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## Corruption, Democracy, and Economic Growth

A. COOPER DRURY, JONATHAN KRIECKHAUS, AND MICHAEL LUSZTIG

**ABSTRACT.** Scholars have long suspected that political processes such as democracy and corruption are important factors in determining economic growth. Studies show, however, that democracy has only indirect effects on growth, while corruption is generally accepted by scholars as having a direct and negative impact on economic performance. We argue that one of democracy's indirect benefits is its ability to mitigate the detrimental effect of corruption on economic growth. Although corruption certainly occurs in democracies, the electoral mechanism inhibits politicians from engaging in corrupt acts that damage overall economic performance and thereby jeopardize their political survival. Using time-series cross-section data for more than 100 countries from 1982–97, we show that corruption has no significant effect on economic growth in democracies, while non-democracies suffer significant economic harm from corruption.

**Keywords:** • Corruption • Democracy • Economic growth • Political economy • States

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It is no great insight to proclaim that liberal democracies tend to be wealthier than non-democracies. Since the end of World War II, a great deal of scholarly effort has gone into exploring the relationship between economic growth and liberal democracy, with many pursuing an obvious explanation for their association, namely that democracy facilitates wealth by stimulating economic growth.<sup>1</sup> While intuitively appealing, reality suggests the relationship is more complicated. Indeed, a number of studies find no direct, statistically significant relationship between democracy and economic growth, although democracy appears to have important *indirect* influences on growth, due to its positive effect on such things as educational expenditure, life expectancy, and political stability (Baum and Lake, 2003; Helliwell, 1994; Kurzman et al., 2002). This does not put an end to the matter, of course. It simply suggests that greater understanding is needed of the apparently symbiotic role played between the most robust system of government

ever developed (Fukuyama, 1992) and the economic growth and efficiency that appears to sustain it.

We attempt to enhance the understanding of the indirect effects that democracy has on economic growth. Although our focus is on just one of these indirect effects, it is one that, as is clear from the discussion below, is substantively important and exists worldwide to varying degrees. We concentrate on political corruption, which is present in all regimes, albeit at differing levels. We are hardly the first to delve into the role that corruption plays with respect to economic growth. As the literature review below suggests, some argue that corruption has beneficial effects for an economy. We disagree, and while this disagreement is somewhat intuitive, some of our findings are unexpected and shed new light on the connection between democracy and economic performance.

In this article, we use time-series cross-section data from 100 countries over a 16-year period and find, rather intuitively, that corruption has a significant, negative impact on economic performance in non-democracies. Our unique contribution, however, is to explore further these relationships by examining democracy's *indirect* effects on economic growth. Our expectation (discussed below) is that democracy will mitigate the negative effects of corruption, since the electoral mechanism allows citizens to evict politicians that engage in particularly damaging forms of corruption. Democracy, in other words, may exhibit no direct statistical relationship with economic growth, but it clearly serves to militate against the negative economic effects of corruption.

### **The Effects of Corruption and Democracy on Economic Growth**

We now turn to a discussion of corruption's effect on economic growth and then explain how democracy ameliorates this effect.

#### *The Ill Effects of Corruption*

We define corruption "as the abuse of public office for private gain," whether pecuniary or in terms of status. The gain may accrue to an individual or a group, or to those closely associated with such an individual or group. Corrupt activity includes bribery, nepotism, theft, and other misappropriation of public resources (see Bardhan, 1997: 1321; Lambsdorff, 1999: 3–4; Nye, 1967: 419; Shleifer and Vishny, 1993: 599). The predominant, although not exclusive, view of corruption is that it is damaging to economic performance as both a tax on productivity and a market distortion.

Mauro (1995) finds empirically that corruption reduces private sector investment even in countries featuring cumbersome economic regulations, where corruption might be expected to spur investment. Shleifer and Vishny (1993) suggest that one reason for this is that corruption is more than simply a tax on economic activity, primarily because there is no central mechanism for collection. Instead, rapacious consumers of graft may be innumerable. Post-communist Russia illustrates the point nicely:

To invest in a Russian company, a foreigner must bribe every agency involved in foreign investment, including the foreign investment office, the relevant industrial ministry, the finance ministry, the executive branch of the local government, the legislative branch, the central bank, the state property bureau,

and so on. The obvious result is that foreigners do not invest in Russia. (Shleifer and Vishny, 1993: 615; see also Bardhan, 1997: 1324–6)

Rose-Ackerman (1996) also argues that corruption generates more distortion than does mere taxation. Just as an incentive to bribe exists, one to receive bribes also exists. Put differently, there is an underappreciated supply-side to the market for rent-seeking. One manifestation is that policymakers may promote initiatives (public works projects are an excellent example) not to satisfy social need, but because such projects increase opportunities for bribes.

