THE CAUSES OF CORRUPTION:

A CROSS-NATIONAL STUDY

Why is corruption—defined here as the misuse of public office for private gain—perceived to be more widespread in some countries than others? Different theories associate cross-national variation in the extent of corruption with particular historical and cultural traditions, levels of economic development, political institutions, and government policies. This paper analyzes which of various plausible determinants are significantly related to an index of "perceived corruption" compiled from business risk surveys for the mid-1990s. Using 2SLS to reduce problems of endogeneity and a variation of Leamer's "extreme bounds analysis" to test for robustness, it finds three factors robustly significant. Countries that were more economically developed and those which are former British colonies were rated "less corrupt". Those which have a federal structure were "more corrupt".

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I. INTRODUCTION

Why is corruption—defined here as the misuse of public office for private gain—perceived to be more widespread in some countries than others?[1] Understanding this is important for several reasons. Corruption has been blamed for the failures of certain "developing" countries to develop, and recent empirical research has confirmed a link between higher perceived corruption and lower investment and growth (Mauro 1995; World Bank 1997). Political scandals have sparked public outrage against political corruption in countries across the globe during the last few years, and in every continent at least one incumbent regime has been forced out of office under a cloud. At the same time, corruption is viewed as one of the main obstacles that post-communist countries face in attempting to consolidate democratic institutions and open, market economies (Shleifer 1997).

Yet very little is known conclusively about what causes corruption to be higher in one place than another. While theories abound, and while numerous case studies have examined the details of corruption in particular countries or regions, cross-national comparative empirical studies are much rarer. The difficulty of measuring levels of relative corruption in different countries has presented a major obstacle. However, economists and political scientists have recently begun to analyze indexes of "perceived" corruption prepared by business risk analysts and monitoring agencies, based on survey responses of business people and local residents.[2]

While such ratings are by definition "subjective", there are compelling reasons to be interested in the patterns they reveal. First, such cross-national ratings tend to be highly correlated with each other and highly correlated across time. Different organizations using independent techniques derive ratings which are quite similar and which do not change much from year to year. Ratings of relative corruption constructed from surveys of expatriate business people also turn out

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[1] Acknowledgments to follow.

[2] For a few examples of use of perceived corruption indexes, see Mauro 1995, La Porta et al. 1997, Easterly and Levine 1997.

to be highly correlated with at least one Gallup poll of the relevant countries' inhabitants. This reduces the fear that one is analysing not perceptions of corruption but the quirks or bias of a particular monitoring organization. Second, as empirical work confirms, whatever the objective characteristics of a country's political and social system, subjective evaluations of corruption do themselves appear to influence investment decisions, growth, and the political behavior of citizens (Mauro 1995).

This paper uses an index of perceived corruption prepared by the organization Transparency International to assess the explanatory power of various theories of the causes of corruption. The index constitutes a "poll of polls", compiled by a team of researchers at Göttingen University using information from ten individual surveys. As will be shown, country ratings on this index correlate closely across years and also correlate quite highly with two other available indexes constructed in the previous decade. To my knowledge, this paper is the first to use the Transparency International data to examine the causes of corruption.[3] Multiple regressions are used to analyse the data, with variables capturing a broad range of theoretically plausible determinants included simultaneously in the hope of reducing omitted variable bias. A variant of Edward Leamer's extreme bounds analysis is used to examine the robustness of key results to changes in the model specification. In addition, I use two-stage least squares to deal with the problem that many of the likely causes of corruption are endogenous—ie, they are likely also to be caused *by* corruption.

While the complexity of the issues and the weakness of various statistical techniques dictates caution, the analysis does suggest some interesting results. First, a strong and robust relationship is discovered between lower levels of perceived corruption in the 1990s and both high per capita GNP (even when adjusting with 2SLS for endogeneity) and a history of British colonial

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[3] Previous work has explored the relationship between the index and investment (Wei 1997). The Transparency International data are particularly useful because (a) they are available for recent years unlike most other indexes in the literature, which were gathered in the 1970s or 80s, (b) they are based on a broad range of different sources, and the variance of country ratings across surveys is published, making it possible to weight more heavily those observations with lower variance, and (c) similar data are available for both 1996 and 1997, making it possible to test whether results are replicable across these years.

rule. Second, states that were federal rather than unitary were robustly found to have higher levels of perceived corruption.[4] While all of these results seemed to hold particularly strongly among countries at lower levels of development, the latter two factors were probably also determinants of corruption among developed countries. The following section outlines leading theories of what causes corruption. Section III describes the data and presents the statistical analysis. Section IV discusses the results and various sensitivity analyses. Section V concludes.

II. THE CAUSES OF CORRUPTION: THEORY

Why do officials misuse public office for private gain? Why do those in some countries seem to do so more often—and for relatively larger payoffs? Economists and political scientists have offered various conjectures. While some trace cross-national differences in the extent of corruption to long-established historical and cultural traditions or to differences in countries' levels of economic development, others associate the degree of graft with characteristics of countries' political institutions or with incentives created by prevailing public policies. Below, I discuss each of
these sets of arguments in turn.

History and Culture

Various theorists—as well as many popular accounts—attribute countries' different rates of corruption to particular historical and cultural traditions. A surprising range of national cultures, spanning all continents, have been thought conducive. According to Guy Wint: "In nearly all Asian countries there has always been a tradition of corruption. Public office meant perquisites" (quoted in Myrdal 1970). "Corruption in India," writes one Indian, "has, with the passage of time, become a convention, a tradition, a psychological need and necessity so to say." (Kohli 1975, p.32) Russian writers from Karamzin to Gogol have claimed distinction for their country. According to

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[4] That is, federations as classified by Elazar (1995).

Prince Bakunin, "There is stealing and corruption everywhere… but in Russia I think there is more stealing and corruption than in any other state" (quoted in Sajó 1994, p.43). Within Western Europe, southern Italy is the home of "amoral familism"—including the propensity to offer and accept bribes—and Spain is home to *amiguismo*, the "use of contacts and intermediaries in dealings with the bureaucracy, and influence trafficking in political life" (Banfield 1958; see also Heidenheimer 1994; on Spain, Heywood 1996, p.121, quoting Richard Gunther). Further west, the Argentine playwright Mario Diament asserts that: "corruption in Latin America is not merely a social deviation, it is a way of life," (quoted in Little and Posada-Carbó 1996, p.10) and one historian has written of a "culture of corruption" in colonial Spanish America (Heywood 1996, p.55).

Other scholars argue, more broadly, that a culture of distrust and private-spiritedness fosters higher rates of venality than occur in communities where generalized trust and civic engagement are strong.[5] Distrust and suspicion boost the demand for corrupt services on the part of

private agents. The greater perceived uncertainty of entering into partnerships with strangers may impede legitimate private business activity.[6] This may render transactions with family members and close acquaintances—including corrupt exchanges with friends in public office—relatively more attractive. The suspicion that competitors are getting ahead through corrupt acts and that regulatory officials will impose predatory sanctions if not paid off may make a business strategy of keeping one's hands clean seem counterproductive. At the same time, the lack of trust and civic engagement may increase the supply of corrupt services by reducing the danger to officials of being exposed and punished. Societal organizations to monitor and protest abuses will be weaker.

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[5] Though he does not specifically discuss corruption, Putnam demonstrates that the effectiveness and responsiveness of regional governments in Italy are lower in places where measures of generalized trust and civic engagement are lower (Putnam 1993). Using the dominance of a strongly hierarchical religion as an instrument for trust, La Porta et al. find a negative association between trust and corruption (La Porta et al. 1997a).

[6] La Porta et al. (1997a) note that large-scale business organizations are rarer in countries with lower levels of generalized trust.

A related argument links corruption to ethnic polarization. In deeply divided societies, the demand for corrupt services may be higher at any given price. For one thing, generalized trust is likely to be lower. Members of ethnic groups may feel that demanding favors from co-ethnics in office is the *only* effective way to obtain government services. At the same time, the supply of corrupt services may be increased by the social leverage that ethnic leaders have over officials of their ethnicity: fear of social ostracism may make them reluctant to refuse their co-ethnics' demands. Various scholars have argued that competition between different ethnic groups within the same state has at times fostered patronage politics and bureaucratic predation. Easterly and Levine find a relationship between ethnic fragmentation and growth-retarding public policies (Easterly and Levine 1997).

