

## DETERMINANTS OF ECONOMIC CORRUPTION: A CROSS-COUNTRY COMPARISON

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In recent years, the detrimental effects of bureaucratic corruption gained attention from development economists as well as international financial institutions and policymakers. Corruption, which was previously ignored and mentioned only with caution, has taken a center stage. Nonetheless, corruption is not a new phenomenon. It is as old as government itself. The current literature on corruption highlights its harmful effects on growth (see Klitgaard 1988, Shleifer and Vishny 1993, Mauro 1995, Cheung 1996, and Bardhan 1997). However, until recently the growth literature did not adequately explain why corruption is low in some countries and endemic in others.<sup>1</sup> The relevant analytical problem is not to assess the harmfulness of corruption but why different political systems foster different levels of corruption. We cannot discern any useful prognosis from the literature on corruption so long as the causes of corruption are not clearly identified. Moreover, the empirical studies on the effects of corruption on economic growth are besieged by endogeneity problems. Few of these empirical studies take into account the possibility that economic growth or the lack of it can increase or decrease the level of corruption.

This article seeks to fill that gap by identifying the determinants of corruption and by examining the extent to which those factors—such as education, political regimes, the type of the state, ethnicity, judicial

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<sup>1</sup>The new empirical research on the determinants of corruption attempts to determine the causes of corruption and concentrates mostly on cross-country analyses. See, for example, the studies by Ades and DiTella (1997); LaPorta et al. (1997); Treisman (1999a, 1999b); Fisman and Gatti (1999); and Swamy et al. (2001).

efficiency, political freedom, and the size of government—explain differences in corruption across countries. When the determinants of corruption are clearly identified, appropriate policy conclusions can then be drawn from the analysis, and policymakers can then design and implement measures to curb and control its harmful effects.

### Alternative Views of Corruption

The prevailing view is that corruption is harmful to economic growth. Mauro (1995) finds that corruption lowers investment and, consequently, economic growth. Using data from a large sample of countries, he finds that corruption, red tape, and bureaucratic inefficiency are negatively correlated with economic growth. Klitgaard (1988) suggests that when political power translates corruptly into economic gains, corruption redistributes resources from the poor to the rich and encourages malfeasance and rent seeking. In corrupt societies, government bureaucrats compete for positions of economic power and spend their time and energy in the pursuit of rents. This rent-seeking activity, in turn, affects the capacity of public institutions to provide services.<sup>2</sup>

Corruption adversely distorts incentives and creates uncertainties about the expected benefits of productive activities, forcing entrepreneurs to undertake costly and inefficient loss-avoiding behaviors. Shleifer and Vishny (1993) suggest that corruption is a tax on economic activity that is more costly than legal taxes. Unlike taxation, corruption is illegal and real resources are wasted to avoid detection. The need to keep the transactions secret directs resources to hard-to-detect activities with no regard for economic consequences.

Contrary to this prevailing view that corruption is harmful to economic development, some studies suggest that it might be beneficial and enhance efficiency.<sup>3</sup> Leff (1964) long ago proffered that corruption circumvents inefficient and cumbersome government regulations. He argues that corruption mitigates the distortionary effects of government policies and allows entrepreneurs to avoid bureaucratic delays. A direct payment to corrupt officials reduces the transactions

<sup>2</sup>For a detailed description of the harmful effects of rent seeking, see Krueger (1974), Buchanan, Tullock, and Tollison (1980), and Bhagwati (1982).

<sup>3</sup>“Countries like Thailand and South Korea may have been riddled with graft; their economies powered ahead regardless. Italy’s corruption did not stop it from drawing level with relatively virtuous Britain in GDP per head. And, in states which suppressed the normal workings of the market, bribery could sometimes seem to be a blessing; it could release goods trapped at the border by a corrupt customs officer, or set a price for a service the government had foolishly offered for free” (*The Economist*, 1999: 50).

cost of business and energizes corrupt civil servants who would have otherwise engaged in delaying tactics.<sup>4</sup> Leff also claims that corruption generates a social benefit and serves as a mechanism for political participation and influence for minorities and foreign corporations. Leff (1979: 328) remarks: "In most underdeveloped countries, interest groups are weak, and political parties rarely permit the participation of elements outside the contending cliques. Consequently, graft may be the only institution allowing other interests to achieve articulation and representation in the political process."