Moreover, as the literature on rent-seeking and directly unproductive activity suggests, the construction of a market for political influence and favors generates high opportunity costs in that it dissipates resources that could otherwise be used on productive activity (Bhagwati, 1982; Brooks and Heijdra, 1988; Krueger, 1974; Lien, 1990; Tullock, 1967). Thus, corruption draws off funds that would otherwise be available for economic growth.

The other view of corruption suggests that while corruption itself may be deplorable and unethical to moralists, its effects need not be economically detrimental. Leff (1968) argues that where government sets for itself the task of economic modernization (dictatorships of the right or left are excellent examples) graft may promote economic growth. That is, graft provides an alternative channel to influence for private sector interests otherwise not well represented (Nye, 1967: 420). Huntington (1968: 69) states it even more boldly: “the only thing worse than a society with a rigid, overcentralized, dishonest bureaucracy is one with a rigid, overcentralized, honest bureaucracy.”

Corruption also can be economically beneficial because it tends to favor the most efficient firms. Many forms of corruption take the form of the sale of limited commodities (whether these are policies, import licenses, or firm-specific favors, supply may be assumed to be low and demand high). As such, a crude market for favors emerges, with the richest (and perhaps most efficient) firms most able to outbid their rivals. Weaker firms must become more efficient to compete in this black market, or exit the productive sector (Leff, 1968). The success of these firms, moreover, provides a broader base of taxation and public spending, assuming at least some of the monies are reinvested by the state (Nye, 1967: 420).

Even those that do argue that corruption has economic benefits do not suggest that corruption is efficient *per se*. Among others, Leff (1968) characterizes corruption as a tax on economic activity; few see taxes as spurs to economic growth. Rather, their point is that, under some circumstances, corruption is more efficient than the alternative.

In sum, the literature on the economic effects of corruption yields two positions. The first, more traditional and accepted position is that corruption has few virtues: it renders otherwise good government bad and bad government worse, it dissipates resources that could be used productively, and generates sufficiently high transaction costs to limit significantly investment. The second view is that corruption serves to create an economic equilibrium in states that are excessively bureaucratic, rationalizing the weakest firms from the marketplace and substituting private-sector economic decision-making for that provided by the state. This second position is problematic because it does not consider the incentive for all officials to get into the corruption game, the result of which is excessive taxation on productivity. Further, most of those arguing the benefits of corruption regularly point out that it is not the ideal, but perhaps better than a

rigid, inefficient bureaucracy. Therefore, we hold that corruption will have a negative impact on GDP growth, holding other factors constant.

We now turn to the discussion of democracy and economic performance, where we argue that democracy has the indirect benefit of mitigating corruption's harmful impact on an economy.

### *The Indirect Benefit of Democracy*

As a type of government, democracy is touted as having many benefits, both political and economic. The economic benefits are not entirely clear, however. Several writers have argued that democracy has positive effects on economic growth for a variety of reasons. First, democracy allows for the eviction of bad leaders. North (1990), for instance, argues that authoritarian elites will prey upon societies unless constrained by democratic institutions. Bueno de Mesquita et al. (2001) similarly argue that authoritarian leaders have few checks on their power and thus engage in cronyism and corruption. Olson (1993), along with Przeworski and Limongi (1993), provide analogous, albeit more complicated, arguments.

In addition to this general idea that democracy allows citizens periodically to evict politicians who hurt the economy, a second and complementary set of arguments focus on the microeconomic effects of a democratic political climate. Sirowy and Inkeles (1990: 133–4) nicely summarize these effects:

Overall, the extension and protection of civil liberties and basic freedoms are thought to generate the security of expectation necessary to motivate citizens to work, save, and invest . . . In addition, popular political participation not only has the consequence of breaking down the privilege and vested interests of a few but also feeds a participative mentality that carries over into the economic arena and greatly increases the flow of information so essential to effective and efficient governments. In sum, political pluralism acts to release energies and foster conditions conducive to change, entrepreneurial risk, and economic development.