Economic Development

Both the demand for and the supply of corrupt services may be greater in less developed societies. Social mores regarding corruption are often thought to vary with the level of economic development. In "traditional" societies, such transactions may not be clearly stigmatized, reducing the danger for those on both sides of the corrupt exchange. Public and private spheres tend to be less sharply delineated. According to Gunnar Myrdal, in underdeveloped countries "a bribe to a person holding a public position is not clearly differentiated from the 'gifts,' tributes, and other burdens sanctioned in traditional, pre-capitalist society or the special obligations attached to a favor given at any social level." (Myrdal 1970, p.237; see also Ekpo 1979). When giving presents to officials can be defended as accepted etiquette, businessmen are likely to have fewer scruples about seeking favors in return.[7]

Others have viewed corruption not as a characteristic of underdeveloped societies but as a consequence of their rapid modernization. Abuses of public office for private gain become prevalent as new sources of wealth and power seek influence in the political sphere at a time when

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[7] In the extreme, such transactions may sometimes fail to meet the definition of corruption if prevailing laws, regulations and standards of ethics do not judge them a "misuse" of official authority.

the regulatory authority of the state is expanding and social norms are in flux (Huntington 1968). Rising economic elites are likely to bid with money for greater political access and privilege, using their wealth to open doors into the decision-making organs of the state (ibid, pp.59-60). At the same time, modernization disrupts the political institutions and weakens the social norms that might have restrained officials from selling their authority.

Political Institutions

Various conjectures link the supply of corrupt services to characteristics of countries' political systems and state structure. Democracy is sometimes thought to increase the cost to officials of corrupt transactions, reducing the supply. The institutions of a free society—free press, secondary associations, etc—may make exposure more likely, as may the practice of electoral politics.[8] Particular legal systems may also offer private businesses greater protections from predatory officials. La Porta et al. have argued that the nature of a country's legal traditions—common law vs. French-style civil law—influences the quality of state protection and enforcement of private property rights (La Porta et al. 1997b). Such legal traditions may also affect the supply of corruption.

In a fairly crude sense, the size of the state may influence the supply of corrupt public services. Some have suggested a simple positive relationship between state size and corruption or rent-seeking (Tanzi 1994, Buchanan 1980). The greater the share of GDP redistributed by government, the greater the spoils for corrupt allocation. Similarly, the more officials there are in public office, the more potential bribees available. However, the potential cost to office-holders of exposure will depend on the internal rules and ethos of the bureaucracy. The more meritocratic is recruitment and the greater the extent to which bureaucracies offer predictable and rewarding long-term careers, the greater may be a bureaucracy's internal discipline and the greater the incentive for staff to avoid possible dismissal (Rauch and Evans 1997).

Industrial organization arguments suggest that the internal structure of the state may also influence the supply of corrupt services. When bureaucracies are more decentralized, with less internal discipline, bureaucrats may compete to extract maximal rents (Shleifer and Vishny 1993). In more decentralized or federal states, the burden of corrruption may thus be greater. According to James Q. Wilson, one cause of corruption in the US system is "the need to exchange favors to overcome decentralized authority" (Wilson 1970, p.304). Another political scientist argues that "decentralized political systems are *more* corruptible, because the potential corrupter needs to influence only a segment of the government, and because in a fragmented system there are fewer centralized forces and agencies to enforce honesty."[9] A number of economists have also suggested that corruption will be more widespread at the local level, perhaps because of the greater intimacy and frequency of interactions between private individuals and local officials (Tanzi 1995, Prud'homme 1995). According to Heywood, in Spain "the creation of new regional administrations during the 1980s offered extensive opportunities for the development of a new spoils system, operated by the party in power" (Heywood 1996, p.130).

On the other hand, some have argued that competition between subjurisdictions with greater autonomy may reduce corruption and the checks and balances of a federal system may limit the center's ability to conceal malfeasance (Weingast 1995). Susan Rose-Ackerman suggests that: "A federal structure in which each level has its own police force can reduce the vulnerability of any one law enforcement agency" (Rose-Ackerman 1994, p.27). The danger that additional levels of regulatory authority in the state may lead to a greater total burden of regulation and corruption may thus be offset by the beneficial consequences of competition between jurisdictions at lower levels.

Political systems differ not just in the nature of political institutions or governing regimes but also in how often these change. Two arguments trace differences in the supply of corruption to

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[8] See, for example, Diamond and Plattner 1993. As Geddes and others have pointed out, of course, electoral competition may create other incentives *for* corruption; the need to raise campaign funds can lead to abuses of power not to benefit the individual but the private interests of a party (Geddes 1997; Heywood 1996).

[9] Wolfinger 1974, quoted in Banfield 1979, p.98. See also Williams 1987, p.55: "Most obviously, if corruption flourishes at the point of discretionary decision, then a highly decentralised form of administration is likely to multiply the number of potentially corrupt encounters between officials and citizens."

the degree of political instability—with opposite implications. Some authors argue that by shortening the time horizons of those in power, political instability inclines them to make money fast and crudely rather than to moderate their current appetites for the sake of future earnings. Wars, civil wars, revolutions, and other occasions on which legal and social order is weakened are often times of rampant abuse of power. Prevailing disorder may also reduce the danger of being detected and punished.

Others have suggested an opposite conjecture: too much *stability* enables officials to reach long-term, relatively secure corrupt bargains with private partners. Wars, invasions, major political change, and turnovers of government may actually sweep away the debris of accumulated deals (Olson 1982). Some commentators saw in the longevity of the Japanese LDP and Italian Christian Democrats an explanation for the corruption scandals that weakened them in the 1990s. Britain, which has avoided invasion and occupation since 1066, experienced a flowering of corruption in the 18th Century.[10] More recently, Barbara Geddes has argued that when a new party comes to power it will have greater incentives to reform the corrupt practices of its predecessor (Geddes 1997, p.12). By contrast, political institutions that support continuity and avoid political alternation may increase corruption. According to David Hine, "the existence of broad forms of consociational power-sharing (whether at national level, or between different tiers of government)" features among the causes of political corruption in contemporary Europe (Hine 1996, p.141).

Public Policies

Finally, some argue that whatever the nature of political institutions, it is the policies actually adopted by those in power that determine the extent of corruption. In economies with extensive state regulation, greater opportunities for venality exist. The supply of rents for officials to allocate will be higher than in more liberal settings. Economies that are open to foreign

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[10] According to Samuel Finer, between the Norman invasion and the late 1700s "almost no office or department was ever abolished…By 1780 the structure resembled a coral reef. It was made up of the skeletons of innumerable offices and functionaries which had served their turn; but inside this dead structure new creatures burrowed, made their home, and turned the detritus of ages into some kind of a working instrument" (Finer 1970, p.107.) The result, to switch metaphors, was an administration that Edmund Burke could describe as "a loaded compost heap of corrupt influence" (Ibid p.110).

competition will see such rents eroded, reducing the value of restrictions on domestic production. According to Ades and Di Tella, countries that are more open to foreign trade tend to be less corrupt (Ades and Di Tella 1996). Third, to the extent that exposure means (at least) dismissal and the loss of future earnings, higher civil service wages may reduce the relative attraction of venality to officials, reducing the supply of corrupt services (Becker and Stigler 1974; Van Rijckeghem and Weder 1997; Ul Haque and Sahay 1996; World Bank 1997).

III. DATA AND ANALYSIS

To what extent can historical or cultural traditions, economic development, political institutions or public policies explain countries' relative standing in perceived corruption ratings as of the mid-1990s? To explore this, I use the ratings assembled by Transparency International for 1996. This data set is a "poll of polls", constructed from ten individual surveys by a team of researchers at Göttingen University. The component surveys include some conducted by business risk and economic forecasting organizations (Political & Economic Risk Consultancy Ltd, Hong Kong; the Institute for Management Development in Lausanne's *World Competitiveness Report*; DRI/McGraw-Hill Global Risk Service; Political Risk Services, East Syracuse, NY), one survey by an independent researcher, and Göttingen University's own internet survey.[11] These various surveys were conducted in the period since 1993, and asked comparable questions.[12] The rankings from each of these surveys were normalized and then averaged to derive a composite country rating out of 10. I have adjusted the index so that 10 represents "most corrupt" and 0 "least corrupt". Transparency International included countries in the ranking if they appeared in at least four of the ten surveys. In all, 54 countries appear in the 1996 ratings.

