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Sources of Corruption: A Cross-Country Study

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Why is government corruption more pervasive in some societies than in others? In this article we examine public choice explanations that attribute corruption to a lack of competition in either political or economic arenas or both. The principal part of our analysis draws on recently-published data about levels of corruption for a broad cross-section of countries reported for the early 1980s. We supplement this with an additional analysis of a second dataset on corruption measured during the late 1980s. Our analyses confirm that political competition affects level of corruption, but this effect is nonlinear. Corruption is typically lower in dictatorships than in countries that have partially democratized. But once past a threshold, democratic practices inhibit corruption. However, we obtained mixed results with respect to the relationship of economic competition and corruption: government size does not systematically affect corruption, but membership of the Oil Producing and Exporting Countries (OPEC) does. Finally, corruption is more pervasive in low-income countries which tend to underpay public sector employees.

Why is government corruption more pervasive in some countries than in others? This question intrigued scholars studying developing countries in the 1960s, because the presence of corruption represented an apparent anomaly. The decolonization that began after the Second World War and that culminated around 1960 was supposed to have generated many new liberal democratic states. After all, nationalism and the attack on colonialism were both legitimized in democratic terms, and the key political actors of the day equated self-government and democratic government.[1] Observed performance in many of the new states fell far short of these expectations, however, and in rapid order. Indeed, the problems of personal rule and corruption that became abundantly clear shortly after independence have often continued unabated since, as evidenced most visibly by the long-lived regimes of former presidents Mobutu and Suharto of Zaire and Indonesia, respectively.

Our purpose is to offer a systematic accounting for observed cross-country differences in corruption. The principal part of our analysis draws on data about levels of corruption for a broad cross-section of countries reported for the early 1980s. We supplement this with an additional analysis of a second dataset on

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[1] Rupert Emerson, *From Empire to Nation: The Rise to Self-Assertion of Asian and African Peoples* (Cambridge, Mass.: Harvard University Press, 1960); and Edward Shils, 'The Fortunes of Constitutional Government in the Political Development of the New States', in Jon H. Hallowell, ed., *Development: For What*? (Durham, NC: Duke University Press, 1964), pp. 103–43.

corruption measured during the late 1980s for a slightly smaller set of countries. The period covered by our study is noteworthy because it largely encompasses the 'third wave' of democratization that began in 1974.[2]

THE ISSUES

Two arguments were initially advanced to explain the incidence of corruption in the newly sovereign states. The first took a cultural approach, suggesting that corruption stems from social norms that emphasize gift-giving and loyalty to family or clan, rather than the rule of law. Within this approach, two branches existed. So-called moralists, such as Banfield, and Wraith and Simkins, argued that these norms and the corrupt behaviour they elicit are economically harmful and politically amoral or even immoral,[3] while Wertheim and others simply observed differences in norms and their consequences.[4] The second explanation of corruption stimulated by events in the new states, a revisionist approach, attributed the phenomenon to a country's particular stage of development. Within the revisionist school, some scholars argued that corruption is efficiency-enhancing; it helps alleviate problems of capital formation and administrative inflexibility characteristic of modernizing economies.[5] These writers suggested that corrupt practices facilitate development and wane when countries reach a certain level of economic development, presumably advanced industrial status. Others, most notably Scott, agreed that corruption was a by-product of the process of modernization, but were ambivalent about its efficiency consequences.[6] Nor did they view development as a necessarily teleological process.

The academic debate between culturalists and revisionists was never

[2] Samuel P. Huntington, *The Third Wave: Democratization in the Late Twentieth Century* (Norman: University of Oklahoma Press, 1991).

[3] Edward C. Banfield, *The Moral Basis of a Backward Society* (New York: Free Press, 1958); and Ronald E. Wraith and Edgar Simkins, *Corruption in Developing Countries* (London: Allen and Unwin, 1963).

[4] W. F. Wertheim, 'Sociological Aspects of Corruption in Southeast Asia', in Arnold J. Heidenheimer, ed., *Political Corruption: Readings in Comparative Analysis* (New Brunswick, NJ: Transaction Books, 1970), pp. 195–211; Robin Theobald, 'In Pursuit of the Patrimonial State, or What is "Modern" Bureaucracy?' (paper presented at the Third International Conference on Ethics in the Public Service, Jerusalem, Israel, June 1993); and Nico G. Schulte Nordholt, 'Corruption and Legitimacy in Indonesia: An Exploration', in Heleen E. Bakker and Nico G. Shulte Nordholt, eds, *Corruption and Legitimacy* (Amsterdam: SISWO Publication 393, 1996), pp. 65–93. Referring to Indonesia, Schulte Nordholt notes (p. 69) that 'the "reward" for a favorable attitude, based on patrimonial principles, is still used without being directly associated with corruption. The reward is considered as an expression of affection rather than an attempt at bribery, as long as the reward is kept within reasonable (according to local standards) limits.'

[5] Nathaniel H. Leff, 'Economic Development through Bureaucratic Corruption', *American Behavioral Scientist*, 8 (1964), 291–303; and Samuel P. Huntington, *Political Order in Changing Societies* (New Haven, Conn.: Yale University Press, 1968).

[6] James C. Scott, *Comparative Political Corruption* (Englewood Cliffs, NJ: Prentice-Hall, 1972).

satisfactorily resolved in the 1960s, in part because of data constraints,[7] and in larger part because academic interest in the issue of corruption waned. Observe, however, that both perspectives retain considerable currency.[8]

With the popularity during the 1970s of neo-Marxist approaches to development issues, the debate on causes of corruption became irrelevant. Corruption was no longer a puzzle, but simply an inevitable by-product of capitalist democracy and an intrinsically corrupt international capitalist system in which lower-class groups are routinely and systematically exploited. By the 1980s, however, neo-Marxist analyses began to lose favour, as the gap between their predictions and observed patterns became increasingly conspicuous. An expanding number of so-called peripheral countries in Asia and Latin America, for example, were developing rapidly (instead of underdeveloping), while socialist countries were performing much more poorly than expected. Moreover, neo-Marxist analyses did not recognize, let alone explain, variation in corruption between capitalist countries. This disjuncture between expectations and empirical observations encouraged scholars to adopt new approaches to explain politics in developing countries.

One such approach that has generated a cogent explanation of corruption originates with the public choice school.[9] While not without its loose ends, this approach is an advance over earlier accounts with their varying degrees of relativism and functionalism, and their broader failure to consider how incentive systems create and shape opportunities for corrupt behaviour.

At their core, public choice explanations of corruption attribute the phenomenon to a lack of competition in either or both economic and political arenas. Some scholars have focused on problems associated with intervention in economic markets.[10] They observe that government officials can restrict markets through their legislative and regulatory powers, and that officials can

[7] For a discussion of these constraints and other problems associated with previous single case and small-*N* studies of corruption, see Thomas D. Lancaster and Gabriella R. Montinola, 'Toward a Methodology for the Comparative Study of Political Corruption', *Crime, Law, & Social Change*, 27 (1997), 185–206.

[8] See, for example, Francis T. Liu, 'An Equilibrium Queuing Model of Bribery', *Journal of Political Economy*, 93 (1985); 760–81; Paul J. Beck and Michael W. Maher, 'A Comparison of Bribery and Bidding in Thin Markets', *Economic Letters*, 20 (1986), 1–5; Donald H. D. Lien, 'A Note on Competitive Bribery Games', *Economic Letters*, 22 (1986), 337–41; Theobald, 'In Pursuit of the Patrimonial State'; Schulte Nordholt, 'Corruption and Legitimacy in Indonesia'; Gurharpal Singh, 'Understanding Political Corruption in Contemporary Indian Politics', *Political Studies*, 45 (1997), 626–38; and Seymour Martin Lipset and Gabriel Salman Lenz, 'Corruption, Culture, and Markets', in Lawrence E. Harrison and Samuel P. Huntington, eds, *Culture Matters: How Values Shape Human Progress* (New York: Basic Books, 2000), pp. 112–24.

[9] For a recent comprehensive survey of the public choice literature on corruption, see Susan Rose-Ackerman, *Corruption and Government: Causes, Consequences and Reform* (New York: Cambridge University Press, 1999).

