

The effects of majority state ownership of industry or mining on corruption:

A cross-regional comparison

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Scholars are increasingly interested in exploring the nature, causes, and effects of corruption to understand its role in economic development (See, e.g., Azfar et al., 2001; Campos et al., 1999; Kauffman, 1999; Rose-Ackerman, 1999; Alam, 1989; Shleifer and Vishny, 1993; World Bank 1999,1997; Mauro, 1995).¹ Also, the World Bank has an anti-corruption bibliography online that lists well over 150 articles and books written on the subject of corruption, most of which have been written since the early 1990s.² In addition, at least one important non-governmental organization, Transparency International, is dedicated to the eradication of corruption and has systematic perception survey data from 1995 onwards.³

This paper attempts to contribute to the corruption literature with the introduction of a previously understudied structural variable. I assess the effect of majority state ownership of export sectors and industry on levels of corruption. My research design uses a cross sectional regression analysis that controls for other important rival explanatory variables for corruption. However, given the widespread and simultaneous implementation of both economic and political reforms in many parts of the Third World, as well as the independent effects of widespread and systematic IFI stabilization or structural adjustment programs, I examine averaged, cross-national data from 1980-83. I am then able to show that majority state ownership of natural resources and industry is a strong predictor of corruption.

Definitions and Measures of Corruption

Although there are competing concepts and measures for corruption, this work will utilize the one of the most widely cited and parsimonious definition which comes from the World Bank: corruption is “the abuse of public office for private gain” (World Bank, 1997, 102).⁴ The Bank

argues that corruption is greatest where “distortions in the policy and regulatory regime provide scope for it and where institutions of restraint are weak” (Ibid.). By this reckoning, regulation, distorting policies, weak bureaucracies, and weak judicial systems all allow for more corruption.

Similarly, M. S. Alam (1989) argues that corruption can be best understood as a function of “all agent-principal relationships and as such may be defined as (1) the sacrifice of the principal’s interest for the agent’s, or (2) the violation of norms defining the agent’s behavior (442).” He contrasts this with most other definitions that describe corruption as “a departure from the norms of modern bureaucracy”(Ibid.). Therefore, the definition of corruption in this case has legitimacy vis-à-vis rules, procedures, stewardship, and discretion at its center.

Beyond merely defining corruption, several studies centering on economic development have tried to obtain objective measures of this concept. For instance, the World Bank conducted surveys to measure cross national levels of corruption (World Bank, 1997). In addition, Transparency International has compiled survey data since 1995 based upon the perceptions of international businesspeople and has recently included more Third World nations.⁵ Paulo Mauro used survey data from the early 1980s to obtain such an objective measure (Mauro, 1995). He used information from Business International to construct an index for corruption. These data are, according to Mauro, useful to any business, and not just multinational corporations (MNCs). Since he was testing for effects on growth, he compiled an index that measured bureaucratic efficiency. This was an additive index of survey questions on three items: judiciary system, red tape, and corruption. As these three were closely related, he argued that it was a “more precise measure of corruption than the corruption index on its own” (Ibid., 686). Importantly, he showed that this measure was statistically linked to levels of investment and growth. Since these data were shown

to be useful in predicting levels of investments, this measure of corruption has been linked to economic outcomes in the developing world.

Consequences of Corruption

Although some early scholars illustrated how corruption can promote some elements of growth (Nye 1967, Huntington, 1968), most recent studies hold that corruption has negative consequences on economies. For example, Mauro (1995, 683) shows that corruption “lowers levels of private investment, thereby reducing economic growth.”⁶ The World Bank, too, sees corruption as a roadblock to development for several reasons. First, it “violates the public trust and corrodes social capital” (1997, p. 102). The Bank also indicates that high levels of corruption can decrease investment and economic growth. However, the predictability of corruption can have an impact on investment and growth. The Bank uses survey data to show that countries with more predictable corruption (where businesspeople can predict its costs with high confidence) get higher levels of investment than do those with unpredictable levels of corruption (1997, 103).

Causes of Corruption

Several explanations have been advanced to account for varying levels of corruption. The World Bank (1988, 4) has argued that corruption is a function of three variables: “the size of the rents under a public official’s control, the discretion that official has in allocating those rents, and the accountability that the official faces for his or her decisions.” Thus, the size and types of state activities are directly linked to corruption, especially through the nexus of accountability. John Mbaku (1994, 155) echoes this argument. He holds that both “regulation and ownership [by the state] create opportunities for bureaucrats to appropriate national resources for their own use.” This also creates incentives for private individuals to evade regulation and for corrupt officials not to enforce such regulations in return for private gains.