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[11] For details, see Transparency International's website at http://www.GWDG.DE/~uwvw//icr.htm.

[12] The subjects asked about were: "improper practices (such as bribing or corruption) in the public sphere", "level of corruption", "spread and amount of corruption in public and private business", "estimated losses caused by corruption", "likeliness to demand special and illegal payments in high and low levels of government", and "degree of misuse of public power for private benefits".

Of these ten polls, five were of business executives or managers of international or domestic companies, one was of employees of multinational firms and institutions, one was of embassies and chambers of commerce, two were assessments by the relevant organization's staff, and one did not give details. The resulting ratings tended to be highly correlated—of the 45 possible pairs of the ten polls, 60 per cent were correlated at .80 or higher; the lowest pairwise correlation was .48 and the highest .99. Transparency International also publishes the variance of country ratings across the different polls used to construct each annual rating, which makes it possible to weight observations by their relative reliability while conducting statistical tests.

As Table 1 shows, the 1996 Transparency International ratings are correlated at rates of .85 or more with other publicly available perceived corruption indexes, including Transparency International's 1997 ratings.[13] That country ratings would be so highly correlated even when some were constructed in different decades suggests a surprising coincidence and stability of views regarding the relative corruption of countries.

Table 1: Correlation Coefficients Between Different "Perceived Corruption" Ratings

	TI 1996 (1993-6)	TI 1997 (1996-7)	BI (Mauro) from early 1980s	ICRG (Knack and Keefer) 1980s
TI 1995 (1980-94)	.9770	.9402	.9014	.8591
TI 1996 (1993-6)	1.000	.9689	.8739	.8773
TI 1997 (1996-7)		1.000	.8517	.8740
BI (Mauro) from early 1980s			1.000	.8548

A variety of sources were consulted to construct indicators of the various theoretically plausible explanatory variables discussed in the previous section. Where possible, several

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[13] The 1996 Transparency International figures are the main focus of this study rather than the 1997 figures because the data-set contains a larger number of countries—54 compared to 52, from a broader range of continents; in particular, the 1997 ratings virtually exclude Africa. The 1996 rating was also compiled from a larger number of sources—10 compared to 7 in 1997. Nevertheless, the TI ratings from 1997 were used to check the robustness of the results, and the results of this analysis are also discussed below.

alternative indicators were developed to reduce the danger of misspecification. These indicators and sources are described in Table A1 in the appendix.[14]

Table 2 shows OLS estimates of the coefficients on different explanatory variables, weighting cases by the inverse of the variance of ratings for that country in the surveys used by Transparency International. The point of this weighting is to place greater emphasis on those cases on which the different surveys gave more similar ratings.[15] In model 1, I include only historical or ethnic factors—those that are generally thought to be the most slowly changing. As can be seen, these by themselves account for about 39 percent of the variation. In model 2, I add in variables measuring the level and recent pace of economic development. Model 3 adds in the political structure variables, and model 4 adds the public policy variables. Finally, model 5 shows how the results are affected by including continent dummies. Certain theoretically plausible explanatory variables—the level of generalized trust and the index of bureaucratic quality—are left out of the regressions reported because poor data availability means that including them would require losing a large number of cases.[16] I nevertheless return to these variables in the following section and examine whether they are significant if included in short regressions.

A number of the explanatory variables included are likely to be endogenous. If a low level of economic development may cause corruption, corruption itself can also impede development. Rapid modernization may create opportunities for corruption, yet excessive corruption might itself prevent rapid modernization. A large or intrusively regulatory state may create opportunities for corruption, but corrupt officials and politicians are likely to swell the size of the state in order to increase their spoils. Similarly, high pay may reduce the incentive for corruption, but corrupt

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[14] Correlation coefficients are not provided here because of space constraints, but are available from the author upon request.

[15] While OLS estimates are useful for reference, one should bear in mind that many of the independent variables are likely to be endogenous. I return to this and estimate with 2SLS below.

[16] For instance, the World Values Survey data on generalized trust that were available included only 32 of the 54 countries for which 1996 perceived corruption ratings, while the index of meritocratic recruitment and long-term, rewarding bureaucratic careers was available for only 23 of the 54 countries. This index was compiled on the basis of surveys of experts by Evans and Rauch (1997). I am grateful to them for sharing their data.

politicians may decide to award themselves high pay. Openness to imports may constrain

corruption, but corrupt officials may themselves create barriers to imports. Electoral competition

and other aspects of democratic systems may expose corruption, but corrupt officials may restrict

electoral campaigns and stifle democracy. Finally, political instability may enhance incentives (or

reduce opportunities) for corruption, but corruption may itself prompt public protests, challenges

to the incumbent regime, even external invasion—in short, political instability. By contrast, the

national culture, federal structure and ethnic composition are all treated as exogenous in the short

run.

  With so many potentially endogenous explanatory variables, OLS estimates should be

viewed with caution. There are two standard ways of dealing with this problem—single equation

techniques like Two-Stage Least Squares (or, more broadly, instrumental variables), and

simultaneous equation techniques. While there is no consensus on which is generally preferable,

single equation techniques, while less efficient, may present less risk of bias, since in simultaneous

equation models, misspecification of one equation can lead to biased estimates in the others.

Besides OLS regressions, I therefore also report results when 2SLS is used to generate unbiased

estimates of the regression coefficients. These are shown in Table 4.

  To perform 2SLS, it was necessary to identify plausible instruments for the endogenous

explanatory variables. Unfortunately, this only proved possible for three of them—log per capita

GNP, trade openness, and democratic rights. As an instrument for log per capita GNP, I use the

latitudinal distance of the country's capital from the equator. Sachs has recently argued that tropical

location depresses countries' growth rates by increasing the toll of infectious diseases and

hindering agricultural development. In a study of global patterns of growth during 1965-1990, he

found that "tropical countries grew 1.3 percentage points more slowly each year than those in the

temperate zone, even after allowing for other differences" (Sachs 1997). Instruments should be

correlated with the relevant endogenous variable, should not have a direct effect on the dependent

variable, and therefore should not be correlated with the regression's errors. The distance-from-

the-equator variable is correlated with 1994 GNP per capita in the countries included in this study

at .56, and with the log of 1994 GNP per capita at .62. It is hard to think of direct effects of tropical location on corruption; and, as desired, north-south location was not correlated with the residuals from model 4 in Table 2 (r = -.03).

For trade openness, I use the log of the country's total area as an instrument. Territorially

Table 2: Explaining "Perceived Corruption" Ratings 1996: Weighted Least Squares

	(1)	(2)	(3)	(4)	(5)
Historical Traditions, Ethnic Composition					
Former British colony	-2.98*** (.79)	-1.77*** (.39)	-2.04*** (.29)	-2.06*** (.53)	-2.09** (.90)
Never a colony	-3.57*** (.81)	-1.49*** (.41)	-1.00*** (.33)	-1.00* (.49)	-1.09 (.88)
Percent of pop. not speaking most widely used language	.04*** (.01)	-.00 (.01)	-.01*** (.01)	-.01* (.01)	-.02 (.02)
Economic Development					
Log of 1994 GNP per capita		-3.19*** (.30)	-3.25*** (.30)	-2.30*** (.62)	-2.38** (1.03)
Change in % of pop- ulation urban 1980-95		.06** (.03)	.05** (.02)	.06* (.03)	.06 (.04)
Political Order and Structure of State					
Index of democratic rights 1993-4: high = *less* democratic			.18 (.12)	.22 (.18)	.23 (.24)
Major cabinet changes or coups yearly in 1980s			.18 (.16)	.14 (.26)	.17 (.42)
Federal state			1.42*** (.26)	1.14*** (.36)	1.15** (.53)
Policy Outcomes					
Extent of state intervention index: high = *less* intervention				-.47 (.32)	-.50 (.40)

	(1)	(2)	(3)	(4)	(5)
Economic openness: imports/GNP 1994				-.30 (.61)	-.10 (1.03)
Average central govt. wage as multiple of gdp per capita				.36 (.23)	.38 (.39)

Table 2: (cont.)