Third, Lipset (1959, 1960) argues that a symbiotic relationship between wealth and democracy exists. Specifically, he suggests that democracy is most likely to occur in an industrialized society in which wealth is generated by a large number of (middle-class) industrial producers. In turn, the middle class retains a strong stake in a system that provides sufficient freedom of choice (political and economic) to permit the creation of more wealth.

The more pessimistic view of democracy is rooted in an older literature. This pessimistic view was popularized by Samuel Huntington, who argued that in newly democratic developing countries, citizen demands will rapidly escalate and generate high levels of government spending. Huntington and Nelson (1976: 23) argue that one response is that “political participation must be held down, at least temporarily, in order to promote economic development.” Similar arguments can be found in the literature on East Asia, which generally suggests that authoritarian regimes better avoid rent-seeking and politically motivated policy mistakes (Haggard, 1990). In sum, democracies are argued to reduce the surplus available for investment, with a consequent negative effect on economic growth.

A second critique of democracy stems from the neoclassical political-economy literature. Olson, for instance, argues that special interest groups tend unduly to

influence state policy, reaping particularistic privileges that damage the overall economy. Olson (1982) argues that as a democracy ages, it becomes more pluralistic and consequently less efficient. This “political” inefficiency leads to decreased economic performance. Simply put, in older democracies there is more time for interest groups to overcome the difficulties associated with collective action (Olson, 1982). As a result, there are ever-more demands on the resources of the state. Moreover, because the democratic state reflects, at least to some degree, the political make-up of its constituents, there are more voices represented in government, leading to political sclerosis. The result is decreased governmental efficiency and, therefore, decreased economic performance (see also Bell, 1976; Brittan, 1975; Schmitter and Karl, 1991). Scholars in the developmental state tradition develop this argument in depth, arguing that authoritarian regimes, especially in East Asia, are better able to resist special interest groups’ distributive demands and rent-seeking pressures (Amsden, 1989; Evans, 1995; Wade, 1990).

Finally, Przeworski and Limongi (1993) resurrect the 19th-century argument that democracy undermines the security of property rights by providing the dispossessed with a powerful political tool for expropriating the wealth of property-holders, a result that could lead to considerable economic uncertainty and thus lower economic growth.

While both positive and negative findings have been argued, the more recent empirical literature suggests that neither perspective is accurate, or perhaps both are accurate and they balance each other out. Using different methodologies and a fairly sophisticated set of techniques for dealing with endogeneity, both Helliwell (1994) and Przeworski et al. (2000) conclude that there is simply no statistically significant relationship between democracy and growth.

This does not mean, however, that democracy has no significant impact on growth at all. Instead, democracy has no *direct* effect on growth, but scholars are increasingly realizing that democracy does have important *indirect* effects. Democracy, for instance, is more likely to lead to greater spending on education and health, both of which facilitate economic growth (Baum and Lake, 2003; Helliwell, 1994). Moreover, democracy facilitates political stability, which is also known to be good for economic growth.

We further pursue this insight that democracy might have important indirect effects, especially pertaining to corruption. Our argument is grounded in one interesting variant of the compatibility perspective, namely the claim that democracy facilitates growth since citizens are better able to remove corrupt politicians (Bueno de Mesquita et al., 2001; North, 1990). We argue, by extension, that democracy may not merely reduce the level of corruption, but also change the *composition* of corruption.

Our argument rests upon two plausible assumptions. First, politicians weigh the costs and benefits of specific acts of corruption when they are faced with the choice of engaging in an illicit act. Corrupt behavior yields obvious benefits, including both personal enrichment and the ability to gain political support from those groups benefiting from corruption. These potential benefits exist for most politicians in most political systems.

Corruption also entails costs, however. Our second assumption is that these costs *vary* substantially across types of corruption and types of political system. The cost to politicians is primarily determined by how a given act of corruption hurts particular societal actors, and how capable those actors are of responding to this damage through the political system. The ability of the society to react is largely

determined by regime type. In authoritarian systems, as Bueno de Mesquita et al. (2001) note, the supporting or ruling coalition is relatively small. Consequently, the costs of corrupt behavior imposed upon the majority of the population can be safely ignored. Given that authoritarian leaders will not suffer retribution from society, they can engage in extremely costly forms of corruption. A good example of such systematic corruption is Zaire from 1962 to 1994, where Mobutu allowed 90 percent of the road network to erode away, deciding quite rationally that this severe misallocation of resources from infrastructure to corruption would not threaten his ability to maintain power (Evans, 1995).