[10] See, for example, Gordon Tullock, 'The Welfare Costs of Tariffs, Monopolies and Theft', *Western Economic Journal*, 5 (1967), 224–32; Anne O. Krueger, 'The Political Economy of the Rent-seeking Society', *American Economic Review*, 64 (1974), 291–303; Jagdish N. Bhagwati, 'Directly Unproductive, Profit-seeking (DUP) Activities', *Journal of Political Economy*, 90 (1982),

also distribute highly lucrative government contracts. Such mechanisms provide the wherewithal for officials to create extra-normal profits or rents for private economic actors, or to distribute rents from one set of actors to another. This ability to intervene in markets gives officials a distinctive opportunity to extract bribes from those affected by laws and regulations. Moreover, as Scully argues, and as Goel and Nelson demonstrate in their analysis of state governments in the United States, all else equal, greater intervention in terms of size and scope of government increases the supply of rents, and correspondingly, corrupt behaviour.[11] Hence the common claim that minimizing corruption requires decreasing government intervention in the economy and the number of government officials with discretion over economic activities.[12]

Public choice theorists who focus on political markets agree that the ability to intervene in markets provides government officials with the incentive and opportunity to extract bribes, but they are less sanguine about the latter prescription to the extent that it implies authoritarian rule.[13] Thus, they focus on other conditions that limit officials' incentives and opportunities to engage in corrupt behaviour. Rose-Ackerman suggests that competition between politicians and also between bureaucrats minimizes corruption in government. If constituents can replace politicians, or clients can readily reapply for bureaucratic privileges from different officials, individual officials have fewer incentives to engage in corruption.[14] Moreover, if public officials are well paid, they will value their positions more highly and will have fewer incentives to jeopardize those positions by engaging in corrupt behaviour.

Rasmusen and Ramseyer further suggest that, all else equal, decision-making *groups* such as democratic legislatures will supply more rent-creating or rent-redistributing policies than decision-making *individuals* (such as authoritarian leaders). But because it is more difficult for groups to co-ordinate, individual legislators are forced to take smaller bribes than the costs they incur. Since they cannot capture high bribes and yet must suffer the externality costs of policies passed by their colleagues as well as corrupt behaviour by bureaucrats, democratic politicians will be more likely than authoritarian leaders to pass anti-corruption policies and to ensure that they are enforced.[15]

(F'note continued)
988–1002; and Fred S. McChesney, *Money for Nothing: Politicians, Rent Extraction, and Political Extortion* (Cambridge, Mass.: Harvard University Press, 1997).

[11] Gerald W. Scully, 'Rent-seeking in US Government Budgets, 1900–88', *Public Choice*, 70 (1991), 99–106; Rajeev K. Goel and Michael A. Nelson, 'Corruption and Government Size: A Disaggregated Analysis', *Public Choice*, 97 (1998), 107–20.

[12] Daniel Kaufman, 'Corruption: The Facts', *Foreign Policy*, 107 (1997), 114–31.

[13] Although he does not discuss nondemocratic regimes, possibly the strongest version of this argument is provided by Donald Wittman, *The Myth of Democratic Failure: Why Political Institutions Are Efficient* (Chicago: University of Chicago Press, 1995).

[14] Susan Rose-Ackerman, *Corruption: A Study in Political Economy* (New York: Academic Press, 1978). See also Andrei Shleifer and Robert W. Vishny, 'Corruption', *Quarterly Journal of Economics*, 108 (1993), 599–617.

[15] Eric Rasmusen and J. Mark Ramseyer, 'Cheap Bribes and the Corruption Ban: A Coordination Game Among Rational Legislators', *Public Choice*, 78 (1994), 305–27.

Thus, one mechanism through which political competition reduces corruption is the re-election imperative, which lowers the demand for bribes.

Political competition is posited to reduce corruption in two additional ways. First, the freedom of information and association characteristic of democracies helps monitoring of public officials, thereby limiting their opportunities for corrupt behaviour. Secondly, the possible turnover of power in democracies implies that politicians cannot always credibly promise that particular laws and regulations will continue in the future. This minimizes the size of bribes that rent-seekers are willing to pay.[16] Public choice theorists thus argue that competitive democracies as well as markets are necessary conditions for honest government.

The argument that state intervention in the economy and weak political competition facilitate corruption appears to fit well with the experience of a number of developing countries. For example, Wade found in India that giving bureaucratic agencies monopoly control over particular resources results in bribery, both from clients seeking those resources and from poorly-paid bureaucrats looking for transfers to more lucrative posts.[17] Similarly, Morris reported that corruption increased during the late 1970s in Mexico after an oil boom and dramatic increase in public investment.[18] Moreover, public choice theories received an additional boost in the early 1990s, when a series of corruption scandals in Italy and Japan reignited academic interest on the issue of corruption.[19] Both countries had long-standing ruling parties that intervened substantially in the economy, and scholars examining the two countries in the wake of the scandals found that each suffered from systemic corruption.[20]

However, the selective invocation of particular cases does not in itself substantiate the argument, and other instances raise questions about the empirical basis for public choice theories. For example, corruption in a number of post-communist countries has been on the rise, despite moves towards democracy and free market policies.[21] Corruption also appears to have increased

[16] Fred S. McChesney, 'Rent Extraction and Rent Creation in the Economic Theory of Regulation', *Journal of Legal Studies*, 16 (1987), 101–18.

[17] Robert Wade, 'The Market for Public Office: Why the Indian State is not Better at Development', *World Development*, 13 (1985), 467–97.

[18] Stephen Morris, *Corruption and Politics in Contemporary Mexico* (Tuscaloosa: University of Alabama Press, 1991).

[19] Paul Heywood, 'Political Corruption: Problems and Perspectives', *Political Studies*, 45 (1997), 416–35.

[20] Silvia Colazingari and Susan Rose-Ackerman, 'Corruption in a Paternalistic Democracy: Lessons from Italy for Latin America', *Political Science Quarterly*, 113 (1998), 447–70; Donatella della Porta and Alberto Vanucci, 'The "Perverse Effects" of Political Corruption', *Political Studies*, 45 (1997), 516–38; Ronald J. Hrebenar, 'The Money Base of Japanese Politics', in Ronald J. Hrebenar, ed., *The Japanese Party System* (Boulder, Colo.: Westview, 1992); Chalmers Johnson, 'Tanaka Kakuei, Structural Corruption, and the Advent of Machine Politics in Japan', *Journal of Japanese Studies*, 12 (1986), 1–28; Taro Yamama, 'The Recruit Scandal: Learning from the Causes of Corruption', *Journal of Japanese Studies*, 16 (1990), 90–114.

[21] Federico Varese, 'The Transition to the Market and Corruption in Post-socialist Russia', *Political Studies*, 45 (1997), 579–96.

in some Latin American countries *after* they substituted neoliberal economic reforms for active state economic intervention.[22] In fact, we lack systematic empirical evidence on a number of key points. For example, it has yet to be established that democracy does in fact reduce corruption. Similarly, despite a number of sustained and intriguing arguments, we simply do not know whether state intervention in the economy itself increases corruption. Below, we shed some light on these questions.

In contrast to the 1960s, we can now employ relatively reliable cross-national data to address these issues. These come from surveys conducted by private risk analysis firms. Respondents are surveyed on various conditions in countries with which they are familiar. The conditions of most interest include respondents' perceptions of the degree to which business transactions in those countries involve corruption and the integrity of each country's judicial system. We discuss these measures further below.

To date, there are few systematic cross-country analyses using such data on corruption. In perhaps the best-known study, Mauro uses data gathered by the firm Business International (hereafter BI) to show that corruption lowers investment, thereby reducing economic growth.[23] This result is significant because it undermines the revisionist theory of corruption, which touted the phenomenon's efficiency-enhancing qualities. Corruption may be more common at a specific stage of development, but Mauro's work shows that its cause cannot be its functional nature.

Three other studies, all by Ades and Di Tella, focus directly on the causes of corruption.[24] In the first, using data for corruption from the survey section of the *World Competitiveness Report* (hereafter *WCR*), a publication of the EMF Foundation in Geneva, Ades and Di Tella conclude that corruption is higher in countries with an active industrial policy. The use of industrial policy to promote 'national champions' is measured using two other indices from the *WCR* surveys and two 'harder' indicators of industrial policy. The subjective indices are based on responses to questions regarding 'the extent to which public procurement is open to foreign bidders' and 'the extent to which there is equal fiscal treatment to all enterprises.' The objective indicators include the amount of monetary subsidies to private and public enterprises and the amount of subsidies to manufacturing as a percentage of sectoral gross domestic product (GDP). In their second study, Ades and Di Tella find that increases in market competition and judicial autonomy dampen corruption. This time, they use data on

[22] Luigi Manzetti and Charles Blake, 'Market Reforms and Corruption in Latin America', *Review of International Political Economy*, 3 (1996), 671–82; Kurt Weyland, 'The Politics of Corruption in Contemporary Latin America', *Journal of Democracy*, 9 (1998), 108–21.