Scott (1972) also argued that what is considered corruption in the West is in fact a continuation of traditional gift giving in less developed countries (LDCs). The imposition of Western values and attitudes has transformed this traditional gift exchange in LDCs into corruption. Tullock (1996) also claims that illicit payments are a substitute for higher wages. Corruption therefore saves money for the government that it would have otherwise paid in higher salaries. Lui (1996) makes the case that what some people call corruption is nothing but a fee for underpriced services. He suggests that corruption restores the price mechanism and improves the allocation of resources in distorted and heavily regulated markets.

### Reassessing the Relationship between Corruption and Economic Growth

Table 1 is a correlation matrix of the regression variables presumed to affect economic growth. A detailed description of the data is in the Appendix. The correlation coefficient for the relation between corruption in the 1980s and the 1990s is 0.73, showing that corruption was persistent over the years. Those countries with high levels of corruption in the 1980s continued to have high levels of corruption in the 1990s. Corruption breeds corruption, and the longer it persists the more endemic it becomes. Table 2 provides descriptive statistics for the regression variables. The mean and the median of corruption in the 1990s are higher than those of the 1980s. However, there is no conclusive evidence that corruption has increased worldwide in 1990s. The corruption indexes for the 1980s and 1990s were provided by different organizations. They cover different samples, and the nature and content of the survey questions might have been quite different.

<sup>4</sup>The fact that corruption is pervasive in low-growth countries of Africa and Latin America contradicts these arguments. Actually, bribery gives corrupt bureaucrats an incentive to create more red tape to extract bigger bribes and to extort more payments for the provision of their services.

TABLE 1  
CORRELATION MATRIX OF THE REGRESSION VARIABLES

	INV	GPOP	GDP75	SECE	POL	GOV	ETH-NICITY	LAW	STATE	CORRUP80	CORRUP90	ECO
INV	1.00											
GPOP	-0.08	1.00										
GDP75	0.02	-0.02	1.00									
SECE	0.12	-0.72	-0.69	1.00								
POL	0.10	-0.65	0.39	0.63	1.00							
GOV	-0.18	0.45	0.22	-0.28	-0.24	1.00						
ETHNICITY	-0.11	0.33	-0.29	-0.33	-0.36	0.01	1.00					
LAW	0.26	-0.52	0.53	0.73	0.59	-0.18	-0.33	1.00				
STATE	-0.11	-0.15	0.14	0.13	0.10	-0.03	0.28	0.25	1.00			
CORRUP80	-0.29	0.73	-0.44	-0.75	-0.55	0.36	0.61	-0.07	-0.22	1.00		
CORRUP90	-0.19	0.57	-0.57	-0.72	-0.53	0.16	0.63	-0.84	-0.13	0.73	1.00	
ECO	0.57	-0.71	0.38	0.82	0.57	-0.35	-0.59	0.62	0.21	-0.83	-0.79	1.00

NOTES: INV: investment; GDP75: initial GDP; CORRUP80: corruption level in the 1980s; CORRUP90: corruption level in the 1990s; LAW: index of judicial efficiency; SECE: secondary school enrollment rate in 1975; GOV: government expenditure share of the GDP; POL: index of political freedom; GPOP: population growth rate; ETHNICITY: index of ethnolinguistic fractionalization; STATE: the type of the state (federal vs. unitary state); ECO: economic freedom.

TABLE 2  
DESCRIPTIVE STATISTICS FOR THE REGRESSION VARIABLES

	Mean	Median	Standard Deviation	Maximum	Minimum	Observations
RPGDP	1.028	1.236	2.462	7.206	-6.314	114
INV	0.223	0.226	0.066	0.421	0.087	116
GPOP	2.025	2.478	1.179	5.219	-0.148	118
GDP75	3.068	2.000	3.414	23.00	0.000	118
SECE	0.199	0.120	0.209	0.860	0.001	118
POL	0.373	0.33	0.486	1.000	0.000	117
GOV	1.806	1.013	3.498	18.36	-4.437	114
ETHNICITY	0.399	0.370	0.302	0.930	0.000	117
LAW	7.162	7.000	2.230	10.00	2.000	68
STATE	0.128	0.000	0.336	1.000	0.000	117
CORRUP80	5.211	6.342	3.271	10.00	0.000	86
CORRUP90	7.420	7.722	3.887	10.00	0.000	57
ECO	5.112	5.710	2.30	9.880	1.120	92

Notes: RPGDP: real per capita GDP; other variables are defined in Table 1.