In democratic systems, citizens can remove politicians and, therefore, both the level and composition of corruption will be lower. Corrupt activities that impose a large cost on society will annoy voters, which is costly for politicians. When these costs outweigh the benefits of any given corrupt act, politicians will be deterred from corruption. This will reduce the total number of corrupt activities in a democracy. More interesting, for our purposes, is that this reduction in corruption will not be even across all forms of corruption. Instead, politicians will avoid those types of corruption that cost society dearly, given that such acts are most likely to have severe political consequences – namely, removal from office. Corruption that impedes important investments in physical infrastructure and education will not be pursued because the political costs outweigh the benefits. However, less costly forms of corruption, such as nepotism or bribes for expedited access to government officials, may continue unabated because the benefits continue to outweigh the minor political costs.

In sum, our expectation is that *at any given level of corruption*, the effect of that corruption on economic growth will be lower in a democracy than under authoritarian rule. A democracy might experience high levels of corruption, but this corruption will be restricted to those activities and sectors that have relatively little impact on national economic performance because voters will definitely act to remove politicians that engage in significant growth-impairing corruption. This ability to punish elected officials provides a powerful incentive for politicians to confine their corrupt activities to economically irrelevant activities.

This is a rather common-sense intuition, but it has interesting implications for the relationships between democracy, corruption, and growth. Our expectation is that corruption will have a negative effect on growth in authoritarian regimes, as per conventional theory, but we believe that in a democracy this negative effect will be much weaker, because citizens will demand that politicians at least keep their corrupt behavior from influencing what is probably the most important means of legitimacy in modern nations – economic growth.

## Data

We now turn to a discussion of the data we use to test our argument. The data are arrayed as a time-series cross-section of more than 100 countries for 16 years (1982–97). Summary statistics for the data appear in Table 1. Our dependent variable, growth of GDP, is measured by the World Bank's World Development Indicators (2003).

For our first independent variable, corruption, we rely on the International Country Risk Guide's (ICRG) assessment of corruption in a wide range of countries between 1982 and 1997. The index ranges from six to zero, with lower scores indicating that:

TABLE 1. *Summary Statistics*

Variable	Mean	Standard deviation	Minimum	Maximum
Growth	1.734	6.813	-52.096	138.897
Level of corruption	2.629	1.464	0	6
Life expectancy	4.090	0.211	3.441	4.391
Trade openness	67.922	51.430	0	440.500
Population growth	0.019	0.013	-0.174	0.174
Logged GDP per capita	8.162	1.030	5.639	10.692
Tropical climate	0.500	0.478	0	1
Government spending	20.606	13.342	1.578	180.346

“high government officials are likely to demand special payments” and “illegal payments are generally expected throughout lower levels of government” in the form of “bribes connected with import and export licenses, exchange controls, tax assessment, policy protection or loans.” (Knack and Keefer, 1995: 225)

We recode the original data so that the least corrupt countries (for example, Australia, Finland, Sweden, and so on) score a zero, while the most corrupt (for example, Bangladesh, Haiti, Niger, and so on) score a six. Thus, higher values mean higher levels of corruption. Alternative measures of corruption also exist, but have severe limitations as compared to the ICRG measure. Mauro (1995) provides a measure of corruption, but it is only available for one year. A somewhat better measure is Transparency International, which provides data for 1996–2003. Given data limitations for other variables, it would only be possible to examine up until 2001, which would leave merely six years of data. By comparison, the ICRG data exists for a much longer period, from 1982 until 1997.

Our second independent variable, democracy, is captured by the most common indices used in the literature. First, we use the Polity IV data (Marshall and Jaggers, 2000), which measures a country’s level of democracy and autocracy and creates an overall measure by subtracting the latter from the former. The result is a score that ranges from -10 to 10. We dichotomize this variable because we want to measure the effect a democratic regime has on economic performance and corruption. It is in democracies that we expect to see beneficial effects on economic growth and mitigating effects on corruption.