[23] Paulo Mauro, 'Corruption and Growth', *Quarterly Journal of Economics*, 110 (1995), 681–712.

[24] Alberto Ades and Rafael Di Tella, 'National Champions and Corruption: Some Unpleasant Interventionist Arithmetic', *Economic Journal*, 107 (1997), 1023–42; Ades and Di Tella, 'The New Economics of Corruption: A Survey and Some New Results', *Political Studies*, 45 (1997), 496–515; Ades and Di Tella, 'Rents, Competition, and Corruption', *American Economic Review*, 89 (2000), 982–93.

corruption and judicial autonomy from surveys by BI, while market structure is measured in terms of openness to foreign trade using imports as a percentage of GDP.[25] In their most recent work, Ades and Di Tella develop a formal model of the relationship between market competition and corruption and refine their previous empirical analyses with additional measures of competition.

The availability of cross-national data on corruption has clearly begun to foster new systematic studies, and those by Ades and Di Tella are critical first steps. Among other things, they provide some support for those public choice theories that stress the importance of market competition for minimizing corruption and the importance of institutional arrangements, such as an independent judiciary, capable of minimizing government officials' incentives and opportunities to engage in corruption. At the same time, their analyses suffer from a serious weakness. Specifically, each includes measured variables on each side of the regression equation that originate from country rankings *by the same informants*. These common sources mean that critical variables may be subject to correlated errors stemming from respondents' biases. For example, respondents who perceive public procurement in a particular country to be closed to foreign bidders may also be predisposed to rate the same country as corrupt. Ades and Di Tella are themselves aware of this problem and attempt to address it in their first study by using 'harder' indicators for their key variables. In the process, however, data constraints force them to decrease the number of cases examined from an already relatively low thirty-two to as few as sixteen, so that their results are affected by both small-*N* and sample composition issues.

While these recent studies have considerably advanced our understanding of corruption, much clearly remains to be done. This article draws on its predecessors to offer a fresh analysis of the sources of corruption. In general terms, we pursue a theme of the various public choice approaches that emphasizes how various forms of *competition* can reduce corruption. We address this theme in the context of the following three distinct empirical hypotheses.

First, we hypothesize that *more competitive political structures inhibit corruption*. As observed above, the competition associated with such institutions means that democratic political leaders routinely experience a distinctively high risk of being replaced. The electoral process in most democracies ensures the possibility of substantial alternation in office for individual leaders and parties. Of course, in a small minority of 'uncommon' democracies, particular political parties have enjoyed dominance for prolonged periods, but even here there is typically considerable turnover in party (and hence government)

[25] Sandholtz and Koetzle similarly report that openness to trade influences a country's level of corruption (Wayne Sandholtz and William Koetzle, 'Accounting for Corruption: Economic Structure, Democracy and Trade', *International Studies Quarterly*, 44 (2000), 31–50). However, they attribute this effect to norms rather than to the structure of incentives and opportunities faced by individuals and firms.

leadership.[26] This turnover of individual leaders should minimize the opportunities for corrupt behaviour. The effect of this political competition is enhanced by the size of the effective selectorate, that is, the subset of the population engaged in the process of leadership selection. The selectorate is typically much larger in more democratic environments than in autocracies and other systems of personal rule. Policy making in democratic environments is thus more transparent than it is in their principal alternatives. Such transparency itself should further dampen the incentives for corruption.

Our second hypothesis focuses on the possible effects of government size. Specifically, we examine the proposition that *larger governments generate more corruption*. As noted above, the standard argument has been that regulation and other forms of market intervention typically associated with and facilitated by larger public sectors distort competition and introduce opportunities for rent-seeking by particular economic and political actors. Although rent-seeking activities such as lobbying do not necessarily involve corrupt behaviour, larger bureaucracies are taken to be a standing invitation to corruption. The more contracts a government has to offer, the more incentives private sector actors have to bribe officials authorized to dispense contracts. The more lucrative the contracts, the higher are the bribe prices that officials can extort. The presumed relationship between government intervention and corruption is one of the rationales for the adoption of neoliberal economic reforms, which includes reducing the government's role in the economy. There is thus a strong rationale to test this hypothesis, which we address in two complementary ways. We include government size (reflected by the share of GDP consumed by government) as an explanatory variable. Additionally, we distinguish the Oil Producing and Exporting Countries (OPEC) members from other states, on the grounds that OPEC states are distinctive in their high degree of direct engagement in national economic issues, for reasons elaborated below.

Finally, we examine the proposition that *the incidence of corruption is lower in countries with higher levels of economic development*. We use level of economic development as a proxy for the level of public sector wages because adequate data on wages are unavailable. As we have already suggested, higher wages in the public sector are expected to lower the incidence of corruption by reducing incentives to engage in corrupt behaviour and by increasing its costs. Poorly-paid government officials are subject to increased pressure to supplement their incomes with bribes, while highly-paid officials have more to lose if caught engaging in corrupt practices. We recognize, of course, that there is huge variance (inequality) in earnings everywhere. Further, we have known since at least the pioneering work of Kuznets that the relation between economic development and this inequality is nonlinear, and that, in the early stages of economic development at least, the mean wage rises more quickly than does the

[26] T. J. Pempel, *Uncommon Democracies: The One-party Dominant Regimes* (Ithaca, NY: Cornell University Press, 1990).

median wage.[27] Bearing this in mind, our hypothesis rests on the simple premise that wages are on the average higher across all economic sectors in wealthier countries. This implies, among other things, that wages for public sector employees also increase with economic development, an expectation that is consistent with the available, but limited, data.[28]

DATA

Our primary data on corruption are from Mauro, who analysed a large number of non-communist countries for the period 1980–83.[29] As noted above, Mauro draws on material collected by Business International (BI). Now part of The Economist Intelligence Unit, BI is a private company that sells its information to banks, international investors and other commercial groups. BI gathered data on some fifty-six 'country risk' factors, by surveying its network of analysts in the countries concerned. These respondents score the country to which they have been assigned on a scale from 1 (most corrupt) to 10 (least corrupt).

Of the many features addressed in BI surveys, Mauro focuses on the following three:

(1) *Legal system and judiciary.* 'Efficiency and integrity of the legal environment as it affects business, particularly foreign firms.'
(2) *Bureaucracy and red tape.* 'The regulatory environment foreign firms must face when seeking approvals and permits. The degree to which it represents an obstacle to business.'
(3) *Corruption.* 'The degree to which business transactions involve corruption or questionable payments.'

Mauro argues that these three indicators are usefully averaged into an index of 'bureaucratic efficiency'. Accordingly, his analysis of the impact of corruption on investment and growth centres largely on this three-item index.

Mauro's procedure is certainly consistent with the correlations among the three indicators, which range between 0.77 and 0.80 ($N = 66$). On face validity grounds, however, the *bureaucracy and red tape* indicator appears out of place in the sense that it appears to reflect institutional efficiency rather than corruption. While we might expect a relationship between these two concepts, they are not equivalent. In contrast, the remaining two indicators have explicit reference to 'integrity' and 'corruption', respectively. Accordingly, our

[27] Simon Kuznets, 'Quantitative Aspects of the Economic Growth of Nations, VIII: The Distribution of Income by Size', *Economic Development and Cultural Change*, 11, part II (1963), whole issue; and Mancur Olson, 'Rapid Growth as a Destabilizing Force', *Journal of Economic History*, 23 (1963), 529–52.

[28] The correlation between the average wage of central government employees, around 1980, and 1980 GDP per capita is a high 0.88 for the thirty countries for which data are available. Given the limited geographical coverage of the wage data, however, we rely on per capita GDP in the following analyses. Government wage data are from Peter S. Heller and Alan A. Tait, *Government Employment and Pay: Some International Comparisons* (Washington, DC: International Monetary Fund Occasional Paper No. 24, 1984), Table 27.

[29] Mauro, 'Corruption and Growth', Appendix 3.

analyses report results using the average country scores on the *legal system and judiciary* and *corruption* indicators. However, similar results to those reported below are obtained when either Mauro's three-item index or the single 'corruption' item is substituted for our two-item measure.

Because they are generated from surveys of knowledgeable informants, the BI data reflect perceptions of corruption, not a count of its incidence. Thus, the data cannot be used to estimate such quantities as the monetary costs of corruption in a given setting. They are instead best taken to gauge variations across countries in the overall *climate* of corruption. While this climate may be defined by (informed) perceptions, Mauro shows that it has direct and crucial implications for quite concrete decisions, including those about the location and timing of investments by both domestic and foreign commercial interests. Indeed, the individuals representing such interests have strong incentives to gauge corruption as accurately as possible.

