Content/Global+Competitiveness+Programme)
ICRG	Corruption	International Country Risk Guide	Indicator related to financial risk associated, based on the analysis of worldwide network of experts (ICRG, 1999). Calculated by the Political Risks Service Group (http://www.prsgroup.com/icrg/riskdata.html)
WDR	Corruption	World Development Report 1997	Corruption as "obstacle to business." Based on firms' survey. Detailed in Kaufman et al. (1999) (http://econ.worldbank.org/wdr/)

APPENDIX. *Continued*

Name	Variable	Source	Description
			Political
control	Executive Control of Legislative Houses	Beck et al. (2001)	Dummy indicating whether executive has control of all houses.
democ	Democracy	Beck et al. (2001)	Dummy for a regime with democratic characteristics, not run by a military officer.
dstab	Time of Democratic Stability	Beck et al. (2001)	Years of continuous democratic stability (democ = 1 uninterruptedly) since 1930.
list	Closed Lists	Beck et al. (2001)	Dummy for existence of closed lists in a democratic regime.
presid	Presidential System	Beck et al. (2001)	Dummy for a presidential democracy.
reelect	Reelection	Beck et al. (2001)	Dummy for possibility of reelection in a presidential democracy.
state	State Autonomy	Beck et al. (2001)	Variable indicating the degree of state/province political autonomy (0 if there are no local elections, 1 if legislature is locally elected, and 2 if both legislature and executive are locally elected). If there are multiple levels of sub-national government, the highest level is considered the "state/province" level (municipality excluded). If country does not have any level of sub-national government (state or province) above municipality, the variable is set to 0.

Controls

area	Area	World Bank Global Development Network Growth Database	Country area in square kilometers.
elf	Ethno-Linguistic Fractionalization	Collier and Hoeffler (1998)	Ethno-Linguistic Fractionalization Index: probability that any two random citizens will be drawn from different ethno-linguistic groups.
frpress	Freepress index	Freedom House	Freedom of press index obtained from the HDI. Based on academic advisors, in-house experts, publications, and local correspondents.
gdppc	Income	World Development Indicators	GDP per capita, PPP (current international $).
govrev	Size of the Government	IMF Financial Government Statistics	Total government revenue as % of GDP.
landlock	Landlocked	World Bank Global Development Network Growth Database	Dummy for landlocked countries.
latitude	Latitude	World Bank Global Development Network Growth Database	Country latitude in degrees.
leg_brith	British Legal Tradition	World Bank Global Development Network Growth Database	Dummy for British legal tradition.
longitude	Longitude	World Bank Global Development Network Growth Database	Country latitude in degrees.

APPENDIX. *Continued*

Name	Variable	Source	Description
		Controls *Continued*	
open	Trade Openness	World Development Indicators	Imports as share of GDP.
*reg_**	Regions	World Bank Global Development Network Growth Database	Dummies for regions of the world.
transf	Expenditure Decentraliza-tion	IMF Financial Government Statistics	Transfers from central government to other levels of national government as % of GDP.
tropic	Tropical Climate	World Bank Global Development Network Growth Database	Dummy for tropical countries (absolute value of latitude less than or equal to 23).
tyr15	Education	Barro and Lee	Average schooling in the population above 15.
wages	Relative Government Wages	Van Rijckeghem and Weder (2001) and ILO	Government wages relative to manufacturing wages.
		Crime	
burglary	Burglary Rate	International Crime Victimization Surveys	Percentage of the population victim of burglaries.
theft	Theft Rate	International Crime Victimization Surveys	Percentage of the population victim of thefts.
cont. crime	Contact Crimes Rate	International Crime Victimization Surveys	Percentage of the population victim of contact crimes.

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