Others have argued that corruption is a result of **underdevelopment**. With low levels of development, one has lower literacy rates, more institutional incompetence, weaker institutional depth, and less application of the rule of law. Several scholars have argued that corruption appears to be an unavoidable bi-product of low levels of economic and social development (Bayley, 1966; Alam, 1989).

Several authors have argued that countries with extractive mineral sectors have unique economic difficulties. Karl (1997), for example, argued that “petro-states” have similar political and institutional arrangements that have impeded effective bureaucratic action. Similarly, Ades and Di Tella (1999) have shown that the higher the percentage of minerals is in a country’s total exports, the higher the levels of corruption are. However, Sklar and Bergen (1988) have argued that Botswana has done well, though a mineral exporter, due to its high level of political accountability.⁷ Finally, Shafer (1983) and Quinn (2002, 1999) have linked nationalization or majority state ownership of industries or mining with poorer economic performance – though the World Bank has long argued against any state ownership of industry (e.g., 1981).

The lack of accountability has also been offered as a prime cause of corruption. The World Bank’s emphases “good governance” by instilling accountability through such devices as transparency, judicial independence, separation of powers, privatization, free trade policies, and other institutions of restraint (World Bank, 1989; Collier, 1999). In addition, political and civil liberties underpinned by the rule of law are paramount among these institutions of restraint. However, since the World Bank cannot use regime type as a category when it makes loans, it has tended not to link loans or disbursements to “democracy”; it can only consider “good governance” (Hyden and Bratton, 1992). Nevertheless, political elites who distribute government resources in ways not scrutinized by a free press, or by the opposition, should have greater oppor-

tunity for corruption. Here an agent-principal argument is quite useful. As the government is the agent acting on behalf of the principal (the population of the country), instituting or creating democratic polities necessarily lowers the cost of monitoring and punishing agents who abuse their public trust.

In another approach to understanding corruption, some have argued that Third World countries that had been British colonies (e.g., India, Ghana) had higher bureaucratic ability (thereby lowering levels of corruption). In fact, Sanholtz and Koetzle (2000) have found statistical evidence that having a British colonial heritage was associated with lower levels of corruption.

Recent scholarship on sub-Saharan Africa suggests that countries in the region are more corrupt than elsewhere. Here, corruption is seen as stemming from unique aspects of African political culture, neo-patrimonial or personal politics, colonial experience, and even the colonial boundaries themselves (Mbaku, 1996; Mbaku, 1994; Levine, 1993; Szeftel, 1998; Herbst 2000; Englebert, 2000; Bratton and van de Walle, 1997; and van de Walle, 2001). Bayart's (1993) "politics of the belly" identifies the core element of African politics as the attempt to control state assets, and which leads to "corruption." Finally, the "personalization of politics" arguments show how institutional weakness as well as the paramount strength of personalities can help explain political corruption (Jackson and Rosberg, 1982). Chabal and Daloz (1999) even suggest that what people in the West see as corruption, Africans themselves view as normal politics.

Easterly and Levine (1997) include one additional variable to explain corruption: ethnolinguistic fractionalization. They attribute "poor economic policies, poor education, political instability, inadequate infrastructure, and weak institutions" [in Africa] to ethnolinguistic fractionalization (p. 2). Ethnolinguistic fractionalization was linked negatively and significantly to lower growth cross-regionally. The causal argument ties ethnic interest groups with redistributive poli-

cies in developing countries. As such, they would argue that Africa would be more corrupt, but due to its higher levels of ethnolinguistic fractionalization and not due to its political culture per se. Giving credence to this argument, ethnolinguistic fractionalization was found to be positively and significantly linked to corruption by La Porta et al. (1999).

State Ownership as an Incentive for Higher Levels of Corruption

Although past scholarship supports the view that government control of resources is positively associated with corruption (World Bank, 1997; Mbaku, 1999), it may be especially so when the state itself has majority ownership of the most productive sectors of the economy. Recently, majority-state ownership of productive sectors in sub-Saharan Africa was shown to be positively and significantly linked to more inward-oriented development policies (Quinn, 2002, 1999). In this study of sub-Saharan Africa, where the state owned more than 50% of the largest export sector (such as copper or oil) and/ or more than 50% of most of the capital-intensive and large-scale industries within the country, such countries featured macroeconomic policies that were significantly more inward-oriented than were other similar countries. Moreover, these policies were linked with lower per capita incomes in the region.