One might, of course, raise objections to the BI measure. For example, it could be argued that when access to information is restricted, respondents may tend to underestimate the incidence of corruption. However, the reported high levels of corruption in such information-poor environments as Indonesia and Zaire imply that this is not a systematic problem. Similarly, it might be suggested that when a major scandal surfaces shortly before the time of the survey, respondents may overestimate corruption. In the measure we employ, this potential problem is minimized in that the data refer to a four-year period, as opposed to a briefer interval of one year or less. Finally, the quality of the data hinges critically on the clarity of the guidelines for evaluating corruption given to respondents, since respondents may have different conceptions of what constitutes corruption. Here, BI goes to great lengths to ensure that the expert raters have clear guidelines on the definition, forms and loci of corruption under consideration, and specific instructions on what each value on the scale 0–10 represents.

Similar issues can, of course, arise with alternative methods of collecting data. Consider the use of press reports, judicial records and records from anti-corruption agencies to gauge the incidence of corruption. Such documentary evidence forms an imperfect measure of the actual incidence of corruption, since many incidents are never discovered or prosecuted, especially in corrupt environments. Furthermore, press and government agencies in different countries are more likely to have varied conceptions of corruption, and varying styles of data collection across countries are likely to result in more coverage of particular types of corruption in some countries than in others. Given these issues, we believe that the BI index is one of the better measures of corruption available to researchers.[30]

As a further check, we replicate our work with an alternative measure of corruption, the Corruption Perceptions Index (CPI) provided by Transparency International (TI).[31] TI is an international non-governmental organization

[30] See Lancaster and Montinola, 'Methodology for the Comparative Study of Political Corruption', for a more detailed discussion and evaluation of corruption measures.

[31] For information on Transparency International and their Corruption Perceptions Index, see TI's webpage: www.transparency.de/index.html.

whose stated goals are to increase government accountability and to curb both international and national corruption. TI does not itself collect data on corruption, but has a strong interest in ensuring the reliability of the data it provides. TI combines survey results from different organizations, thereby creating a 'poll of polls'. This ensures that the perceptions of a significantly wider population are surveyed and increases the reliability of the data by minimizing the effects of any biases of individual surveys.

The TI data for 1980–85, the period analogous to that of our BI data, are based on only two surveys, including that of BI. They are, therefore, not substantially more reliable than the BI data, and are available for fewer cases. But the 1988–92 CPI, which we use to replicate our work, is more comprehensive than its earlier counterpart. It comprises four surveys, two based on perceptions of political risk firms' staff experts and two drawn from surveys of both national and expatriate executives and middle managers in different countries. The most comprehensive survey in terms of respondents in the 1988–92 CPI includes contributions from around 2,500 individuals in thirty-six countries. The CPI shares the same metric as the BI index; it is scaled from 0 (high corruption) to 10 (low corruption), and each country's CPI score is the standardized average of its corruption scores in the original indices. The principal drawback of the TI measure is its more restricted country coverage. When the TI data are used for the second period, the *N* is reduced by almost 25 per cent (from sixty-six to fifty-one). Offsetting this, the TI data allow us to gauge if the patterns observed for the early 1980s are unique to that period. Similar patterns across periods increase our confidence in the reliability of our measures.

Explanatory Variables

Political democracy is gauged with a measure developed by Bollen and available through the Interuniversity Consortium for Political and Social Research (ICPSR). This measure is the average of three subjective indicators and an indicator of voter turnout. The three subjective indicators are fully discussed in Bollen, and reflect (a) freedom of group opposition (Banks), (b) political rights (Gastil), and (c) effectiveness of the legislative body (Banks).[32] For the main part of our analysis, the data refer to 1980, and Bollen provides a detailed analysis of the properties of the measure that pays particular attention to possible biases stemming from particular coding schemes. We have divided the original country scores by 10 so that they fall within the range of 0 to 10.

[32] See Kenneth A. Bollen, 'Liberal Democracy: Validity and Method Factors in Cross-national Measures', *American Journal of Political Science*, 37 (1993), 1207–30. The original data are from Arthur S. Banks, *Cross-National Times-Series Data Archive User's Manual* (Binghamton, NY: State University of New York at Binghamton, 1979), and Raymond D. Gastil, *Freedom in the World: Political Rights and Civil Liberties* (Westport, Conn.: Greenwood Press, 1985). The specific democracy scores we employ are available from Kenneth A. Bollen, *Cross-national Indicators of Liberal Democracy, 1950–1990* (Ann Arbor, MI: Interuniversity Consortium for Political and Social Research, Study No. 2532, 1999).

We include two aspects of direct government intervention in the economy. First, we examine the impact of public sector size in general terms. There are different ways of addressing this issue. One general approach focuses on the share of the labour force employed in the public sector, while another involves defining the variable in terms of the share of government in total consumption. We adopt the latter approach, largely in light of data availability considerations. Specifically, public sector size is defined as the government share of GDP, using data from the Penn World Table (version 5.6), and since this variable is positively skewed, we apply a natural logarithmic transformation.[33] We recognize that higher government expenditures may stem from higher public-sector wages, which as argued above should reduce corruption. Since no data are available for either number of public-sector employees or specific expenditure on wages, we cannot directly address this issue. However, we do include an indirect measure for level of public-sector wages – level of economic development – to control for this possible problem.

We examine the role of direct government intervention in a second way by including a dummy variable that equals 1 for OPEC states, and 0 otherwise.[34] OPEC is the most enduring international commodity cartel, and petroleum is the mainstay source of export revenues for each of its member states.[35] Most crucially for our purposes, in every OPEC state, the government acquires, owns and disposes of *all* oil revenues. Substituting for direct taxation, these revenues insulate political leaders from political demands and obligations and provide them with an unconstrained freedom to manoeuvre that is rare elsewhere. Indeed, the opportunities for rent-seeking thus generated are of a distinctively high scale. Thus, a well-placed analyst writes that these revenues are used to 'secure political peace, if not loyalty, ensure public employment as the first option, distribute patronage when effective and coopt the opposition whenever possible'.[36]

[33] The Penn World Table data are described in Robert Summers and Alan Heston, 'The Penn World Table (Mark 5): An Expanded Set of International Comparisons', *Quarterly Journal of Economics*, 106 (1991), 327–68.

[34] Countries belonging to OPEC are listed in Arthur S. Banks, *Political Handbook of the World, 1990* (Binghamton, NY: CSA Publications, 1990).

[35] While the question does not impinge immediately on our analysis, there has been much debate over the effectiveness of OPEC as a cartel, and OPEC has repeatedly been written off as ineffective in this regard (see, e.g., Fadhil J. Chalabi, 'OPEC: An Obituary', *Foreign Policy*, 109 (1997), 126–40). However, the best systematic evidence suggests that, at least since 1982, OPEC has indeed been a capable cartel (see S. Gürcan Gülan, 'Is OPEC a Cartel? Evidence from Cointegration and Causality Tests', *Energy Journal*, 17 (1996), 43–57).

[36] Jahangir Amuzegar, *Managing the Oil Wealth: OPEC's Windfalls and Pitfalls* (London: I.B. Tauris, 1999). Ades and Di Tella ('Rents, Competition, and Corruption') consider the potential effects of rents from natural resources on corruption, but find no statistically significant association between their proxy for rents from natural resources (fuel and mineral exports as a percentage of GDP) and corruption. We think that this result follows from their bundling of all fuels and mineral resources as equally corruptive. In contrast, our treatment reflects the view that oil production and the singular organizational features of OPEC create a set of incentives and opportunities quite distinct from that associated with the production of other natural resources.

Level of economic development is measured in terms of the natural logarithm of real GDP per capita using data from the Penn World Table (version 5.6) as described in Summers and Heston.[37] The particular measure we use is variable number 2 in the dataset, RGDPCH. Since the primary measure of corruption refers to 1980–83, Real GDP, like the other independent variables we introduce in this section, is measured at 1980. We employ a logarithmic transformation partly because the original variable is highly positively skewed, and partly in the expectation that the positive effect of economic development on corruption assumes a form of marginally declining returns with increasing development.

Appendix A reports the summary statistics for the variables just introduced. Missing data for two cases on some of the right-hand variables reduces the N from the sixty-eight listed by Mauro to sixty-six.[38] Note that we have followed Mauro's usage in that the measure of corruption is scored so that low scores reflect high-rated corruption, and vice versa. Bearing this in mind, the mean for this measure is slightly above the midpoint of the 10-point scale, but the distribution for this variable is reasonable, and the mean of 6.91 is indistinguishable from the median value of 6.92.