Second, we use the equally prominent Freedom House measure of democracy, which consists of a combined score of a country’s political rights and civil liberties, resulting in an index that runs from 2 to 14, with lower scores indicating more democracy. We dichotomize this index at 5.5, based on Freedom House’s judgment that countries with a score of less than 5.5 are either “free” or “partially free,” whereas countries with a score of more than 5.5 are “not free.”

Third, as an additional check on the robustness of the results, we utilize an index of democracy created by Alvarez, Cheibub, Limongi, and Przeworski (ACLP). Alvarez et al. (1996) argue that democracy should not be rated along a scale, as Polity and Freedom House do, but rather be measured as a dichotomous variable in which countries either are or are not democratic. They rate countries as democratic if: (1) the chief executive is elected, (2) the legislature is elected,



and (3) there is more than one party (Alvarez et al., 1996; Przeworski et al., 2000). For a critical review of these three different measures of democracy, see Munck and Verkuilen (2002).

We also include six control variables in the model. Theoretically, there are strong reasons to believe that each influences economic growth. Empirically, these variables have generally been found to correlate with growth in most previous cross-sectional analyses (Barro, 1997; Bleaney and Nishiyama, 2002). The cross-sectional time-series literature on growth is much sparser, but Kurzman et al. (2002) find that these variables perform reasonably well in pooled samples.

First, the inclusion of initial GDP is suggested by basic neoclassical theory. Given diminishing returns to capital, rich countries should grow less rapidly than poor countries. Barro (1991) used the log of initial GDP as a proxy for the capital stock; this proxy has become a staple of statistical analyses of growth.

Our second control variable is logged life expectancy. Economists argue that the overall health of workers allows for greater productivity, since workers are more able to work diligently, for longer hours, and without succumbing to disease or debilitation. It is likely that these factors are particularly important in developing countries, since much labor is physically strenuous and citizens' overall health is more likely to be salient than with respect to white-collar jobs. The typical quantitative measure of health is the log of average life expectancy (Barro, 1997).

Third, government consumption may retard growth since government expenditures entail higher levels of taxation and thereby reduce private sector actors' willingness to work or produce. More generally, government consumption shifts resources from the private sector to the public sector, and most economists believe that the private sector more efficiently allocates resources than the public sector.

Fourth, population growth may inhibit economic growth. When the rate of population growth is high, the large number of new workers entering the workforce serves to dilute total capital per worker. For any given level of investment, the capital stock per worker will fall, resulting in lower levels of economic productivity.

Fifth, trade openness is expected to influence growth positively. According to Ricardo's theory of comparative advantage, state-induced deviation from free trade will merely employ the world's resources inefficiently and reduce world output. Most empirical studies find that greater trade openness does in fact facilitate growth, and this variable is accordingly a common control variable.

Sixth, we include a dummy variable identifying the proportion of a country that is tropical, as defined by the proportion of the country that lies between the tropic of Cancer and the tropic of Capricorn. This variable has been popularized by Sachs and Warner (1997), who note that in a variety of ways agricultural productivity and health is lower in tropical climates.

We did not include education as a control variable because a number of African countries fell out of the analysis due to missing data, and we wished to retain as large a sample as possible. We did, however, run all of the analyses with education in the analysis, and found little change in the results.

Finally, while earlier growth studies frequently included investment as a control variable, it is increasingly recognized that this represents a suboptimal control (Bleaney and Nishiyama, 2002). First, causality is ambiguous, since rapid rates of growth lead to higher levels of investment. Second, investment constitutes an *intervening* variable rather than a true independent variable; as such, it is not

appropriate to control for its effects (King et al., 1994: 78). One means by which corruption might influence growth, for instance, is to reduce the quantity of private or public investment. Therefore, to control for investment would essentially control for the very effect we are trying to uncover.