These findings concerning the political economy of inward-orientation can be linked directly to the political economy of corruption. When states feature such a majority share of ownership of an entire productive sector, or of most capital-intensive industries, this ownership increases both the opportunity and scale for corruption for several reasons. Using an agent-principal relation, the logic of this argument can be illustrated.⁸ First, since the “principals” in this dynamic are “the people,” the collective action costs of imposing strict discipline upon the agents under such conditions are quite high for a variety of reasons. No group can be more dispersed and

harder to organize than “the people” (for example, see Olson, 1965). These collective action costs are necessarily higher when one factors in the effects of repression on political activities within authoritarian systems – a common form of government in the world before the 1990s.

Second, recent scholarship has also shown that political elites often establish policies that maximize political support in lieu of economic ones (Bates, 1981; Bratton and van de Walle, 1997, Quinn, 2002, 1999; van de Walle, 2001). Where the state has majority control of the most productive sectors in the economy, the most important revenue generating enterprises and sectors are therefore likely to be run to maximize political support as opposed to maximizing economic returns. As such, decisions concerning whom to hire, how to invest “profits,” and how much to re-invest are likely to be via a short-term political calculus rather than via a medium- to long-term economic calculus. Many would argue that this is corrupt by its very nature as the agents are maximizing their short-term political self-interest at the expense of the principals’ long-term economic interests. Reforms that take away control, or majority ownership, of these sectors place sources of patronage in jeopardy – patronage that may keep many an elite in power.

Third, fewer individuals have the personal self-interest in either monitoring or curbing corruption in majority, government-owned sectors. Corruption increases, or is not checked, because no powerful groups have the self-interest to do so. The personal incentive that was missing from the Soviet model for increasing productivity is also missing for the curbing of corruption. On the one hand, curbing corruption would undermine the power structure of the dominant elite. Those who are engaged in corrupt practices are usually the highest officials in the company or in political parties – those who ostensibly would be in charge of eliminating corruption. They maintain their political power through corrupt practices, so they are expected to actively resist efforts at economic or political reform (Quinn, 2002; van de Walle, 2001).

On the other hand, few individuals within the system would have narrow self-interested reasons to move against corrupt practices – the costs would outweigh any possible benefit. First, managers would not be able to keep the “saved” economic resources – as these savings are part of the public domain. Second, whistleblowers, or others who do attempt to curb corruption, may find themselves with no future in the company, the party, or anywhere in the formal economic sector – as they are all dominated by the state elites who benefit from the corrupt status quo. Potential whistleblowers or reformers may even face harsher forms of repression or personal reprisals from the “corrupt” political elites who use state resources to maximize political power – and the more authoritarian the system, the more likely repression is. As such, would-be reformers would gain no personal benefits for stopping corruption, though they would gain adversaries among the political elite and their co-workers, thus high costs. Thus, corruption increases because of the changed cost-benefit ratios or incentives faced by those associated with majority state-owned productive sectors.

With majority state ownership of industries, politicians have greater claims to these otherwise private resources. According to Shafer, state ownership eliminates the “political insulation” that would protect private economic sectors from state intrusion, the latter of which is especially likely in soft states (1983, 96). Industries and export producing sectors owned by the state become more exposed to political and economic demands and pressures from citizens, lobbying groups, and the ruling elite (Ross, 2001). As such, issues of hiring and firing are more likely to be based upon political connections than merit. Even if managers of publicly funded firms want to increase efficiency, they may be reluctant to sack those who have gained these positions politically. A very strong public reaction would be necessary for the politicians to discipline their cronies.

On the other hand, owners or managers of private firms have strong incentives to cut down on expenses, reduce the size of the staff, give contracts to the most efficient firms (as opposed to the most powerful), and otherwise generally increase profits for the firm or sector. Lower costs increases profits that the private owners are allowed to keep. Inefficient, redundant, or “corrupt” workers face a higher likelihood of being fired in the private sector than in the public.

Should the most productive sectors in the economy be privately owned (or only by a minority of state ownership), it is likely that these private owners would be politically powerful. As such, business interests would lobby the government for formalized and predictable taxation as a preference over the payment of bribes and other forms of less predictable corruption. However, such groups are rarely powerful in countries with economies dominated by the state.