Table 3 summarizes the empirical results employing the following core equation:

$$(1) \quad \text{Growth} = \beta_0 + \beta_1(\text{initial GDP}) + \beta_2(\text{population growth}) \\ + \beta_3(\text{education}) + \beta_5(\text{other variables of interest}) + \varepsilon.$$

The control variables are standard in the literature.<sup>5</sup> They are the initial GDP level, the secondary school enrollment rate, and the population growth rate. Table 3 also includes dummy variables for Africa and Latin America to account for continent-specific characteristics.

In Model 1 of Table 3, the corruption index for the 1980s is added to the above specification as an additional variable of interest. The coefficient of corruption is negative and highly significant when other correlates of growth are included in the regression equation. However, the prevalence of corruption can be a by-product of economic growth as well as its cause. The possibility of corruption being a function of economic growth creates an endogeneity problem. There is a plausible argument that lower economic growth could lead to higher corruption or higher corruption could lead to lower growth rate. Model 2 examines this potential bias using a two-stage least-squares approach. To correct for endogeneity, we used ethnolinguistic fractionalization as an instrumental variable; a measure of ethnolinguistic fragmentation.<sup>6</sup> The fractionalization index is frequently used in the growth literature and measures the probability that two randomly selected persons from a given country will not belong to the same ethnolinguistic group (Easterly and Levine 1997, Mauro 1995). The higher the index the more heterogeneous and fragmented the society and the lower the probability that economic agents are treated equally and fairly.

Ethnolinguistic fractionalization is not correlated to economic growth but is significantly and negatively correlated with corruption. As shown in Table 1, the simple correlation coefficient between corruption in the 1980s and ethnolinguistic fractionalization is 0.61, while the correlation between corruption in the 1990s and ethnolinguistic fractionalization is 0.63. The estimated results in Model 2

<sup>5</sup>For a detailed discussion of the control variables, see Levine and Renelt (1992) and Barro (1996).

<sup>6</sup>In addition to ethnolinguistic fractionalization, we used other measures of ethnic fragmentation. These include the percent of population not speaking the official language, the percent of population not speaking the most widely used language, and the probability that two randomly selected individuals speak different languages. For a further description of those variables, see Easterly and Levine (1997).

indicate that corruption has a substantial explanatory power for economic growth. The results in Model 2 suggest that the observed negative correlation between corruption and economic growth might be the consequence of higher corruption causing lower economic growth rather than lower growth rates leading to higher levels of corruption. This confirms Mauro's results that corruption causes lower economic growth and not vice versa. However, when we reestimated the regression equation using other measures of ethnic fragmentation the results are not conclusive. The inconclusiveness is due to the smallness of the sample size of these other measures of ethnic fragmentation. The data on other measures of ethnic fragmentation are available only for 38 countries. Angrist and Krueger (2001) suggest that researchers using instrumental variables should work with large samples since instrumental variables are consistent but not unbiased.

The idea that causation might go in both directions is still plausible and more evidence might be required to come to a firm conclusion. If countries with lower corruption levels grew faster, this positive experience might lead them to fight corruption even more in the future. Therefore, economic growth in one period should be negatively correlated with corruption in the future. Following Gwartney, Lawson, and Holcombe (1999), Model 3 tests that proposition using the average annual growth rate from 1975 to 1985 as the dependent variable. The model includes all the independent variables in Model 1, with corruption in the 1990s replacing corruption in the 1980s as an additional explanatory variable. If economic growth is correlated with future corruption, this variable is expected to be negative and statistically significant.<sup>7</sup> The coefficient of corruption in the 1990s is not statistically significant. The lack of correlation between economic growth from 1975 to 1985 and corruption in the 1990s suggests that higher economic growth does not guarantee a lower corruption in the future. The possibility that high-growth countries will exhibit lower levels of corruption partly as a result of becoming richer is not supported by the empirical results. However, if corruption is a by-product of economic growth as well as its cause, it would be quite prudent not to attribute too much significance to economic growth in the 1980s or the 1970s as a causal factor for corruption in the 1990s.

Models 4 and 5 provide further evidence about the cause and effect relationship between corruption and economic growth. It runs a re-

<sup>7</sup>Gwartney, Lawson, and Holcombe (1999) used this method to evaluate the effect of economic freedom on growth.