ANALYSIS

We begin with a simple model that casts corruption as a function of democracy, public sector size, OPEC membership and economic development. Specifically, we report regression estimates for corruption measured in terms of the two-item index of corruption (hereafter, Corruption). The first column of Table 1 displays the relevant ordinary least squares (OLS) estimates.

We find some evidence from the first column of the table that higher levels of democracy reduce corruption. The democracy estimate is positive, with a t-ratio of 1.7. Secondly, the estimates imply that larger governments are associated with *lower* levels of corruption. This pattern is noteworthy, given common claims that larger public sectors expand the incentives for rent-seeking behaviour, and thereby boost corruption. Indeed, these rent-seeking claims are consistent with the sign of the simple bivariate correlation of -0.20 between government size and corruption. However, public sector size is itself mildly correlated with economic development, and the sign of the zero-order government size coefficient is reversed with level of economic development

[37] Summers and Heston, 'The Penn World Table'. One might object that our inclusion of per capita GDP as an explanatory variable introduces endogeneity problems, given the evidence that corruption inhibits economic growth (see Mauro, 'Corruption and Growth'). However, national income levels are not the same as growth rates, and there is no bivariate correlation between the two. Indeed, more completely specified models of growth (including Mauro's) routinely control for initial per capita GDP, consistent with the conditional convergence approach to growth which implies that GDP has a negative *net* effect on subsequent growth. For discussion of and evidence on these issues, see Robert J. Barro, *Determinants of Economic Growth: A Cross-Country Empirical Study* (Cambridge, Mass.: MIT Press, 1997), pp. 8–18.

[38] The cases we analyse are listed in Appendix B1 attached to the website version of this article.

TABLE 1 *OLS Regressions of BI Corruption Index, 1980–83, on GDP Per Capita, Political Democracy, and Government Size*

Independent variable	Column 1	Column 2
Democracy80	0.083†	0.149*
	(1.68)	(2.49)
Democracy80²‡		0.038†
		(1.88)
Log Gov. size80	1.565*	1.314*
	(2.96)	(2.46)
OPEC member	− 1.965*	− 1.775*
	(3.93)	(3.54)
Log GDP/pop80	1.884*	1.681*
	(8.61)	(7.00)
Constant	− 13.316*	− 11.048*
	(4.90)	(3.83)
Adjusted R^2	0.66	0.67
F ratio	32.36	27.67

* $p < 0.05$, † $p < 0.10$, ‡ Democracy80² is the squared Democracy term for the quadratic specification.
Notes: $N = 66$; t-ratios are in parentheses below each coefficient; t-ratio for combined democracy effect in column 2 is 2.57.

controlled. At the same time, OPEC membership has a substantial net effect on corruption, suggesting that this form of rent-seeking has the anticipated effect.

Level of economic development measured in 1980 has a strong impact on corruption, 1980–83. Since lower scores on the corruption measure signify higher levels of corruption, the positive sign for this coefficient means that higher levels of GDP are associated with *lower* levels of corruption. Further, the logarithmic specification of GDP improves the fit over that obtained with the raw GDP scores (latter not displayed). This pattern comports well with expectations that the higher public-sector wages associated with economic development decrease the incentives for corruption, but that the marginal effects of GDP decline with increasing GDP.

As a first check on the estimates in column 1 of the table, we examined the partial regression plots. The partial plot for the democracy coefficient indicates that the effect of this variable may be non-linear. This impression was reinforced by the graph of the fitted values against Democracy 1980. Specifically, that graph suggests that, on the ten-point Democracy scale, there is no relationship between democracy and corruption on Democracy index values from 0 to about 6, but that movement above these index values is indeed associated with less corruption. To evaluate this possibility more systematically, we re-estimate the model with the net effect of democracy represented as a first-degree polynomial,

and the second column of Table 1 displays the revised set of estimates.[39] Comparing the two columns, we see that the first-degree polynomial generates a sharper estimate of the effect of democracy, with a combined *t*-ratio of 2.57. We provisionally conclude that the effect of democracy on corruption is nonlinear.

We probe these estimates further in two different ways. First, we consider the possibility that the estimated coefficients are serving as rough proxies for regional differences. Although the arguments are typically underdeveloped, a number of analysts have hinted that cultural differences associated with particular regions help foster corrupt behaviour. For example, it is sometimes suggested that the long-standing combination of weak but far-reaching states has resulted in distinctive patterns of corruption in the countries of Mediterranean Europe.[40] It has further been asserted that these patterns were exported directly to South America, where they have flourished since.[41] Indeed, Stepan notes pointedly that the term 'accountability' is not directly translatable into either Spanish or Portuguese: 'there simply is no word close to it'.[42] Similar claims have long been advanced about distinctively high levels of corruption in Asian countries.[43]

We gauge the robustness of our estimates against such claims by considering dummy variables for five commonly-identified regions (these dummies are contrasted against industrial Western countries). With only GDP controlled, there is apparent evidence of a regional basis to corruption. As seen in the first column of Table 2, the regional dummies for North Africa/Middle East and Latin America are both negative, of a similar size (indeed, statistically indistinguishable from each other), and each has a *t*-ratio around 2.0. These figures would seem to suggest that the two regions identified are more corrupt

[39] The introduction of the squared term in a polynomial regression typically introduces notable collinearity between the two individual coefficients estimated, thereby deflating their standard errors. To minimize this problem, we have followed a common procedure in the quadratic regressions and deviated the democracy scores around their mean, and squared the deviated democracy scores (see, e.g., Ralph A. Bradley and Sushil S. Srivastava, 'Correlation in Polynomial Regression', *The American Statistician*, 33 (1979), 11–14). Substantively, of course, we are estimating the effect of democracy on corruption, which means that we are concerned with the *combined* effect of the two democracy coefficients. A *t*-ratio for the combined effect is readily calculated by forming a new variable that is the sum of the two individual democracy variables (each weighted by its estimated regression coefficient), substituting this new variable for the two individual democracy variables, and re-estimating the model.

[40] See, for example, Paul Heywood, 'Continuity and Change: Analyzing Political Corruption in Modern Spain', in Walter Little and Eduardo Posada-Carbo, eds, *Political Corruption in Europe and Latin America* (New York: St Martin's, 1996), pp. 115–36.

[41] See, for example, Anthony McFarlane, 'Political Corruption and Reform in Bourbon Spanish America', in Walter Little and Eduardo Posada-Carbo, eds, *Political Corruption in Europe and Latin America* (New York: St Martin's, 1996), pp. 41–63.

[42] Alfred Stepan, 'Corruption in South America', in Duc V. Trang, ed., *Corruption and Democracy* (Budapest: Institute for Constitutional and Legislative Policy, 1994), p. 29.

[43] Compare Guy Wint, *Spotlight on Asia* (Harmondsworth, Middx: Penguin Books, 1955) with Lipset and Lenz, 'Corruption, Culture, and Markets'.

TABLE 2 *Robustness of Regressions of BI Corruption Index, 1980–83, on GDP Per Capita, Political Democracy and Government Size*

Independent variable	Column 1	Column 2	Column 3
Democracy80		0.169*	0.181*
		(2.23)	(3.15)
Democracy80²‡		0.043†	0.053*
		(1.97)	(2.72)
Log Gov. size80		1.181†	1.502*
		(1.89)	(2.91)
OPEC member		− 1.796*	− 1.588*
		(3.28)	(3.29)
Log GDP/pop80	1.691*	1.908*	1.608*
	(5.64)	(5.89)	(6.94)
N Africa/Mid East	− 1.341*	0.207	
	(2.21)	(0.28)	
Africa	0.017	1.134	
	(0.02)	(1.43)	
Latin America	− 1.418*	0.116	
	(2.26)	(1.43)	
Asia	− 0.612	0.696	
	(0.88)	(1.03)	
Caribbean	− 1.387	− 0.526	
	(1.56)	(0.65)	
Constant	− 6.550*	− 12.947*	− 11.227*
	(2.38)	(3.31)	(2.79)
Adjusted R^2	0.57	0.67	N/A
F ratio	15.19	14.29	30.10
Estimator	OLS	OLS	Robust

*$p < 0.05$, † $p < 0.10$, ‡ Democracy80² is the squared Democracy term for the quadratic specification.
Notes: $N = 66$; t-ratios are in parentheses below each coefficient; t-ratio for combined democracy effect in column 2 is 2.36, while the corresponding figure for column 3 is 3.38.

than others at similar stages of economic development, and by a factor of 1.5 on the ten-point corruption index. Among other things, Latin American countries would appear to have been more corrupt in the period, as suggested by many commentators. Yet the same cannot be said of Asian countries.