Fourth, as mentioned above, the World Bank (1997) holds that corruption is greatest under two conditions: where [1] “distortions in the policy and regulatory regime provide scope for it and [2] where institutions of restraint are weak” (p. 102). Since majority state ownership of most capital intensive industries or the largest export sector leads to more inward-oriented policies (Quinn 1999, 2002), and since these policies lead to more distortion – by definition – this indicates that majority state ownership can create or deepen the first condition which the Bank argues leads to corruption. Additionally, the World Bank (1998) argues that corruption is linked to “the size of the rents under a public official’s control, the discretion that official has in allocating those rents and the accountability that the official faces for his or her decisions” (p. 4).

Majority state ownership of most industries or the largest export sector should lead to higher levels of corruption for several reasons. First, majority state ownership of the largest export sector must increase the size of rents under the control of public officials – as this is often the largest earner for foreign currency as well as a sizable portion of GNP. Second, where the state

owns most of the capital-intensive industries, the size of their capital budgets would necessarily be higher as well as would be their access to scarce currency and import licenses. Third, since few state-owned enterprises are run for profit as the primary motive, officials are likely to face lower levels of accountability – at least vis-à-vis the market. State-owned enterprises are often used for social and political goals that are not reducible to “the bottom line.” As such, these managers would have more discretion and less economic accountability than would a for-profit firm manager. Governments routinely subsidize majority state owned firms. In fact, they are more likely, in the short term, to see political constraints than economic ones. Therefore, they would face less economic accountability.

Finally, even if parts of the company were minority owned by private investors, these non-government partners in a majority state-owned company would lose any vote in a showdown with the state appointed personnel on the board of directors. That is not to argue that multinational corporations (MNCs) and their officials are without power, just that the institution of majority voting under these conditions necessarily reduces their power. Where the host government owns over 50% of the stock, the host government can potentially win any vote – as it would have an absolute majority in any vote. The government can therefore win votes that might even harm the long-term interests of the company. Under such conditions, corporations can use exit or loyalty, but they cannot effectively use voice, as they would lose every vote on which the government position was rigid (Hirshman, 1970).

Hypotheses

Several hypotheses are tested which flow from the previous literature as well as arguments made herein.

- Hypothesis 1:** Countries that feature majority state ownership of their economies will have higher levels of corruption than will other similar countries.
- Hypothesis 2:** Less-developed countries will be more corrupt than others
- Hypothesis 3:** Countries with more political and civil rights will be less corrupt than countries with fewer such rights.
- Hypothesis 4:** Countries with higher government spending as a percentage of GNP will have higher levels of corruption than those with lower levels of spending.
- Hypothesis 5:** Countries with higher levels of mineral or fuel exports will be more corrupt than those countries with lower (or no) mineral or fuel exports.
- Hypothesis 6:** Countries with higher levels of ethnolinguistic fractionalization will be more corrupt than those countries with lower levels of such divisions.
- Hypothesis 7:** Sub-Saharan Africa countries will be more corrupt than other countries.
- Hypothesis 8:** Countries that have a British heritage will be less corrupt than those countries that do not have the same heritage.

Operationalization of Period, Variables, and Countries

Period Since most recent empirical studies examining corruption were conducted during a period in which Third World countries, and especially in sub-Saharan Africa, were undergoing dual economic and political transitions, these reforms could have affected the levels of corruption. Attempts at simultaneous reform have created new and significant constraints or obstacles on each transition (Bienen and Herbst, 1996; Callaghy, 1993; Nelson, 1989). Systematic economic reforms were well evident by the mid- to late-1980s: all new loans issued by the World Bank or the International Monetary Fund (IMF) contained significant economic conditions (Lancaster, 1989). In sub-Saharan Africa, for example, “real” economic policy compliance only began in the 1990s, and widespread political reforms only began in the late 1980s and early 1990s (van de Walle, 2001, 69). In addition, between 1989 and 1991, over 21 countries in this region changed constitutions and political practices to allow greater participation within their countries (Bratton and van de Walle, 1997; Diamond, 1996). Since the most widely used data on corruption comes from Transparency International (TI), and since TI only began systematic collection in 1995, its data, at least on Africa, were collected during this period of dual transition.

The problem with drawing conclusions about long-term trends concerning corruption from the later period is that transitions themselves have been identified as sources of corruption (Rose-Ackerman, 1999). As she indicates: “privatization is both an anti-corruption reform and a new potential source of corrupt gains. Although privatization is desirable in a wide range of cases, reformers ought to design the process to reduce the incentives for rent seeking that remain”(42). Empirical evidence from China and the former Soviet Union show that transitions and economic reforms “have drastically increased both the opportunities and motivations for corrupt pursuits” (Sun 1999, 2). Also, He (2000, 248) suggests that the co-existence of planned [read state owned

enterprises] and market economies will . . . contribute to the large-scale growth of corruption.” Finally, Kaufmann and Hellman (2001, 31) argue that some forms of corruption are unique to transitional periods.