TABLE 3  
CORRUPTION, INSTITUTIONS, AND ECONOMIC GROWTH

Independent Variables	RPGDP (1)	RPGDP (2)	RPGDP 7585 (3)	RPGDP 9095 (4)	CORRUP90 (5)	INV/GDP (6)	CORRUP90 (7)
C	4.784 (5.595)	7.828 (6.331)	5.849 (6.616)	-0.325 (-1.54)	-0.0656 (-1.118)	0.1861 (5.042)	3.129 (7.00)
GPOP	-0.0556 (-0.249)	-0.1286 (-0.574)	-0.1666 (-0.795)				
GDP75	-0.456 (-3.508)	-0.7976 (-4.683)	-0.5813 (-4.243)				
SECE	0.8063 (0.576)	-0.7727 (-0.497)	0.5479 (0.4007)				-0.508 (-2.158)
CORRUP80	-0.1853 (-2.108)	-1.0282 (-3.858)		-0.67 (-2.54)		-0.0738 (-1.196)	-0.2621 (-6.024)
CORRUP90			-0.4997 (-0.343)				
AFRICA	-2.8545 (-5.582)	-2.4908 (-5.553)	-2.339 (-5.6187)				0.3398 (1.129)
LATIN AMERICA	-1.7975 (-4.462)	-1.2879 (-2.926)	-1.5571 (-3.896)				-0.0276 (-2.379)
SOCIALIST	-0.9409 (-4.462)	-0.7927 (-2.926)	-0.7425 (-3.896)				-1.1090 (-2.379)
RPGDP7585					-0.072 (-0.91)		



## ECONOMIC CORRUPTION

LAW	-0.1813								
	(-1.939)								
GOV	0.1883								
	(2.912)								
AID	0.6435								
	(1.880)								
GOV*AID	0.0237								
	(1.794)								
POL	-0.2302								
	(-0.471)								
ETHNICITY	-0.453								
	(-1.100)								
STATE	-0.2493								
	(-1.848)								
ECO	-0.269								
	(-2.471)								
RPGDP	-0.0362								
	(-0.694)								
Sample	57								
Method of Estimation	OLS								
R-Squared	0.540	83	79	57	83	78	70		
		OLS	2SLS	OLS	OLS	OLS	OLS		
		0.540	0.428	0.458	0.167	0.01	0.051		

NOTE: t-statistics are in parentheses.

gression with an annual growth rate from 1990 to 1995 as the dependent variable and corruption in the 1980s as the only independent variable. The coefficient of corruption in the 1980s is  $-0.67$  and is highly significant, which indicates a strong negative correlation between corruption in an earlier period and the GDP growth rate in a later period. When the regression is reversed, and corruption in the 1990s becomes the dependent variable and GDP growth rate from 1975 to 1985 as the sole independent variable, the coefficient of GDP growth rate is negative but statistically insignificant.

The empirical results in Models 4 and 5 indicate that higher corruption leads to lower economic growth but economic growth has no effect on future corruption. This finding suggests that economic growth by itself will not lead to lower corruption. It also indicates that fighting corruption needs clear and explicit policy measures. For economic growth to take place, an environment less conducive to corruption and malfeasance should be a priority.

Model 6 investigates the possibility that corruption affects economic growth indirectly through the investment channel. The corruption coefficient is negative and statistically insignificant when the ratio of investment to GDP is used as the dependent variable. This result contradicts Mauro's findings that corruption is a tax on capital investment. Campos, Lien, and Pradhan (1999) and Wedeman (1996) found similar results and suggested some possible explanations. Wedeman (1996) argues that while correlation between corruption and the ratio of investment to GDP might be strong for some countries with little corruption, it loses its statistical significance for countries with higher levels of corruption. Therefore, certain kinds of corruption might have more importance for investment decisions than the overall level of corruption.

## Predictive Content of Corruption for Growth

In this section, the predictive content of corruption for growth is investigated using the Granger-Causality test, which helps determine whether the corruption index contains additional information about subsequently realized growth rates beyond what is already contained in the past history of actual GDP growth rates. The Granger-causality equations explain how much of the current GDP growth rate can be explained by past GDP growth rates and whether adding lagged values of corruption can improve the explanation. The GDP growth rate is Granger-caused by corruption if corruption helps in the prediction of the GDP growth rate or if the coefficients on lagged corruption are statistically significant.