	(1)	(2)	(3)	(4)	(5)
Continent Dummies (excluded category = W Europe and N America)					
Asia					-.03 (.76)
Africa					-.19 (2.89)
Eastern Europe					.42 (2.09)
Latin America					-.24 (1.53)
Middle East					-.44 (1.24)
constant	5.66*** (.71)	17.02*** (1.30)	16.18*** (1.32)	13.79*** (2.35)	14.28*** (4.16)
Adjusted R square	.38583	.87691	.93943	.93662	.92053
F	11.89	70.81	90.18	46.68	25.61
N	52	49	46	34	34

Note: OLS estimates, with cases weighted by 1/variance; dependent variable is corruption rating adapted so that 10 = most corrupt, 0 = least corrupt; standard errors in parentheses; * $p < .10$, ** $p < .05$, *** $p < .01$.

larger countries are likely to have a larger proportion of total trade within themselves and less that crosses borders. The log of area *was* correlated with the share of imports in GNP at -.69 for the countries studied; and it was not correlated with the residuals from model 4 ($r = -.01$). For the index of democratic rights, I use as instrument the proportion of the population that were affiliated Catholics as of 1980, on the theory of Lipset and others that Catholic culture is less supportive of democratic norms than most (Lipset 1990). The concentration of Catholics is correlated with the

Freedom House index of democratic rights at -.33 for the countries studied. Less desirably, it is slightly correlated with the residuals from model 4 (at r = .28). It is thus an imperfect instrument for this variable, and the results relating to democratic rights should be interpreted with particular caution.[17]

Table 3: First Round Regression R Squares and F-statistics For Excluded Instruments (Model 1 in Table 4)

ENDOGENOUS VARIABLE	R square	F for excluded instruments
log 1994 GNP per capita	.61792	8.75
imports/GNP 1994	.57746	16.06
Freedom House democratic rights index	.59913	10.10

Excluded instruments are: degrees north or south of the equator, log of country's area in km^2, proportion of population that were affiliated Catholics as of 1980.

Various scholars have recently pointed out problems associated with 2SLS when the instruments are only weakly correlated to the endogenous explanatory variables, and have recommended reporting R^2's for the first round regressions, as well as F statistics for the instruments excluded in the second round regressions (Bound, Jaeger and Baker 1995; Staiger and Stock 1997). These are provided in Table 3. In fact, for each of the first round regressions—even that for democratic rights—the F statistic is relatively high.[18] I was not able to identify appropriate instruments for the other potentially endogenous independent variables, and so have left them out

Table 4: Explaining "Perceived Corruption" Ratings 1996: 2SLS

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[17] The relatively low correlation between Catholic concentration and democratic rights results in part from the fact that Catholic concentration is a poor indicator of democracy in countries with very low proportions of Catholics (39 percent of the countries in the sample had fewer than 5 percent Catholics in the population). This is an additional reason for extreme caution in interpreting the results regarding democracy. In the absence of a better instrument, it was not clear however how to explore this question further. To exclude all the low-Catholic countries from the sample would mean losing a large number of observations. I also considered using as instrument the percent of the population that were Protestants, as well as either the Catholic or Protestant concentration in log form. None of these was correlated more highly with the democratic rights index than the straight Catholic concentration. Finally, it might be thought that Catholic concentration is a misleading instrument for democracy since Catholic countries tend to be less economically developed: this might make the correlation spurious if low economic development impedes democracy. In fact, this is not a problem in this case. The correlation between Catholic concentration and the democratic rights index in this sample is even *higher* if one controls for per capita GNP (-.45).

[18] Each F is in fact greater than 8. Staiger and Stock refer to a first stage F statistic of less than two as "quite small" (Staiger and Stock 1997, p.582).

	(1)	(2)
Historical Traditions, Ethnic Composition		
Former	-2.64***	-3.79**
British colony	(.63)	(1.52)
Never a colony	1.06	.01
	(1.56)	(1.00)
Percent of population not speaking	-.03*	-.04
most widely used language	(.02)	(.03)
Economic Development		
Log of	-7.93**	-8.44**
1994 GNP per capita	(3.28)	(3.57)
Political Order and State Structure		
Index of democratic	-.51	-1.36
rights 1993-4	(.79)	(1.16)
Federal state	1.63**	2.03*
	(.74)	(1.06)
Policy Outcomes		
Economic openness:	5.85*	3.78
imports/GNP 1994	(3.43)	(3.02)
Continent Dummies (excluded category = W Europe and N America)		
Asia		1.25
		(1.28)
Africa		3.60
		(3.81)
Eastern Europe		-2.15
		(2.57)
Latin America		-1.03
		(1.88)
Middle East		2.54
		(1.61)
constant	33.23***	38.59**
	(12.43)	(15.66)
Adjusted R square	.64442	.71935
N	52	52

Note: 2SLS estimates, with cases weighted by 1/variance in second round regressions; standard errors in parentheses; * p < .10, ** p < .05, *** p < .01. Underlined variables are actually the predicted values from first round regression of that variable on exogenous variables (those not underlined) and additional instruments (degrees north or south of the equator, log of country's area in km^2, proportion of population affiliated Catholics as of 1980). In the first round regressions for model 2 continent dummies are also included among exogenous variables. The adjusted R square is not an appropriate measure of goodness of fit in 2SLS.

of the 2SLS models reported in Table 4. In the second round regressions, cases are as before

weighted by the inverse of the variance of survey ratings for that country. The second model

shown includes continent dummies.[19]

IV. RESULTS

With imperfect indicators and difficulty finding instruments for some of the potentially

endogenous variables, it is hard to be confident in excluding some hypotheses on the basis of

insignificant coefficients. I therefore intepret the negative results cautiously. Though the analysis

found no support—or insignificant results—for the hypotheses that corruption is caused by lack

of democratic institutions or economic openness, too much or too little political instability, too

extensive state intervention, or too low government wages, this may merely reflect the difficulty of

finding good indicators of the relevant variables—and in the latter three cases, the failure to find

instruments that would make it possible to check for relationships using 2SLS.[20] In the discussion

that follows, I therefore choose to focus on the strong positive results, rather than those which are

more questionable. There were three strong positive results that were supported at high levels of

significance in the weighted least squares regressions and also remained significant in the 2SLS

regression.

First, economic development was indeed associated with lower corruption. The higher a

country's GNP per capita, the lower was its corruption rating. And the significant results in the

2SLS regressions make it possible to be relatively confident that causation does run from the

former to the latter. Whether or not it is the case that corruption impedes development,

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[19] As required, the continent dummies are also included in the first round regressions for this model. Both regression equations are just identified by the order condition (there are as many excluded instruments as there are endogenous variables in the equation estimated), and so tests for overidentifying restrictions are not required.

[20] Quite high correlations between some of the independent variables are another reason to be cautious in drawing negative conclusions. The democratic rights, economic openness, and state intervention variables all had the predicted signs but were insignificant in the WLS models (the first two, however, had the "wrong" signs in the 2SLS regressions). The state intervention index was correlated with log gnp per capita at .58 (the higher was income, the

development does seem to reduce corruption. Putting an accurate dollar amount on the effect is tricky. The weighted least squares estimates suggest that other things being equal a ten-fold increase in per capita GNP—for instance, from the level of Bolivia to the level of Greece—would be associated with a reduction in the corruption score of between 2.30 and 3.25 points on the ten-point scale. The 2SLS estimates however suggest a much bigger effect: a ten-fold increase in, per capita GNP would actually yield a corruption score about eight points lower.[21] The higher value might reflect the fact that in the 2SLS regression it was not possible to control for some other factors which may be correlated with GNP per capita (for instance, recent rapid modernization, government stability).

A second result strongly supported by the regressions concerns the vertical structure of the state. Given other relevant characteristics, states that were federal (as classifed by Elazar (1995)) were perceived to be more corrupt. Other things equal, a state that was federal tended to rank more than one point higher on the corruption scale than one that was unitary. This result held in both the weighted least squares and 2SLS regressions (though in the latter, when continent dummies were included the significance fell to about the .06 level). The division of power between different levels of government that federal structure entails does appear to lead to a greater burden of venality for firms doing business.[22]

One possible interpretation of this might be that it is ethnic divisions that in fact foster higher levels of corruption, and federal structure—a common *response* to such divisions—only appears important. This does not seem to be the case. First, for the countries included in the

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lower state intervention). Democratic rights were correlated with log gnp per capita at .66 and with linguistic division at -.51 (See attached sheets).