### Analysis

Selecting all of the countries for which data were available, the data set is comprised of responses from more than 100 countries over a 16-year period. The data are arrayed as a time-series cross-section. There are many more cases than time periods, and data with this characteristic are very likely to have nonspherical errors. We use panel-corrected standard errors to correct for this bias that might otherwise inflate our significance measures (Beck and Katz, 1995: 636, 638–640). Diagnostic tests revealed that GDP growth is autoregressive (Banerjee, 1999; Drukker, 2003; Hadri, 2000; Im et al., 1997; Levin and Lin, 1993; Woodridge, 2002). We correct for this temporal dependence with a panel-specific AR(1) model (Achen, 2000).<sup>2</sup>

To test for the differences between non-democracies and democracies, we first interact the democracy and corruption variables. This strategy permits us to compare the impact of corruption on growth in democracies versus non-democracies. We then separate the data into two models – one that includes only non-democracies and the other that contains democracies. This approach provides a more intuitive means to view the differential effects corruption has on democratic and non-democratic regimes. Because we have three measures of democracy, we report the analyses for each of these measures in Tables 2–4, respectively.<sup>3</sup>

Overall, the models (interaction, non-democracies, and democracies) are all significant beyond the 0.0001 level, although their performance is not overly strong, with the  $R^2$  statistics ranging between 0.07 and 0.17, depending on the measure of democracy used. While a higher  $R^2$  would be preferable, it is worth noting that Kurzman et al. (2002) report an even lower  $R^2$  when examining annual data. As they note, annual models are inherently “noisy,” given that business cycles and other short-run factors are accounting for much of the annual variation in growth.

The results in all three tables provide almost uniform support for our argument. The first columns in Tables 2–4 report our results for the interaction of democracy and corruption. For both the Polity and Freedom House measures, the results support our argument that democracy mitigates the negative impact of corruption on economic growth. Looking at Table 2, for example, the model predicts that for each standard deviation increase in the level of corruption, economic growth decreases by nearly 1 percent, holding all other variables constant. However, the same increase in a democracy leads to a marginal 0.1 percent increase in the growth rate.<sup>4</sup> A nearly identical effect is found in Table 3. These results clearly support the argument that corruption is a drag on economic performance only in non-democratic regimes.

The insignificance of the corruption, democracy, and interaction variables in Table 4 is most likely the result of the limited scope of the ACLP democracy measure. Unlike the Polity and Freedom House data, the ACLP data end in 1990, effectively truncating the analysis by seven years and cutting out almost half of the data.

TABLE 2. *The Effects of Corruption on Economic Growth in Non-Democracies and Democracies, 1982–97 (Polity IV Democracy Data)*

	Democracy/corruption interaction	Non- democracy	Democracy
Level of corruption	-0.583** (0.181)	-0.625** (0.174)	0.37 (0.252)
Democracy	-1.44 (0.946)		
Corruption / democracy interaction	0.688** (0.262)		
Life expectancy	3.099 (2.131)	4.271 (2.727)	1.097 (3.400)
Trade openness	0.017** (0.004)	0.018** (0.007)	0.018** (0.006)
Population growth	-23.61 (16.595)	-35.863 (33.814)	-11.162 (19.173)
Logged GDP per capita	-0.900* (0.358)	-1.132** (0.363)	0.005 (0.630)
Tropical state	-1.623** (0.447)	-1.345 (0.922)	-1.752** (0.493)
Government spending	-0.090** (0.016)	-0.090** (0.022)	-0.067* (0.027)
Constant	-0.84 (7.543)	-3.513 (11.341)	-2.998 (13.126)
Observations	1435	602	833
R <sup>2</sup>	0.07	0.07	0.05

TABLE 3. *The Effects of Corruption on Economic Growth in Non-Democracies and Democracies, 1982–97 (Freedom House Democracy Data)*

	Democracy/corruption interaction	Non- democracy	Democracy
Level of corruption	-0.462** (0.151)	-0.430** (0.148)	0.072 (0.242)
Democracy	-1.053 (0.743)		
Corruption / democracy interaction	0.555* (0.224)		
Life expectancy	2.962 (2.284)	4.424 (2.507)	-0.207 (3.243)
Trade openness	0.018** (0.003)	0.017** (0.006)	0.018** (0.004)
Population growth	-43.900** (16.908)	-72.419** (22.422)	-3.061 (19.232)
Logged GDP per capita	-0.902* (0.383)	-0.956* (0.419)	-0.508 (0.615)
Tropical state	-1.550** (0.399)	-1.134 (0.593)	-2.232** (0.627)
Government spending	-0.081** (0.016)	-0.088** (0.021)	-0.031 (0.024)
Constant	-0.5 (7.813)	-5.371 (9.111)	7.193 (12.064)
Observations	1506	761	745
R <sup>2</sup>	0.09	0.08	0.09