Consider the following regressions:

$$(2) \quad \Delta G_t = \beta_0 + \lambda_a(G_{t-1}) + \sum_{k=1}^n a_{1k} \Delta G_{t-s} + \sum_{k=1}^n a_{2k} \Delta C_{t-s} + \varepsilon_{1t}$$

$$(3) \quad \Delta C_t = \beta_0 + \lambda_b(G_{t-1} - C_{t-1}) + \sum_{k=1}^n a_{3k} \Delta G_{t-s} \\ + \sum_{k=1}^n a_{4k} \Delta C_{t-s} + \varepsilon_{2t},$$

where  $G$  is the growth rate of GDP,  $C$  is corruption, and  $\varepsilon$  is a disturbance term. Corruption Granger-causes growth if  $\lambda_a \neq a_{2k} \neq 0$ . In that case, corruption provides information about the subsequently realized GDP growth rates beyond what is already contained in the past history of actual GDP growth rates. Similarly, GDP Granger-causes corruption if  $\lambda_b \neq a_{3k} \neq 0$ . In that case, GDP growth rates have information about corruption beyond what is already contained in the past history of corruption.

The results of the Granger-causality test are reported in Table 4. As the table shows, corruption Granger-causes the GDP growth rate, implying that corruption has information about the subsequently realized GDP growth rate beyond what is already contained in the past history of the GDP growth rate. In contrast, GDP fails to Granger-cause corruption and has no predictive content beyond what is already contained in the past history of corruption.

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TABLE 4  
GRANGER-CAUSALITY TEST RESULTS

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$\lambda_a$	$A_1$	F-Statistic	Prob.
-0.034 (-2.62)	-0.18 (-5.43)	3.14783	0.04988
$\lambda_b$	$A_2$	F-Statistic	Prob.
-0.105 (-0.89)	-0.06 (-1.07)	0.29241	0.74748

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NOTE:  $A_1 = \sum_{k=1}^n a_{2k}$ , and  $A_2 = \sum_{k=1}^n a_{3k}$ ; t-values are in parentheses.

### Determinants of Corruption: The Empirical Evidence

Model 7 of Table 3 regresses the corruption level of the 1990s on some independent variables that we consider relevant in explaining the difference in corruption levels across countries. Corruption in the

1980s is added as an additional explanatory variable because the other determinants of corruption can easily be affected by that variable. Clearly there is some persistence in corruption. The coefficient of corruption in the 1980s is positive and highly significant. Most of the coefficients of the other explanatory variables are also significant at the 5 percent level.

The coefficient of education is negative and significant at the 1 percent level. Evaluating the effect at the sample mean, the estimated coefficient indicates that a one-unit increase in secondary school enrollment reduces corruption by 0.508 percent. The rule of law also has a noticeable impact on corruption. For example, a one-unit increase of the rule of law is associated with a decline of corruption by 0.18 percentage points.

The size of government is positively and significantly correlated with the level of corruption. The coefficient of GOV in Model 7 shows that a 10 percent increase of the size of government is associated with about a 2 percent increase in the level of corruption. The coefficient of foreign aid is also positive and highly significant. Foreign aid strengthens the predatory power of the government and thus undermines the emergence of the private sector. Since foreign aid is fungible, it tends to increase government consumption. It creates opportunities for the government to proliferate, which in turn increases the level of corruption. The interaction term between foreign aid and government expenditure shows that the marginal effect of government expenditure on corruption increases with the level of foreign aid.

Political freedom is negatively correlated with corruption; however, the correlation coefficient of political freedom is not significant at the conventional level. The effect of freedom on corruption appears in the economic freedom coefficient. The coefficient of economic freedom is negative and significant at the 5 percent level. The empirical results also indicate that federalism reduces corruption. The coefficient of the type of the state in Model 7 is significant at the 10 percent level. Two dummy variables are also included in Model 7 to account for continent specific characteristics. The dummy variable for Africa is positive and insignificant, while the dummy variable for Latin America is negative and significant.

Most of the indicators we used to explain variations in corruption across countries reflect an overall impression of how well countries are governed in a very general sense. If so, they will be correlated with corruption, itself subjectively measured. A more interesting and informative test would include more objectively measured determinants of corruption. Therefore, in Model 7, the per capita GDP

growth rate is also included as an additional explanatory variable. The coefficient of the per capita GDP growth rate is negative but statistically insignificant.