[21] The predicted values from the first round regression used in place of log gnp per capita in the second round regression have about the same range, mean and standard deviation as the actual log gnp per capita figures, so a straightforward interpretation of the second round results in terms of dollars per capita would seem justified.

[22] There are two points on which experts might differ as to how to code countries. Belgium only became officially federal in the early 1990s, and Spain is sometimes classified as only a proto-federation. Following Elazar (1995), I class both of these as federal states. However, the federal variable remains significant in models 3-5 in Table 2 with a coefficient greater than one if either or both of these countries are coded as non-federal. If either is coded as non-federal, the significance of this variable falls to the .06 level in the 2SLS regression, and to .09 if both are coded as non-federal.

analysis, there is not a significantly higher level of ethnic division in federal than in non-federal states. This is true whether ethnic division is measured by the percentage not speaking the most common language, the percentage not speaking the official language, or an index of ethnolinguistic fractionalization used in various other studies (eg, Mauro 1995, Easterly and Levine 1997). Second, the federal state dummy remains highly significant controlling for either the percentage not speaking the most common language or the index of ethnolinguistic fractionalization.[23] Third, as Tables 2 and 4 show, once economic development was controlled for, the coefficient on ethnic division in both WLS and 2SLS regressions had a surprising *negative* sign—though the estimates were mostly not significant. Linguistic division was negatively correlated with income (r = -.53 with log GNP per capita). One possible interpretation of this would be that ethnic division is associated with lower GNP per capita, and lower GNP per capita is itself associated with higher perceived corruption.

A third result suggests a surprising influence of history. Countries that were former British colonies were perceived as significantly *less* corrupt than countries that had been colonies of other powers.[24] By substituting into the regression, it can be shown that former Spanish or Portuguese colonies were, on the other hand, perceived as *more* corrupt. Why this is the case remains a puzzle for further analysis. The sample of countries included both developed and less developed, relatively old and new British colonies—from the US and Canada to Uganda, Nigeria, and Pakistan.[25] Does this apparent relationship reflect the low corruption of the earlier-settled British colonies such as the US and Canada? To test this, I tried running the regressions in Table 2 with the former British colony dummy broken down into separate dummies for "new British colony" – Singapore, Israel, Hong Kong, South Africa, Malaysia, Jordan, Egypt, Uganda, India, Bangladesh, Kenya, Pakistan, and Nigeria—and "old British colony"—New Zealand, Canada,

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[23] In models 3 and 4 in Table 2 and 1 in Table 4.

[24] They were not, however, significantly less corrupt than countries which had never been colonized.

Australia, Ireland and the USA. The results were surprising.[26] "Old" British colonies were, as expected, rated significantly less corrupt than former colonies of other powers. But the "new" British colonies, once one controls for per capita GNP, were *also* significantly less corrupt in most models than other former colonies.[27] In fact, in all the regressions controlling for economic development, the "new" British colony dummy actually had a larger negative coefficient— suggesting lower corruption—than the dummy for those countries that had never been colonized. Furthermore, the lower perceived corruption of former British colonies appears to hold both among richer and poorer countries taken separately.[28]

I tried, unfortunately with little success, to identify what aspects of the cultural or institutional heritage of former British colonies might explain this result. Might Protestantism play a part? The data provide little support for this. When a variable measuring the proportion of the population that were affiliated Protestants as of 1980 is included in models 1-4 in Table 2, the British colony variable remains highly significant with similar coefficients. The Protestant variable is significant with the expected negative coefficient in models 1 and 2, but once political and/or policy variables are included its significance drops below the .10 level. A Protestant tradition may be non-robustly related to lower corruption, but this does not explain the lower ratings of former British colonies.

The high correlation between British colonial heritage and a common law legal tradition makes it hard to judge what role legal factors play.[29] For what it is worth, when a dummy variable

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[25] The full list, compiled from Fieldhouse (1982) and Grier (1995), is: New Zealand, Canada, Singapore, Australia, Ireland, Israel, USA, Hong Kong, South Africa, Malaysia, Jordan, Eqypt, Uganda, India, Bangladesh, Kenya, Pakistan, and Nigeria.

[26] See attached sheets.

[27] And note that the four "most corrupt" countries in the TI 1996 rating—Bangladesh, Kenya, Pakistan, and Nigeria—were all British colonies. All variables become less significant in model 5 in which continent dummies are included—not surprisingly, since this model has 17 explanatory variables and just 34 cases.

[28] The former British colony variable is significant with a negative coefficient when regressions of model 3 in Table 2 are run separately for just countries with 1994 GNP per capita > $8,000 and for those with GNP per capita < $8,000. However, some reservations are noted below.

for common law tradition is included in models 2 or 3 in Table 2, it is not significant and the British colonial dummy remains highly significant. Also, when the 2SLS model 1 is recomputed including the British common law tradition dummy among the exogenous variables, it is not significant and British colonial heritage remains highly significant. Former British colonies are not saved from corruption by greater democracy—at least as measured by Freedom House's index— since this is controlled for in the regressions. (Former British colonies included in the data set actually had a *lower* average democratic rights rating than the other countries.) Freedom House also constructs an index of press freedom, though this was only available for 1997. Controlling for this did not change the extremely high significance of the British colonial heritage variable.[30]

One possibility that is hard to exclude completely is that the results reflect a pro-British bias in the survey responses from which Transparency International's corruption index is constructed. While there is no positive evidence of this and the organizations in question certainly attempt to avoid such bias, the possibility cannot be definitively ruled out. The variety of different surveys used would seem to diminish this danger somewhat. Not all the 10 constituent surveys publish details about how their respondents were selected. Some of those that do, however, suggest an internationally balanced sampling. The Institute for Management Development in Lausanne's *World Competitiveness Report*—issues for 1993, 1994 and 1995 were among the 10 sources used for the 1996 index—specifies that its panel of top- and middle- managers "form a cross-section of the business structure of their countries and come from domestic as well as international companies." Political and Economic Risk Consultancy's 1995 survey of Asian countries questioned "American, European and Australian managers". Another reason to doubt a systematic Anglophile bias emerges from comparing the polls of business executives used by Transparency International to the results of a 1997 Gallup poll of the populations of 44 countries about domestic

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[29] The correlation between these is .82. Overlap is not perfect because some countries, such as Jordan, are classified as former British colonies yet do not have a British-type common law legal system, while others, such as Thailand, have a common law legal system without having been a British colony.

[30] Could the important aspect be some characteristic of the Westminster first-past-the-post parliamentary electoral system? I tried including a dummy variable for proportional representation list voting (taken from Arend Lijphart's

corruption. This poll, which Transparency International used in calculating its 1997 index, correlated highly (coefficients of from .70 to .89) with the assessments prepared by the business risk organizations that year. Perceptions of the business respondents seem not to have differed sharply from those of the populations of most countries included in the ratings.

Other results were less clearly significant. Recent rapid modernization appeared in some models to be significantly related to higher corruption. But its significance dropped as additional variables were added, and it was not possible to find a suitable instrument to test this hypothesis with 2SLS. The apparent finding in some models that countries never colonized were also less corrupt could not be confirmed in the 2SLS regressions. The democratic rights index was not significant in any model estimated; and the sign was different in the weighted least squares and 2SLS regressions, though the imperfections of the instrument used suggest particular caution. I also tried substituting for the democratic rights index Freedom House's index of press freedom. While this was significant in the weighted least squares regressions, it was not at all significant in the 2SLS ones. Since it was actually compiled in 1997, it should almost certainly be considered endogenous and the WLS results should not be trusted.[31] The frequency of major cabinet changes or coups was not a significant predictor of the level of corruption. I tried substituting a dummy variable for whether there had been war, civil war, or revolution in the country during the 1980s, but this was even less significant. The estimate of the extent of state intervention in the economy— derived by the Institute of Management Development in Lausanne from its international surveys of business executives—was not significant, though this might just reflect an inadequate indicator. I tried substituting various other measures of the size of state or extent of economic intervention into Table 2 model 4—the share of state-owned enterprises in economic output in 1978-91; the total of local, regional and central tax revenue as a percent of GDP; estimated general government spending

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electoral data archive) in model 4 in Table 2. This required losing 11 observations. Still, the British heritage variable remained highly significant with almost exactly the same coefficient.