However, we are led to a different conclusion when the regional dummies are added to the model estimated in Table 1, column 2, as reported in Table 2, column 2. Comparing these figures with those in the second column of Table 1 shows that while the regional dummies slightly attenuate the main coefficients just discussed, the reduction is minimal. Furthermore, *none* of the estimates for the regional dummies remains statistically significant, and indeed those for the

two regions identified above are substantially diminished in the context of the larger model. Observe also that the addition of the regional dummies to the model has no appreciable effect on the fit. There is thus no evidence that the estimated coefficients in the second column of Table 1 are masking more fundamental regional or cultural differences.

As a final check, we use a robust regression procedure to ensure that the patterns just described do not hinge critically on any small minority of cases.[44] The results are shown in the third column of Table 2, and can be directly compared to the OLS estimates in Table 1, column 2. Clearly, the OLS estimates are relatively sturdy. To the limited extent that there are differences, the robust estimates again suggest that OLS slightly underestimates the net effects of democracy and government size on corruption, but we emphasize that the differences are minor.

We draw the following inferences about corruption in the early 1980s from these estimates. First, the political competitiveness associated with democracy impinges directly on corruption, although we find this effect to be nonlinear. Figure 1 charts the relationship between the fitted corruption scores (from the robust regression estimates in Table 2, column 3) and the original 1980 Democracy scores. Bearing in mind that the observed Corruption index is scored from 0 (high corruption) to 10 (low corruption), Figure 1 indicates that some authoritarian countries actually experience slightly less corruption than countries at intermediate levels of democracy, but that, beyond the intermediate level of political competitiveness, more competitive regimes are less prone to corruption. This suggests that the transition from non-democracies to only partially competitive democracies may generate a little more corruption, and that the pronounced corruption-inhibiting political competitiveness and transparency generated by democracy comes into play beyond this point as democracies become fully competitive.

We recognize that the slight difference in level of corruption between authoritarian and partially democratic states could also stem from our measure rather than an actual increase in the incidence of corruption. Perceptions that corruption is more widespread may reflect the increase in information and reporting of corruption that typically accompanies democratization. Similarly, they may be higher if more individuals are involved in corruption as legislative power is dispersed, although the actual amounts of bribes may be lower. Without data on the actual numbers of individuals and amounts involved in corruption across countries with different levels of political competitiveness (data never likely to be available), we cannot completely discount such possibilities. However, in so far as perceptions of corruption influence other conditions, such as the stability of the regime and the attractiveness of a country to investors, the

[44] Robust procedures are described in Richard A. Berk, 'A Primer on Robust Regression', in John Fox and J. Scott Long, eds, *Modern Methods of Data Analysis* (Newbury Park, Calif.: Sage Publications, 1990), pp. 292–324, and we employ the main robust estimator available in the Stata statistical package.

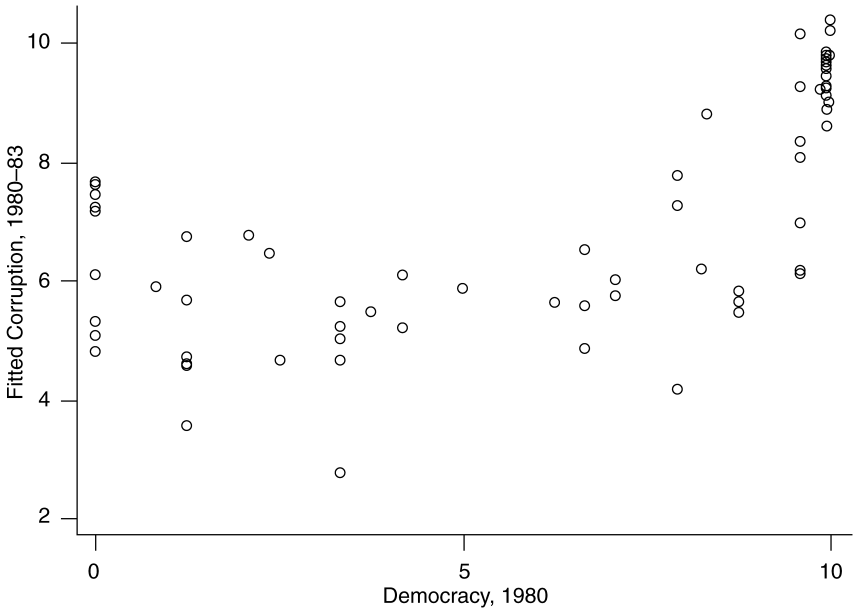

Fig. 1. Plot of fitted corruption, 1980–83, against democracy, 1980 (fitted values from robust regression estimates in Table 2, column 3)

pattern indicating that reported corruption is a little higher in partial democracies than in authoritarian regimes is cause for concern. We return to this issue below.

A second inference that we draw from our analysis is that larger government does not seem to generate higher levels of corruption as posited by public choice theorists. Our estimates suggest instead that government size is negatively associated with corruption, although the logarithmic specification implies that the effect declines with increasing government size. Thirdly, we do find evidence of a distinctive form of corruption in the OPEC countries, which is consistent most notably with the argument advanced by Amuzegar discussed above.[45] Finally, economic development (which we take primarily to reflect wages) also reduces corruption, and the logarithmic specification indicates that the magnitude of this effect declines with increasing per capita GDP. In other words, differences in levels of corruption are most evident between countries with low and intermediate levels of development.

Fitted values for the robust estimates by country were calculated.[46] Evaluating these against the observed values, it is evident that the model generally does a good job of accounting for cross-country difference in levels of corruption.

[45] Amuzegar (*Managing the Oil Wealth*) Emphasizes that OPEC member states are heterogeneous in all respects apart from their reliance on oil revenues and the direct engagement of their governments in all aspects of oil production and marketing. Our own data are consistent with this argument in the sense that OPEC membership is uncorrelated with our more general measure of public sector size.

[46] See Appendix B1 in the website version of this article.

To be sure, the fit is not perfect, which is another way of saying that not all cases are equally well explained. For example, the model implies more corruption than is actually reported in Singapore and Zimbabwe, while it predicts less corruption than is observed for Haiti and Thailand.[47] On balance, however, the fitted values closely conform to their observed counterparts in most cases. Indeed, Indonesia and Zaire, two states whose chronic levels of corruption figured so prominently in events of the late 1990s, were similarly afflicted in the early 1980s, and the model helps us understand why.

The issue that remains is whether the patterns obtained for the early 1980s are unique to that period, and we address this question with data reported by TI for 1988–92. To maximize comparability with the analyses reported in Tables 1 and 2, data on the independent variables are updated versions from the same sources of the variables already employed and have the same metrics as the measures used above. Since the TI data refer to 1988–92, all independent variables are measured at 1988. As noted earlier, the country coverage offered by TI is unfortunately less complete than it is with the BI data, which reduces the sample size by about a quarter. Summary statistics for all variables for around 1990 are reported in part 2 of Appendix A for the fifty-one countries to be analysed, and correspond closely to those displayed in part 1 of Appendix A for the early 1980s.

Table 3 displays three sets of estimates. The first column shows the OLS estimates for a linear democracy effect. The overall fit of this model is good, and the coefficient estimates for Real GDP per capita and OPEC membership are similar to those obtained earlier. However, both the democracy and the government size coefficients are smaller than their standard errors, and indeed the former is incorrectly signed. The second column of Table 3 reports the OLS estimates for the first-order polynomial specification for democracy. Comparing the two columns, the second set of estimates outperforms the first. Observe that the overall model fit is appreciably better (the adjusted R^2 increases from 0.71 to 0.76). Of more interest, this improvement in fit stems solely from the combined democracy coefficients, which are similar in size to those reported for the earlier period. Indeed, the first degree polynomial generates a much sharper estimate of the effect of democracy, with a combined t-ratio of 3.44. In contrast, the estimated effect on corruption of government size is even smaller in the second column than it was in the first.

Robust regression estimates in the third column of Table 3 are similar to the OLS figures in column 2. Both GDP per capita and OPEC membership continue to have a pronounced effect on corruption. The robust estimates for the

[47] Robust regression proceeds by down-weighting potentially influential observations. In this context, it is notable that the four cases just identified have the smallest weights in the robust regression estimates. Indeed, they are the only cases with weights less than 0.6, and their weights in ascending order are 0.12 (Singapore), 0.30 (Zimbabwe), 0.33 (Thailand), and 0.52 (Haiti). The smaller the weight, the less successful the model in accounting for the case. We reiterate, however, that these four case weights are atypically small: the median weight for the robust estimates is 0.96 (and the mean is 0.89).