The empirical results are consistent with the theory that higher judicial efficiency, higher level of schooling, greater economic freedom, smaller government, less foreign aid, and decentralized government will lower corruption. Ethnicity has no significant impact on corruption. The implications of these results are obvious. Those poor countries with large and cumbersome bureaucracies, weak and inefficient judicial systems, and poor educational systems can reduce corruption and increase their growth potential by improving their legal systems, investing in education, reducing the size of the government, reducing dependence on foreign aid, and decentralizing the power of the state.

## Conclusion

The social and economic costs of corruption recently gained attention from the development literature. The literature on corruption emphasized the deleterious effects of corruption on investment and economic growth. However, until recently no attempt has been made to elaborate the determinants of economic corruption. In this article, education, judicial efficiency, the size of government, political and economic freedom, foreign aid, ethnicity, and the type of the political regime are used to explain cross-country differences in corruption. Corruption is found to be negatively and significantly correlated with the level of education, judicial efficiency, and economic freedom. It is positively and significantly correlated with foreign aid and the size of government. An interesting result of this study, which might need further analysis, is the effect of foreign aid on corruption. The coefficient of foreign aid is positive and highly significant. The fungibility of foreign aid exacerbates the negative effect of big government on growth. The interaction term between foreign aid and government expenditure in Model 7 of Table 3 suggests that the marginal effect of government expenditure on corruption increases with the level of foreign aid.

The findings of this study also indicate that those countries that enjoyed a substantial growth rate for the past two decades are those that developed legal, institutional, and educational measures that encouraged bureaucratic honesty and discouraged corruption and malfeasance. The political implications of the study are clear. Efforts should be directed to the establishment of good education, efficient legal systems, smaller and decentralized government, and less depen-

dence on foreign aid. Corruption is encouraged not only by the importance of government as the provider of goods and services but also as the producer of a plethora of confusing and contradictory regulations. Resources should thus be marshaled to expand opportunities for employment in the private sector.

Corruption flourishes in an environment of unrestrained bureaucracy. It can be contained when the laws of the land are vigorously enforced. Moreover, when the administration or the political order is considered as illegitimate, the social pressures against acts of corruption become less important. Corruption can therefore be effectively curtailed by an administration that enjoys an enduring legitimacy.

## Appendix: Description, Source, and Relevance of the Variables

**AID:** Effective development assistance (EDA) measures official aid flows as the sum of grants and the grant equivalent of official loans. The grant equivalent of a financial inflow is the amount that, at the time of its commitment, is not expected to be repaid—that is, the amount subsidized through below-market terms at the time of commitment.

**Corruption 1980s:** The corruption level in the 1980s. It measures the extent to which high government officials are likely to demand special payments. It is from the Political Risk Services of Syracuse, New York, a private firm that publishes “country risk factors” and sells them to interested parties. The data on corrup80 is available only from 1982 to 1990. The index ranks countries in the scale of 0 to 6, where 0 means the highest level of corruption and 6 the lowest. We reversed the scale and converted the original ranking of 0 to 6 into a scale of 0 to 1.

**Corruption 1990s:** The corruption level in the 1990s. It is from Transparency International (a coalition against corruption in international business transactions). This index is based on international surveys of business people and reflects their impressions and perceptions of the countries surveyed. The index is available from 1995 to 1999, and ranks countries on a scale of 0 to 10. For conformity, we reversed the scale and converted the original rankings into a scale of 0 to 1.

**Economic Freedom:** Measures the extent to which economic agents are free to use the market mechanism for the allocation of resources and the extent to which property rights are protected. The index ranks countries on a scale of 0 to 10, where 10 indicates the highest level of economic freedom and 0 the lowest. For conformity,

we converted the original ranking of 0 to 10 into a scale of 0 to 1. This index is from Gwartney and Lawson (1997) and covers more than 100 countries.

**Ethnicity:** The domination of one ethnic group in the polity of a country creates differential access to power. Less powerful political ethnic groups or minorities resort to corruption for leveling the political and economic landscape. In ethnically diverse societies, the obligation of a bureaucrat is sequential: first to his close kin, then to his ethnic group, and then maybe to his country. Thus, highly fragmented societies are likely to be more corrupt than homogenous societies. We converted the original ranking of 0 to 100 into a scale of 0 to 1. The index is from Mauro (1995) and Easterly and Levine (1997).