[31] Freedom House also compiles an index of "civil liberties". However, since the questionnaire used to construct this itself contains a question on corruption it would be inappropriate to use this to itself explain relative corruption levels.

as a percent of GDP; the estimated total number of central and local government employees as a percent of the total labor force; and, finally, the average black market exchange rate premium in 1974-89. None of these was significant. There was no significant evidence that higher estimated central government wages (at least as a percent of per capita GDP) led to less corruption, though the lack of a suitable instrument to run 2SLS means such results are not at all conclusive. Finally, economic openness as measured by the share of imports in GNP could not be firmly linked to lower corruption. I tried substituting for this measure several others—a dummy for whether the country was "open" to international trade by 1994 as judged by Sachs and Warner (1995), and a measure of trade intensity constructed by Leamer (1988). Again, neither of these was significant.

Two variables were not included in the original regressions because sparse data meant this would require dropping a large number of cases. I therefore experimented including them in regressions along with the three most significant variables—log per capita GNP, former British colony dummy, and federal state. First, when the World Values Survey's level of generalized trust is included in a weighted least squares regression, it is significant, suggesting higher levels of trust are associated with lower corruption. Since trust is so clearly endogenous—a low level of

Table 5: "Perceived Corruption" and Generalized Trust

	WLS	2SLS
Log of 1994 GNP per capita	-3.32*** (.30)	-7.72** (3.47)
former British colony	-1.45*** (.50)	-2.94* (1.54)
federal state	1.17** (.44)	1.65** (.80)
generalized trust	-.04** (.01)	.10 (.10)
constant	17.80*** (1.05)	29.94*** (9.79)
Adjusted R square	.89606	.59276
F	65.66	20.29

N	30	53

Note: WLS estimates weight cases by 1/variance; dependent variable is corruption rating adapted so that 10 = most corrupt, 0 = least corrupt; standard errors in parentheses; * p < .10, ** p < .05, *** p < .01. 2SLS: in first round regressions, degrees north or south of the equator used as instrument for log GNP per capita; following La Porta et al. (1997a), as instrument for trust I use percent of population affiliated in 1980 with "hierarchical" religions (Muslim, Catholic, Eastern Orthodox). In second round regressions, cases weighted by 1/variance.

interpersonal trust might increase demand and supply of corruption, but high rates of corruption would themselves reduce the level of generalized trust—I tried running a 2SLS model. Following La Porta et al (1997a), I used the percentage of the population affiliated with "hierarchical religions"—Islam, Catholicism, or Eastern Orthodoxy—as an instrument for trust. (The two were correlated in this sample at .67.) These regressions are shown in Table 5. As can be seen, while the WLS regression does suggest that higher levels of trust are associated with lower corruption, the 2SLS estimate is not significant and has the opposite sign—suggesting the intepretation that causation runs from high corruption to lower trust rather than vice versa.

A second possibly relevant factor excluded from the earlier analysis because of data problems was the quality of the bureaucracy. Evans and Rauch (1997) have compiled an index for various developing countries of the extent to which their main economic bureaucracies recruit meritocratically and provide long-term, rewarding careers. When I add this to the WLS regression, as in Table 6, the coefficient estimate is insignificant. Since, however, this variable is also likely to be endogenous—a meritocratic bureaucracy may be better protected against corrupt individuals, but the more corrupt individuals there are running the bureaucracy the less likely is it to stay meritocratic—the WLS estimates are not reliable. Unfortunately, I was not able to find a good instrument for the "Weberian state" index, and so one must remain agnostic on the impact of this.

How robust are the main results discussed above? I ran several tests to assess their reliability. Besides experimenting with alternative specifications for some of the explanatory variables, as already described, I tried running regressions identical with those in Table 2 for Transparency International's 1997 perceived corruption ratings. The three main variables—log GNP per capita, federal status and British colonial history—were all highly significant in model 3, with coefficients similar to those estimated for the 1996 data. They were all also highly significant

when I ran a 2SLS regression identical to that in Table 4. In fact, the federal state dummy was even more significant and had a higher coefficient. The British colony dummy had a similar

Table 6: "Perceived Corruption" and "Weberian State": Weighted Least Squares

log of 1994 GNP per capita	-2.54*** (.25)
former British colony	-2.10*** (.34)
federal state	1.03*** (.29)
index of "Weberian state"	.00 (.06)
constant	14.88*** (.88)
Adjusted R square	.85604
F	33.71
N	22

Note: OLS estimates, with cases weighted by 1/variance; dependent variable is corruption rating adapted so that 10 = most corrupt, 0 = least corrupt; standard errors in parentheses; * p < .10, ** p < .05, *** p < .01.

coefficient, and the log GNP variable had a slightly larger coefficient in 1997. In the WLS regressions, the federal state dummy fell in significance (to the .14 level) when the state intervention index was included, suggesting perhaps that in part the greater perceived corruption in federal states may be caused by a tendency of such states to have greater state intervention in the economy. And the British colony variable fell in significance (to the .12 level) when continent dummies were included. Still, the results for these three variables remained among the strongest. The only variable that appeared robustly significant in the 1997 WLS regressions which had not

been in 1996 was the dummy for cabinet change or coups. It had a positive coefficient, suggesting that the more government instability there was, the greater was perceived corruption.[32]

Second, I performed a variation of Edward Leamer's "extreme bounds test" to see how robust the main findings were (Leamer 1985). The purpose of extreme bounds analysis is to assess how sensitive particular results are to which other explanatory variables are included in the regression. I ran WLS regressions including in each the three most significant variables—log GNP per capita, former British colony dummy, federal dummy—in combination with all possible trios of the remaining 8 explanatory variables from model 4 plus four alternative specifications—the press freedom index, Leamer's trade intensity index, ethnolinguistic fractionalization, and general government spending. The extreme bounds test requires that an explanatory variable remain significant at the .05 level with the same sign (ie, the coefficient minus twice the standard error must be of the same sign as the coefficient) in *all* the regressions with additional trios of possibly important explanatory variables included. This is a highly demanding test, of which one economist has written that "giving the label of nonrobust to all variables is all but guaranteed" (Sala-i-Martin 1997). However, two of the three variables did pass this version of the test, remaining significant in all 220 regressions. These were log GNP per capita and federal structure of the state.[33] The relationships between these two variables and perceived corruption therefore appears to be particularly robust. The British heritage dummy remained significant in all but one regression. Its significance fell below the .05 level only when the ethnolinguistic fractionalization, Leamer's trade openness index, and the index of state intervention were included together.[34]

Do the relationships between log GNP per capita, British heritage, federal structure and perceived corruption hold among countries of all levels of development? Or do they hold primarily among richer or poorer nations? In a recent study, Davoodi and Zou find a negative relationship

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[32] To what extent are the regression results affected by the weighting of cases by the inverse of their variance? Such weighting is definitely preferable on methodological grounds. Still, it is interesting to know whether the results would hold even without it. The answer is that they would. When the 2SLS model is run without the weighting, all three of the main results remain significant, with similar coefficients.

[33] Federal state structure did become only marginally significanct in one regression, dropping to a t score of 2.05.

between fiscal decentralization and growth among developing countries but not among developed ones (Davoodi and Zou nd). This prompted me to investigate whether the relationships between corruption and federal structure as well as the other variables held for both rich and poor countries. The answer to this question turns out to be complicated. At first sight, the strength of all the results appears to weaken as the sample of countries included becomes richer (see Table 7). When only those countries with 1994 per capita GNP above $10,000 are included in the sample, none of the three main factors is significant at the .05 level. While one would expect a drop in significance as the number of observations drops, this probably does not entirely account for the change.