TABLE 3 *Regressions of TI Corruption Index, 1988–92, on GDP Per Capita, Political Democracy and Government Size*

Independent variable	Column 1	Column 2	Column 3
Democracy88	− 0.069	0.203†	0.254*
	(0.89)	(1.85)	(2.40)
Democracy88²‡		0.080*	0.093*
		(3.26)	(3.90)
Log Gov. size88	0.419	0.043	0.118
	(0.66)	(0.07)	(0.21)
OPEC member	− 1.773*	− 1.816*	− 1.867*
	(2.23)	(2.51)	(2.67)
Log GDP/pop88	2.567*	2.235*	2.217*
	(8.14)	(7.34)	(7.50)
Constant	− 17.249*	− 14.855*	− 15.012*
	(5.00)	(4.33)	(4.51)
Adjusted R^2	0.71	0.76	N/A
F ratio	32.35	33.40	37.30
Estimator	OLS	OLS	Robust

*$p < 0.05$, † < 0.10, ‡Democracy80² is the squared Democracy term for the quadratic specification.
Notes: $N = 51$, t-ratios are in parentheses below each coefficient; t-ratio for combined democracy effect in column 2 is 3.44, while the corresponding figure for column 3 is 4.08.

polynomial democracy specification are even stronger than their OLS analogues (and the combined t-ratio increases from 3.44 to 4.08). However, the estimate for government size remains considerably smaller than its standard error.

Thus, with one exception, the patterns obtained for the early 1980s replicate well in the 1988–92 period. Democracy has a nonlinear effect on corruption of the form graphed in Figure 1, and the pattern is, if anything, stronger in the later period. Wealthier countries experience less corruption, while OPEC membership amplifies it by almost two points (on the ten-point Corruption index). Only the coefficient for government size is inconsistent across the two periods, although we find no evidence that government size encourages corruption at either time.

Since the independent variables are measured in the same manner in both sets of analyses, there are three possible sources of the inconsistent parameter estimates for government size. First, the inconsistency may reflect sample composition effects. While we cannot completely exclude this possibility, we do not believe that sample composition effects are at work here because further analyses (not displayed) restricted to those cases for which data are available for both periods are similar to those reported in the tables above. Secondly, the divergence may stem from differences between the BI and TI indices of corruption. Again, we cannot completely rule out this possibility, but we are

inclined to discount it substantially, given the high correlation between the two indices for the early 1980s reported earlier. Instead, we believe the divergent estimates for government size most likely reflect a third factor, namely, differences between the two periods. We conclude that while we can reject the claim that government size defined in terms of expenditure fosters corruption, there is no consistent evidence that it has any other systematic effect. At the same time, we do find evidence that corruption is increased by the distinctive form of rent-seeking associated with OPEC membership.

IMPLICATIONS

The recent widespread failures of authoritarian regimes advocating state-led development have refocused attention on democracy and markets as the institutions likely to deliver the most benefits to the largest number of individuals. In relatively short order, however, many of the new democracies undergoing market reforms appear to have floundered as a result, in large part, of political corruption. Thus, whether democratic and market forces unleash or inhibit corruption remains an open question. We have presented an empirical model that specifies the effects of democracy and markets on corruption, and we have examined data from two periods, around ten years apart, to evaluate the stability of our estimates. Our results have several implications.

Perhaps our most important conclusion is that political competition matters, and there is an interesting threshold in this relationship. Corruption is typically a little higher in countries with intermediate levels of political competition than in their less democratic counterparts, but once past the threshold, higher levels of competition are associated with considerably less corruption. Stated differently, corruption is likely to be slightly lower in dictatorships than in countries that have partially democratized. But with more complete democratization (reflected in the nature of elections and the effective power of elected legislators), countries experience much lower levels of corruption. This pattern is significant on several counts. First, it helps explain why corruption flourishes in such diverse new democracies as post-communist Russia and the previously absolute monarchy of Nepal, as well as some Latin American countries that have recently reinstalled democratic practices. Russia, for example, has been described as a country where the inordinate powers of the president undermine the effectiveness of legislators.[48] The results of our analysis suggest that where political competition is thus limited, substantial corruption is likely even with relatively free and fair elections.

At the same time, this pattern highlights some of the difficulties facing countries currently attempting to re-establish democracy, such as Nigeria. Corruption that persists due to partial democratization can undermine

[48] Josephine T. Andrews, *When Majorities Fail: The First Russian Duma, 1990–1993* (New York: Cambridge University Press, 2001); M. Steven Fish, 'The Pitfalls of Russian Superpresidentialism', *Current History*, 96 (1997), 326–30.

democrats' efforts.[49] Nigeria has experienced three failed attempts to democratize in large part because of corruption.[50] Our work suggests that if corruption is to be reduced, such countries must not only hold relatively free and fair founding elections, but they must also have legislators who, once in office, are willing and able to sustain political competitiveness at a high level.

In a parallel manner, by reaffirming the proposition that democratic governments help control corruption, our results provide support for the initial reactions to the recent financial crises in countries such as Thailand and South Korea. A good deal of the blame for the crises in both countries has been laid on the intervention of elected politicians in government decisions.[51] However, the implication of our analysis is that countries suffering from substantial corruption need *more* democratic practices, not *less*. In this vein, it is encouraging to observe that both Thailand and South Korea have eschewed the restoration of authoritarian structures and instead have emphasized the improvement of democratic processes. Interestingly, Singapore, a country that has managed to avoid contagion in the recent Asian financial crisis and whose draconian regime is often touted as a model for developing countries in their fight against corruption, is one of the countries that least fit our model. Yet Singapore is not an outlier, suggesting that its other attributes (most notably, its wealth) compensate for the potentially negative consequences of its lack of political competition.

More generally, the nonlinear relationship that we find between political competitiveness and corruption underscores the importance of casting regime type in continuous rather than in dichotomous terms. The point might seem innocuous, were it not for recent suggestions that the latter approach is often preferable.[52] Had we adopted a dichotomous approach to the measurement of democracy, however, we would have overlooked crucial differences of degree that have a straightforward substantive interpretation, and we would be likely to have drawn the wrong conclusion that democratization is incidental to corruption.

While our analyses indicate that effective political competition reduces corruption, they challenge the common claim of the rent-seeking literature that large public sectors engender corruption. Large governments may indeed crowd the private sector, limit economic competition, and foster rent-seeking activity, but our estimates indicate that they are neither necessary nor sufficient causes

[49] Michael Johnston, 'The Political Consequences of Corruption: A Reassessment', *Comparative Politics*, 18 (1986), 459–77.

[50] Larry Diamond, 'Nigeria's Perennial Struggle', in Larry Diamond and Marc F. Plattner, eds, *The Global Resurgence of Democracy* (Baltimore, Md: Johns Hopkins University Press, 1993), pp. 217–29.

[51] Pasuk Phongpaichit and Chris Baker, *Thailand's Boom and Bust* (Chiang Mai, Thailand: Silkworm Books, 1998); Byong-Seob Kim, 'Corruption and Anti-corruption Policies in Korea', *Korea Journal*, 38 (1998), 46–70.

[52] See, for example, David Collier and Robert Adcock, 'Democracy and Dichotomies: Justifying Choices about Concepts', *Annual Review of Political Science*, 2 (1999), 537–65.

of corruption *per se*. Indeed, for the early 1980s, we found some evidence that the *larger* the public sector in terms of government expenditures, the *lower* the incidence of corruption, with levels of political competition and economic development controlled. On first glance, this pattern appears congruent with the experience of countries like Argentina, Brazil and Peru that adopted neoliberal economic reforms, including reductions in government expenditures, and encountered apparent increases in corruption.[53] We are reluctant to draw this inference, however, given that we could not reproduce the public-sector size effect for the early 1990s. It was, after all, precisely in this second period that these countries were most vigorously adopting neoliberal reforms, so that the corruption they experienced cannot be attributed to the decline in government expenditure *per se*. It might still, however, be attributed to the process of reforms. We thus draw the more modest inference that, contrary to the standard rent-seeking claim, public-sector size itself does not foster corruption.