**Government Expenditure Share of GDP:** Economic corruption is defined as the sale of public office for a private gain. Big governments create opportunities for corruption. The larger the size of the bureaucracy, the more likely that more bureaucrats will put their offices up for sale. In LDCs, the modern private sector is embryonic and the state assumes the primary role of allocating and distributing resources. The larger the relative size and scope of the public sector, the greater the likelihood of corrupt behavior.

**Growth of Real GDP per Capita (90–95, 75–95, 75–85):** World Development Indicators, the 1998 edition (hereafter WDI98).

**Political Freedom:** An index that measures the level of political freedom. The index ranks countries on a scale of 0 to 7. The higher the score the lower the level of political freedom. We reversed the scale and converted the original ranking of 0 to 7 into a scale of 0 to 1. When the media is independent and free from government control, and citizens are allowed to freely express their opinion about the affairs of the state, governments become more transparent and corruption easily exposed. Thus, politically open societies tend to be less corrupt. Furthermore, when the political order is undemocratic and is perceived by the public as an illegitimate entity, social pressures against the acts of corruption are of little significance. Stealing from the oppressor is not as tainted as stealing from the public treasury. The political freedom index is from the Freedom House and is compiled annually since 1972.

**Rule of Law:** Reflects the degree to which the citizens of a country are willing to accept the established institutions to make and implement laws and adjudicate disputes. It also measures the extent that countries have sound political institutions, strong courts, and orderly succession of powers. Cheung (1996) attributes the pervasiveness of corruption in LDCs to the weakness and the absence of institutional

safeguards—that is, to a lack of well-defined and firmly enforced private property rights. It is from the Political Risk Services of Syracuse, New York, and ranks countries on a scale of 0 to 6. This index is available only for the 1982–90 period. Again, the original ranking is converted into a scale of 0 to 1.

The level of corruption depends on the extent to which the laws of the land are binding and enforced. Corrupt officials are rational welfare maximizers. They weigh the pecuniary benefits from corruption against its cost. The personal cost of corruption is the loss of a job and the jail-time if caught and persecuted. Individuals will act corruptly so long as the perceived gains from corruption outweigh the costs. The probability of detection is lower the more lackadaisical the judicial system is. Judicial laxity reduces the opportunity cost of being corrupt. Hence, countries with strict laws and efficient judicial systems tend to be less corrupt and vice versa.

**Secondary School Enrollment Rate in 1975:** Measures the percentage of school-age population that was enrolled in secondary schools in 1975. A higher level of education fosters a sense of nationalism and instills pride and civic duty in the citizenry. It also raises the public's awareness of their rights for the services of the bureaucrats. Generally, most of the citizens in LDCs are not aware that they are entitled to the services of the bureaucrats. Scott (1972: 15) succinctly described this lack of awareness in developing countries:

The bureaucrat is a high school or university graduate . . . who deals often with illiterate peasants for whom government, let alone its regulations, is a mystifying and dangerous thing. In approaching a civil servant, the peasant is not generally an informed citizen seeking a service to which he is entitled, but a subject seeking to appease a powerful man whose ways he cannot fathom; where the modern citizen might demand, he begs or flatters.

In developing countries there is a confusion of the bureaucrat's private rights and his public responsibility. The bureaucrat hardly distinguishes when he is acting in a public capacity providing services as a matter of duty, from when he is acting in a private capacity providing personal services. That attitude is attenuated by the ignorance of the general public. Thus, the higher the level of education, the lower the level of corruption.

**Type of State (Federal or Unitary System):** Decentralization and vertical separation of powers reduces corruption and creates multiple veto powers along vertically competing jurisdictions. It makes collusion among corrupt officials difficult to enforce. However, Shleifer and Vishny (1993) claimed that centralized corruption is prefer-



able to decentralized corruption for efficiency purposes. They claim that the devolution of power from central to regional governments multiplies opportunities of corruption. They suggest that decentralized governments with decentralized bribe-taking mechanisms increase the cost of bureaucratic corruption. The cost of corruption becomes excessive when different levels of the government set their bribes independently. Federalism as a hierarchical separation of powers can therefore either increase corruption or keep it in check. We use a binary variable that takes 0 if a country is a centralized unitary state and 1 if it is a decentralized federal system.

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