Notes: Standard errors in parentheses

\* significant at 5 percent; \*\* significant at 1 percent

TABLE 4. *The Effects of Corruption on Economic Growth in Non-Democracies and Democracies, 1982–90 (ACLP Democracy Data)*

	Democracy/corruption interaction	Non- democracy	Democracy
Level of corruption	-0.163 (0.164)	-0.551* (0.232)	0.094 (0.332)
Democracy	0.281 (0.831)		
Corruption / democracy interaction	-0.357 (0.240)		
Life expectancy	2.488 (2.046)	3.845 (2.191)	3.966 (5.042)
Trade openness	0.020** (0.005)	0.023** (0.006)	0.017** (0.005)
Population growth	-17.366 (25.538)	3.147 (41.129)	-21.078 (38.494)
Logged GDP per capita	-1.171* (0.522)	-1.508** (0.514)	-0.977 (0.979)
Tropical state	-2.247** (0.501)	-2.093** (0.599)	-3.067** (0.640)
Government spending	-0.110** (0.015)	-0.124** (0.025)	-0.069* (0.029)
Constant	3.337 (7.476)	0.363 (9.242)	-5.286 (16.676)
Observations	788	399	389
R <sup>2</sup>	0.14	0.17	0.10

Note: Standard errors in parentheses

\* significant at 5 percent; \*\* significant at 1 percent

As an alternative test, the second and third columns in Tables 2–4 report our results for non-democracies and democracies as two separate samples. The tables all show that corruption has a deleterious effect on economic performance in non-democracies. As the interaction model predicts, a one standard deviation increase in corruption leads to nearly a full point decrease in the annual growth rate. Unlike their non-democratic brethren, however, economic growth in democratic regimes is unaffected by corruption. As each of the tables report, corruption never attains or even approaches statistical significance for democratic countries. Democracy itself seems to mitigate the economically damaging effects of corruption. Unlike non-democracies, whose economic performance significantly suffers from corruption, corrupt democracies apparently grow just as fast as democracies with little to no corruption.

Our results show that corruption has a negative effect in authoritarian regimes, but not democratic regimes, which supports our contention that democracy mitigates the negative effects of any given level of corruption. There are three alternative explanations for the lack of a correlation between corruption and growth in democracies, however. The first concern is that the effects are simply due to a lack of variation in corruption for democracies. If there was little to no variation in the independent variable, then corruption clearly could not have an

effect on growth even if democracy has no ameliorative effect whatsoever. In fact, however, corruption does vary substantially in democracies, and even varies more than in authoritarian regimes: the standard deviation of corruption is 1.4 in democratic regimes and only 1.1 in authoritarian regimes.

A second potential issue is that while corruption might vary in both types of regime, the mean level of corruption might be lower in democracies, causing corruption to have no impact on the economy. Indeed, it is true that the average corruption score in democracies is 2.0, while the average corruption score in non-democracies is somewhat higher at 3.3. Although we certainly would not deny that democracy might improve economic performance by reducing the *level* of corruption within countries, column one of both Tables 2 and 3 nonetheless confirms that democracy mitigates the effect of *any* given level of corruption.<sup>5</sup> These models control for the level of corruption in each country. Therefore, the fact that the interaction term is statistically significant and positive confirms that even after controlling for democracy's possible effects through lowering corruption, there is nonetheless an additional positive effect by reducing the impact of corruption at any level.

A third and more subtle possibility is that despite the high variance of corruption in democracies, there simply might not be enough corruption in any democracy to reduce substantially economic growth, and that there is therefore no way to falsify our hypothesis. In fact, however, many democracies exhibit very high levels of corruption, including the maximum score of six. Moreover, fully 29 of the 52 democratic countries in our sample did at one point or another experience a level of corruption greater than or equal to the mean level of corruption in authoritarian regimes. Thus, there are plenty of data to falsify our hypothesis.

Our main goal in the above analyses was to note that democracy mitigates the negative effects of a given level of corruption, but it is also worth discussing the influence of the control variables. It is important to note that previous extensions of cross-sectional economic analysis to pooled data have generally rendered some control variables insignificant, so we do not necessarily expect all control variables to be significant.<sup>6</sup> For precisely this reason, however, it is interesting to examine which control variables are robust to cross-sectional time-series analysis.