We recognize that the inconsistent estimates found for the relationship between corruption and size of the public sector could stem from problems with our measure of government size. For example, the relationship between corruption and 'big government' may have more to do with the number of government officials than with expenditure. Unfortunately, we are unable to evaluate this alternative, since useful cross-national data on the size of labour forces employed in the public sector are unavailable for too many cases. Alternatively, the relationship between corruption and large public sectors, as measured by government expenditures, may be confounded by the fact that high levels of spending typically involve higher wage levels for public sector employees, levels that reduce, rather than increase, incentives for corruption. Again, we cannot directly assess this argument given available data.

It is, however, important to emphasize that we have found that corruption declines with increasing economic development, as reflected in GDP per capita. Furthermore, with per capita GDP controlled, the observed bivariate relationship between government size and corruption anticipated by the rent-seeking argument disappears. GDP reflects a number of factors, of course, but we have emphasized its substantial correlation with average wages, both private and public. Along with their intrinsic interest, our results for per capita GDP thus speak at least indirectly to part of the claim made for an effect of government size on corruption. The higher wages in both the private and public sectors associated with increasing GDP themselves reduce the incentives for corruption. In other words, wages would seem to be the critical quantity, not the sheer size of the public sector itself.

Finally, our mixed results for public sector size have to be interpreted in light of the consistent corruption-enhancing effect of OPEC membership. While public-sector size in general may not be associated with corruption, egregious forms of state intervention are another matter. The OPEC effect is noteworthy

[53] Manzetti and Blake, 'Market Reforms and Corruption in Latin America'; Weyland, 'Politics of Corruption in Contemporary Latin America'.

because it suggests that state control of *all* aspects of the *dominant* sector of an economy does in fact increase the opportunities for rent seeking and corruption. Freed of the political constraints associated with direct taxation and the economic constraints imposed by more competitive markets, political leaders have every incentive to engage in the politics of patronage, an environment in which corruption flourishes.

APPENDIX A. *Summary Statistics for the Two Datasets*

	Minimum	Maximum	Mean	Standard deviation
1. *Business International dataset, 1980–83* ($N = 66$)				
Corruption80–83	1.50	10.00	6.91	2.28
Log GDP/pop80	6.17	9.90	8.30	0.96
Democracy80*	0	9.99	5.79	3.91
Log Gov.size80	2.12	3.63	2.80	0.36
OPEC member	0	1.00	0.14	0.35
2. *Transparency International dataset, 1988–92* ($N = 51$)				
Corruption88–92	0	9.30	5.21	2.77
Log GDP/pop88	6.27	9.78	8.54	0.94
Democracy88*	0	9.99	6.81	3.58
Log Gov.size88	2.09	3.66	2.74	0.37
OPEC member	0	1.00	0.08	0.27

*Bollen's (1999) country scores divided by 10.

Appendix B1. *Observed and Fitted Values for Business International Corruption Index, 1980–83*

Country	Observed Corruption	Fitted Corruption†	Residual
Algeria*	6.125	4.62	1.50
Angola	6.33	5.31	1.02
Argentina	6.83	7.14	− 0.31
Australia	10.00	9.39	0.61
Austria	8.75	9.27	− 0.52
Bangladesh	5.00	5.19	− 0.19
Belgium	9.625	9.18	0.44
Brazil	5.75	5.45	0.30
Cameroon	7.00	4.73	2.28
Canada	9.625	9.64	− 0.01
Chile	8.25	7.44	0.81
Colombia	5.875	5.70	0.17
Denmark	9.625	10.17	− 0.54
Dominican Republic	6.625	6.12	0.50
Ecuador*	5.875	5.61	0.26
Egypt	4.875	5.62	− 0.75
Finland	9.75	9.25	0.50
France	9.00	9.55	− 0.55
Germany	9.25	8.78	0.47
Ghana	4.16	5.44	− 1.28
Greece	6.625	8.04	− 1.42
Haiti	2.00	4.57	− 2.57
India	6.625	6.08	0.54
Indonesia*	2.00	2.75	− 0.75
Iran*	2.625	4.65	− 2.02
Iraq*	8.00	6.71	1.29
Ireland	9.25	8.84	0.41
Israel	9.625	10.12	− 0.49
Italy	7.125	8.95	− 1.83
Ivory Coast	6.25	5.66	0.59
Jamaica	6.165	6.92	− 0.76
Japan	9.375	8.57	0.81
Jordan	8.495	7.61	0.89
Kenya	5.125	4.64	0.48
Korea	5.875	5.22	0.66
Kuwait*	7.625	7.62	0.01
Liberia	2.995	5.07	− 2.08
Malaysia	7.50	6.50	1.00
Mexico	4.625	5.85	− 1.22
Morocco	6.16	5.60	0.56
Netherlands	10.0	9.22	0.78
Nicaragua	7.375	6.08	1.29
Nigeria*	5.125	4.14	0.98
Norway	10.0	9.71	0.29
New Zealand	10.0	9.44	0.56
Pakistan	4.5	4.79	− 0.29
Panama	5.875	6.74	− 0.87
Peru	7.0	5.98	1.02

Appendix B1.—*Continued*

Country	Observed Corruption	Fitted Corruption†	Residual
Philippines	4.625	5.01	− 0.39
Portugal	6.125	8.32	− 2.20
South Africa	7.0	6.42	0.58
Saudi Arabia*	5.375	7.65	− 2.27
Singapore	10.0	6.07	3.93
Spain	6.625	7.25	− 0.62
Sri Lanka	7.0	5.79	1.21
Sweden	9.625	10.35	− 0.73
Switzerland	10.0	9.07	0.93
Thailand	2.375	5.55	− 3.17
Trinidad & Tobago	7.25	7.74	− 0.49
Turkey	5.0	5.89	− 0.89
United Kingdom	9.625	9.76	− 0.14
United States	10.0	9.81	0.19
Uruguay	7.25	7.21	0.04
Venezuela*	6.125	6.15	− 0.03
Zaire	1.5	3.56	− 2.06
Zimbabwe	8.125	4.85	3.28

*OPEC member
†From the robust regression estimates in Table 2, column 3.

APPENDIX B2

Observed and Fitted Values for Transnational International Corruption Index, 1988–92

Country	Observed Corruption	Fitted Corruption†	Residual
Argentina	5.91	4.68	1.23
Australia	8.20	8.24	− 0.04
Austria	7.14	7.81	− 0.67
Bangladesh	0.00	1.73	− 1.73
Belgium	7.40	7.87	− 0.47
Bolivia	1.34	2.63	− 1.29
Brazil	3.51	3.86	− 0.35
Cameroon	3.43	2.76	0.67
Canada	8.97	8.61	0.36
Chile	5.51	5.50	0.01
China	4.73	2.69	2.04
Colombia	2.71	4.03	− 1.32
Czechoslovakia	5.20	5.63	− 0.43
Denmark	8.88	8.18	0.70
Ecuador*	3.27	1.91	1.36
Egypt	1.75	1.96	− 0.21
Finland	8.88	8.11	0.77
France	7.45	8.05	− 0.60
Germany	8.13	6.97	1.16
Greece	5.05	6.17	− 1.12
Hungary	5.22	5.54	− 0.32
India	2.89	2.53	0.36
Indonesia*	0.57	0.20	0.37
Ireland	7.68	6.90	0.78
Israel	7.44	5.99	1.45
Italy	4.30	7.81	− 3.51
Japan	7.25	7.97	− 0.72
Jordan	5.51	6.05	− 0.54
Kenya	1.60	1.89	− 0.29
Korea	3.50	4.45	− 0.95
Malaysia	5.10	3.73	1.37
Mexico	2.23	4.89	− 2.66
Netherlands	9.03	7.82	1.21
New Zealand	9.30	7.74	1.56
Nigeria*	0.63	1.23	− 0.60
Norway	8.69	8.29	0.40
Pakistan	1.90	1.31	0.59
Philippines	1.96	1.84	0.12
Poland	5.20	5.06	0.14
Portugal	5.50	6.32	− 0.82
Singapore	9.16	5.62	3.54
Soviet Union	3.27	6.57	− 3.30
Spain	5.06	6.01	− 0.95
Sweden	8.71	8.32	0.39
Switzerland	9.00	8.39	0.61
Thailand	1.85	3.00	− 1.16
Turkey	4.05	3.39	0.66

APPENDIX B2.—*Continued*

Country	Observed Corruption	Fitted Corruption†	Residual
Uganda	3.27	1.77	1.51
United Kingdom	8.26	8.04	0.22
United States	7.76	8.69	− 0.93
Venezuela*	2.50	3.54	− 1.04

*OPEC member
†From the robust regression estimates in Table 3, column 3.