However, a slight respecification in column 4 suggests a more complex view of the relationships. Income remains insignificant in explaining differences in corruption among the more developed countries even when one controls for linguistic division, press freedom, and never-colonized status (though endogeneity may still be a problem). While among the more developed countries former British colonies are not significantly less corrupt than never-colonized countries, they *are* perceived to be significantly less corrupt than the former colonies of other powers (this follows from the significant coefficient when one controls for never-colonized status). And if one controls for freedom of the press and linguistic division—both of which turn out to be correlated

Table 7: Do the Determinants of Corruption Change as the Sample Gets Richer? WLS Regressions, 1996 Perceived Corruption Ratings

Sample includes countries with 1994 GNP p.c.	(1) > $2,000	(2) > $4,000	(3) > $10.000 (a)	(4) > $10,000 (b)
Log 1994 per capita GNP	-4.87*** (.37)	-5.74*** (.78)	-3.71 (2.25)	-.41 (1.89)
Former British colony	-1.51*** (.33)	-1.22*** (.42)	-.83 (.58)	-2.73*** (.86)
Federal state	1.36*** (.32)	1.33*** (.39)	.97* (.55)	1.08** (.45)
Never a colony				-2.45** (.94)

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[34] However no pair of these variables was enough to render the British colony variable insignificant.

% not speaking most widely used language				-.03* (.01)
Press freedom (high = free)				-.05** (.02)
N	37	26	21	21

Dependent variable is 1996 corruption score, adjusted so 10 = highest corruption; cases weighted by inverse of variance; standard errors in parentheses; * p < .10, ** p < .05, *** p < .01.

with federal state structure among the more developed countries, and both of which are associated

with lower corruption—federal structure *is* still significantly related to higher perceived corruption.

The three variables log per capita GNP, former British colony and federal structure by

themselves explain about 88 percent of the variation in 1996 corruption ratings.[35] Can these factors

also explain high levels of perceived corruption in particular countries and regions—or are

additional, more difficult to quantify, cultural variables required to complete the picture?

Examination of the Transparency International ratings confirms that Africa, Eastern Europe, Asia,

Latin America and the Middle East are all perceived as being more corrupt than Western Europe

and North America. Latin America and Asia are also perceived as being more corrupt than the

average for all other continents.[36] However, Latin America is the only continent that remains

significantly more corrupt than Western Europe and North America—and than the average for

other countries—once one controls for income, British colonial heritage and federal structure.[37]

Including log GNP per capita in the regression is enough to render all the other continent

differences insignificant.

As for individual countries, the residual that cannot be explained by income, British

colonial heritage and federal structure is relatively small for Russia (about .8 of a corruption point).

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[35] This is the R^2 from a weighted regression of the corruption score on these three variables. An unweighted regression yields an R^2 of .81.

[36] These results are derived from regressing the 1996 corruption ratings (weighted by their variance) on continent dummies together (excluding Western Europe and North America) and separately.

Russia was presumably more corrupt because of low GNP per capita and federal state structure. Spain's residual is about 1.8 points—about twice the mean absolute value residual, and India's -1.1, suggesting that given its low income and federal status India might actually be expected to be *more* corrupt. But the residual for Italy is larger than for any other country—a dramatic 4.6 points of its corruption rating cannot be explained by these three factors (see Figure 1). In this case, a puzzle remains.[38]

[Figure 1 Here]

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[37] And it remains more corrupt even controlling for democratic rights, coups and cabinet change, imports, state intervention and the relative central government wage.

[38] One might note in a speculative vein that the level of perceived corruption in Italy dropped quite sharply between Transparency International's 1996 and 1997 ratings. The 1996 ratings were based on surveys from 1993-6, the 1997 ratings on those from 1996-7. The imprecision of the exercise makes it hard to guess whether this reflects a drop in perceived corruption to a level closer to that predicted by the analysis, or just a blip in the data.

V. CONCLUSION

Plenty of reasons exist to be cautious in interpreting the results of a study of this kind. The relationships between variables are almost certainly complex and multidirectional, and finding suitable instruments for them tends to be difficult. There is no guarantee that additional important variables have not been omitted. No empirical study is better than the data used.

Still, there are grounds for a relatively high level of confidence in the main results of this paper. The data used—an index of perceived corruption constructed by Transparency International—while of course based on subjective perceptions, have various clear advantages. Data for two different years were available. Each year's index was constructed on the basis of a relatively large number of separate surveys (10 and 7 for 1996 and 1997 respectively). The resulting indexes were highly correlated with each other—although constructed using different surveys—and highly correlated with certain other publicly available ratings of countries' perceived corruption. The 1997 rating was based on surveys of both business people and countries' domestic populations—surveys that turned out themselves to be highly correlated. The variance of the countries' ratings across the surveys used was also published, making it possible to ascribe less weight to observations on which the surveys disagreed. And the index's coverage was broad (especially for 1996), including countries from different continents and development levels.

Three factors were found to be highly significant in predicting countries' relative level of perceived corruption—log GNP per capita, federal state structure, and British heritage. These three factors by themselves explain about 88 percent of the variation in the 1996 ratings and about 87 percent of the variation in the 1997 ratings.[39] The three factors were robustly significant in the face of inclusion of other plausible determinants of corruption. In the case of GNP per capita, the use of 2SLS makes it possible to say with relative confidence that causation ran from development to lower corruption, whether or not it also ran in the reverse direction. While the impact of differences in income seems less significant when only developed countries are analysed, some evidence

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[39] Weighted by the inverse of the variance—or 77-80 percent of the variation in unweighted regressions.

suggests that federal structure and colonial heritage variables are important determinants of relative corruption levels even among the richer countries.

The association between economic development and lower corruption is not a surprising result, though it *is* revealing to see the hypothesis confirmed even when other plausible factors are controlled for and the endogeneity of development and corruption are taken into account. The other two results are much more unexpected, and provoke questions for future work. What particular aspect of the British legacy can be responsible for the lower levels of perceived corruption in former British colonies—and why are former Spanish or Portuguese colonies widely viewed as more corrupt? At present, only speculative conjectures can be offered.

Could such differences be traced to different motives of the original settlers? Diderot, writing about Europe's American colonies, decried the *soif d'or* of the conquistadores and contrasted this with the English, who in his view had traveled to the New World in search of freedom rather than money (Heywood 1996, pp.47-8). Yet, such differences grew far more blurred in later centuries, as strategic military considerations became a stronger motivation for Britain's imperial expansion than the fear of persecution on the part of religious minorities. Might the differences between former British and former Spanish colonies reflect the contrasting influences of Protestant and Catholic religious traditions? Statistical tests suggest otherwise: British colonial heritage remained significant even controlling for the proportion of Protestants in the population. Could lower corruption in former British colonies reflect greater historical experience there with representative institutions and local self-government? While this did mark out British colonies in the Americas from those of the Spanish, Portuguese and French, Britain's 19th Century tropical acquisitions were not entrusted with such civic autonomy. By the mid-19th century, according to one expert, the "majority of [Britain's] colonies were now ruled autocratically" (Fieldhouse 1982, pp.246-7). And statistical tests suggest that it is not just the early British colonies in the US, Australia, New Zealand or Ireland that today have lower perceived corruption—the later acquisitions, from Hong Kong to Uganda, are also viewed as less corrupt than other former colonies, other things being equal. Perhaps the result might issue from Britain's

earlier and more profound embrace of free trade after 1830. While all the European empires were mercantilist until the mid-19th Century, Britain's conversion was more complete and long-lasting. Yet, it is hard to understand why this historical experience would be more significant than *current* differences in openness to trade (which were controlled for in the regressions).

What particular logic of political interactions in a federal state can explain a generally higher level of perceived corruption? Does this imply that the disadvantage of having two semi-autonomous levels of government both of which can seek rents at the entrepreneur's expense tends to outweigh the beneficial effect of competition between jurisdictions? The index of perceived corruption used in this study conflates what might be thought of as two dimensions of corruption—the frequency of corrupt transactions in a country and their aggregate cost in bribes. It is possible that while corruption might be more frequent in federal countries, the competition between jurisdictions might keep the size of bribes low. For now, these questions await future research. Further work with new data and a broader search for appropriate instruments may also make it possible to reach less equivocal conclusions on some of the other factors such as the influence of democratic institutions and the extent of state intervention.