Neoclassical growth theory predicts that initial GDP has a negative effect on growth, reflecting diminishing returns to capital in richer countries, and our results confirm this standard prediction for the sample with non-democracies.

Economists also argue that government consumption hurts growth by taking resources away from the (efficient) private sector and placing them within the (less efficient) public sector (Barro, 1997). Economists analogously argue that trade openness should enhance growth, given efficiency gains from comparative advantage and greater opportunities for technology transfer. These free-market expectations are confirmed in most of the analyses.

The effect of a tropical climate has not been previously tested in annual time-series cross-sectional analysis, and our findings confirm the typical cross-sectional finding, namely that the countries in a more tropical climate do in fact suffer significantly less economic growth.

Finally, the last two control variables also have the anticipated effect, but their effects do not generally reach statistical significance. Population growth impedes economic growth, while higher life expectancy generally facilitates it, but while the signs are as expected, the variables generally do not reach conventional levels of significance.

## Conclusion

Scholars have long suspected that political processes such as democracy and corruption are important for economic growth. Our theoretical argument, supported by empirical evidence, entails a significant reconceptualization of the complex relationships between these three variables. Most studies of democracy test its direct impact on economic growth and find no result. Most studies of corruption test its aggregate impact on growth and find a negative effect. We argue that the causal relationship between these variables is more complex. Specifically, we argue that the negative effect of corruption is mediated by the political process in which corruption occurs, and that democracy will mitigate or reduce that negative effect. To understand the political effects of corruption, in short, it is necessary to take into account the political context within which the corruption occurs. Specifically, the ability in a democracy for the electorate to remove its leaders from office seems to mitigate the stunting effect corruption has on economic growth. Many democracies exhibit significant levels of corruption, but their leaders must refrain from growth-impairing corruption lest they be punished at the next election.

Our empirical results suggest the need for further research on the interaction between democracy, corruption, and growth. We argue that a democracy's electoral mechanism causes corruption to have no impact on its economy. Future research should explore the nature of this causal process. One specification of that process would emphasize the impact of a free press, given that in a democratic context journalists are freer to publicize growth-impairing activities than in an authoritarian context. Another causal story may be that institutions such as political parties put in place mechanisms that constrain individual politicians from engaging in growth-impairing corruption. Finally, democratic regimes are likely to provide greater political independence for the judiciary, which provides yet another check on the quantity and composition of corruption.

Finally, our results provide new insight into the relationship between politics and economic growth. In addition to showing generally that political factors play a large role in determining economic growth, our findings suggest that democracy has yet another benefit to recommend it – mitigating corruption's ill economic effects. Given that some nations are rife with corruption, promoting democracy within them may enhance not only their general human rights, but also their opportunity for prosperity.

## Notes

1. We define a liberal democracy as one that conforms to the following: a government structure that preserves the rights and the autonomy of all individuals; where all individuals are equal before the law; where state authority is limited, transparent, and grounded in the protection of the rights of the individual; and where government elites are selected by merit. The selection mechanism, moreover, must ensure the responsiveness of elites to civil society, and must entail selection of representatives through popular elections with (near) universal voting rights.
2. We also ran the models presented below with lagged dependent variables in place of the AR(1) correction. The results were comparable to those presented below; no significant, substantive changes appeared.
3. Data, output, and command files (Stata 8) are available from the first author's web page.

4. To calculate the effect of corruption in a democracy, we add the corruption and interaction coefficients (Friedrich, 1982). The result is a near-zero effect of corruption in a democracy. The small increase in growth indicated by the summed coefficients is not significant. Additional evidence for this lack of significant impact appears in the second and third columns of Tables 2–4, which show that the corruption variable is positive in democratic states, but statistically insignificant.
5. The fact that average corruption is lower in democracies than in non-democracies might be due to the beneficial effects of democracy, but the relationship might also be spurious given that richer societies have undergone substantial political and social modernization, and are hence more likely to be simultaneously democratic and less corrupt.
6. Kurzman et al. (2002), for instance, compare cross-sections with pooled data using one-year intervals (as in our analysis), and they find that  $R^2$  falls sharply, while many control variables become insignificant. Barro (1997) reports a similar phenomenon.

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