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APPENDIX

TABLE A1: Main Explanatory Variables Employed in the Study

VARIABLES CONSIDERED ENDOGENOUS	SOURCE
Development:	
log GNP per capita 1994 ($ US) **loggnppc**	World Bank, *World Development Report 1996*, pp.188-9.
Recent Rapid Modernization	
Change in percent of population urban 1980-95 **urbpopgr**	World Bank, *World Development Report 1997*, pp.230-1.
Culture and Civic Engagement	
Percent answering "Yes" when asked "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" **trust**	World Values Survey, ICPSR, as reported in Shleifer 1997.
Openness to Foreign Trade	
Imports as a percentage of GNP 1994 **impgnp94**	calculated from World Bank, *World Development Report 1996*, pp.218-9, 188-9.
Leamer's adjusted trade intensity measure **Leam1**	Leamer (1988), pp. 180-83.
Number of years as of 1994 that the country's economy had been continuously "open" to foreign trade since 1950 **yearsope**	calculated from Sachs and Warner (1995)
Size of State and Extent of State Regulation	
Index of degree of state intervention **stateint**	Instituted for Management Development *World Competitiveness Report.* Based on question in

	Executive Opinion Survey, which surveyed 2515 executives in top- and middle management in countries around the world.
Central + regional + local tax revenues as percent of GDP **taxgdp**	calculated from IMF, *International Government Finance Yearbook*, 1993, and other sources.
General government spending as percent of GDP **gengovsp**	Instituted for Management Development *World Competitiveness Report.*
Incentives and Organization Within Bureaucracy	
Average central government wages as a multiple of GDP per capita **govwpcgd**	Schiavo-Campo et al. 1997
Index of "Weberian State"—"degree to which core state agencies are characterized by meritocratic recruitment and offer predictable, rewarding long-term careers" **Evrauch**	Evans and Rauch 1997
Political Stability or Instability	
Number of times in a year that a new premier is named and/or 50 percent of cabinet posts are occupied by new ministers, or a successful coup d'etat occurs (1980s) **govturno**	Banks 1994 (as presented in Easterly and Levine 1997's data set)
Dummy for war or civil war or revolution in country during 1980s **unrest**	Sivard 1993 + Banks 1994 (as presented in Easterly and Levine 1997's data set)
Civil Society and Democracy	
Index of Press Freedom, 1997 (high is *less* free) **freepres**	Freedom House
Index of democratic rights, 1993-4 (high is *less* democratic) **fhpol934**	Freedom House
VARIABLES CONSIDERED EXOGENOUS	
Colonial Heritage	
Dummies for "former British colony" **Britcolo**, for "former Spanish or Portuguese colony or Spain or Portugal", **Spanporc** and for "never a colony" **Noncolon**	Grier 1995
Legal Tradition	
Common law legal tradition **Englaw**	La Porta et al. 1997b
Ethnic Division	
Percent of population not speaking most widely used language **Gunn2**; percent not speaking official language **Gunn1**	Gunnemark 1991, as presented in Eaasterly and Levine 1997's data set
Ethnolinguistic fractionalization (probability that two randomly selected individuals in country belong to different ethnolinguistic groups) **Ethnolin**	*Atlas Narodov Mira*, as presented in Mauro 1995
Structure of State	
Federal dummy (1 if federation, 0 otherwise) **Federal**	Elazar 1995 and CIA World Factbook 1996
ADDITIONAL INSTRUMENTS USED	
Degrees of latitude north or south of equator **Northsou**	CIA World Factbook 1995
Natural log of country's area in square kms	from CIA World Factbook 1995

logarea	
Proportion of population affiliated Catholics **Catholic**	Barrett 1982
Percent of population affiliated with "strongly hierarchical religions" (Catholic, Muslim, Eastern Orthodox) as of 1980. (Following La Porta et al. 1997a.) **hierreli**	Barrett 1982

Table A3: Transparency International Ratings (10 = least corrupt, 0 = most corrupt)

Country	TI 1996 Rating	TI 1997 Rating
New Zealand	9.43	9.23
Denmark	9.33	9.94
Sweden	9.08	9.35
Finland	9.05	9.48
Canada	8.96	9.10
Norway	8.87	8.92
Singapore	8.80	8.66
Switzerland	8.76	8.61
Netherlands	8.71	9.03
Australia	8.60	8.86
Ireland	8.45	8.28
Unit.Kingd.	8.44	8.22
Germany	8.27	8.23
Israel	7.71	7.97
USA	7.66	7.61
Austria	7.59	7.61
Japan	7.05	6.57
Hong Kong	7.01	7.28
France	6.96	6.66
Belgium	6.84	5.25
Chile	6.80	6.05
Portugal	6.53	6.97
South Africa	5.68	4.95
Poland	5.57	5.08
Czech Rep.	5.37	5.20
Malaysia	5.32	5.01
South Korea	5.02	4.29
Greece	5.01	5.35
Taiwan	4.98	5.02
Jordan	4.89	---
Hungary	4.86	5.18
Spain	4.31	5.9
Turkey	3.54	3.21
Italy	3.42	5.03
Argentina	3.41	2.81
Bolivia	3.40	2.05
Thailand	3.33	3.06
Mexico	3.30	2.66
Ecuador	3.19	---
Brazil	2.96	3.56
Egypt	2.84	---
Colombia	2.73	2.23
Uganda	2.71	---
Philippines	2.69	3.05
Indonesia	2.65	2.72
India	2.63	2.75
Russia	2.58	2.27
Venezuela	2.50	2.77
Cameroon	2.46	---
China	2.43	2.88
Bangladesh	2.29	---
Kenya	2.21	---
Pakistan	1.00	2.53
Nigeria	0.69	1.76

Source: Transparency International. **Note: the data with which the regressions were run were adapted so that 10 = most corrupt, 0 = least corrupt.**

Table A4: Explaining "Perceived Corruption" Ratings 1996: Weighted Least Squares, "Old" and "New" British Colonies Separated

	(1)	(2)	(3)	(4)	(5)
Historical Traditions, Ethnic Composition					
"Old" British colony[a]	-5.00*** (.79)	-1.93*** (.55)	-2.14*** (.43)	-2.20*** (.66)	-2.47** (1.08)
"New" British colony[b]	-1.15 (.77)	-1.69*** (.44)	-1.99*** (.33)	-1.88** (.70)	-1.72 (1.07)
Never a colony	-3.90*** (.68)	-1.56*** (.45)	-1.03*** (.37)	-1.11* (.58)	-1.45 (1.04)
Percent of pop. not speaking most widely used language	.02 (.01)	-.00 (.01)	-.02*** (.01)	-.01 (.01)	-.02 (.02)
Economic Development					
Log of 1994 GNP per capita		-3.12***	-3.20*** (.35)	-2.16*** (.34)	-2.15* (.73) (1.10)
Change in % of population urban 1980-95		.06* (.03)	.05* (.03)	.06* (.03)	.06 (.04)
Political Order and Structure of State					
Index of democratic rights 1993-4: high = *less* democratic			.17 (.12)	.24 (.18)	.23 (.24)
Major cabinet changes or coups yearly in 1980s			(.17)	.20 (.27)	.15 .26 (.44)
Federal state			1.42*** (.26)	1.10*** (.39)	1.03* (.56)
Policy Outcomes					
Extent of state intervention index: high = *less* intervention				(.33)	-.46 -.49 (.40)
Economic openness: imports/GNP 1994				-.54 (.89)	-.48 (1.18)
Average central govt. wage as multiple of gdp per capita				.33 (.24)	.30 (.42)

Table A4: (cont.)

	(1)	(2)	(3)	(4)	(5)
Continent Dummies (excluded category = W Europe and N America)					
Asia					.06 (.78)
Africa					-.32 (2.94)
Eastern Europe					.16 (2.15)
Latin America					-.34 (1.56)
Middle East					-.75 (1.34)
constant	6.19*** (.60)		16.79*** (1.43)	16.05*** (1.39)	13.35*** (2.66) 13.87*** (4.27)
Adjusted R square	.572	.875	.938	.934	.918
F	18.34	57.92	78.29	41.21	23.41
N	52	49	46	34	34

Note: OLS estimates, with cases weighted by 1/variance; dependent variable is corruption rating adapted so that 10 = most corrupt, 0 = least corrupt; standard errors in parentheses; * $p < .10$, ** $p < .05$, *** $p < .01$.
[a] "Old" British Colonies = New Zealand, Canada, Australia, Ireland, USA.
[b] "New" British Colonies = Singapore, Israel, Hong Kong, South Africa, Malaysia, Jordan, Egypt, Uganda, India, Bangladesh, Kenya, Pakistan, and Nigeria.