Finally, since state ownership was found to lead to inward-oriented policies (Quinn, 2002, 1999), and since these inward-oriented policies under direct assault from structural adjustment programs, then the effects of state ownership on corruption should be lessened after the period of widespread application of IMF conditionality or World Bank structural adjustment. For example, because of IMF stabilization policies in sub-Saharan Africa, only three countries had a 50% or higher black market premium for its exchange rate from 1995-6, whereas 18 of the countries in the region did between 1975 and 1984 (van de Walle, 2001, 68-9). Moreover, the countries of Zambia, Nigeria, and Zaire, which featured majority state ownership of their economies, had average levels of currency overvaluation from 1966-86 of 72%, 146%, and 142% respectively (Quinn, 2002).

Therefore, to discriminate between corruption associated with transitional periods from more stable periods, as well as to test the effects of state ownership before the widespread application of structural adjustment programs, I conduct the analysis on cross-sectional data drawn from 1980 and 1983.⁹

Variables and Countries The dependent variable, national levels of corruption, is measured in several ways. First, a form of Mauro’s (1995) measure of corruption, bureaucratic efficiency, is used. Mauro takes his data from *Business International* (BI) indices for the years 1980-83 and averages them. These data were collected from surveys from sixty-eight countries, which were a mix of advanced and less-advanced countries. Bureaucratic efficiency is comprised of an index of

three separate components: the level of corruption, the amount of red tape, and the level of judicial effectiveness. We will use Mauro's measure, though we will invert it and call it **bureaucratic inefficiency**. Here the measures run from 0 to 10, where zero is the most efficient (or least corrupt) and 10 is the most inefficient (or most corrupt).¹⁰ Mauro claims that this measure is a better operationalization of corruption than is a direct question on corruption as it encompasses several elements of what people mean when they think of corruption. In fact, he claims that "on the basis of the definitions... [these three variables] ... represent closely related variables and that their simple average may be a reasonable proxy for what I will label bureaucratic efficiency" (Mauro, 1995, 686). Moreover, this variable is highly correlated with his other measure of corruption: Pearson's $r = .93$ [see Appendix I for a correlation of dependent variables].¹¹ Finally, Mauro's measure was statistically linked to investment, which was significantly linked to growth. Thus, this measure has been shown to have affected investment and growth at a statistically significant level.

Additionally, bureaucratic inefficiency is preferable to the single measure of corruption as the latter appears to be truncated at higher incomes. Thus, at the highest income levels, no variation in this variable was evident – rendering linear fits difficult. For example, as Appendix II indicates, the bivariate relationship between corruption and (logged) per capita GDP is not normally distributed, while the one for per capita GDP and bureaucratic efficiency is.

Nonetheless, for additional rigor and for added controls, three additional dependent variables, that are conceptually similar to Mauro's measure are used. Two come from elements comprising bureaucratic efficiency: red tape and corruption – both of which Mauro showed to be correlated with investment. The third comes from TI, which has data on 54 countries for the period of 1980-85. These data will also be tested with our model. These data come from a mixture of BI (1980) and Political Risk Service (1982/4/5).¹² This index, too, runs from zero –

BI (1980) and Political Risk Service (1982/4/5).¹² This index, too, runs from zero – 10, where 10 is the most corrupt (once again, the measure is inverted for conceptual clarity).

The first independent variable – majority state ownership – comes from Quinn (2002, 1999) and tries to capture whether or not a country had majority state ownership of its most productive sectors before 1980-83. It is a dummy variable that indicates whether or not the state had more than 50% ownership of its largest export sector or of most of its large-scale, capital-intensive industries.¹³ If so, it was assigned a value of one. Otherwise, it was assigned a zero. Since Quinn only operationalized this variable for countries in sub-Saharan Africa, it was found for the other regions through content analysis.¹⁴ [See Appendix IV for countries and classifications.]¹⁵

For a control, the percent of the economy owned by the state will be included as well. Although it does not capture some of the distinctions found by Quinn in sub-Saharan Africa, many scholars may be unconvinced by a dummy variable. This index of ownership runs from 0 to 10, where 10 is complete state control of the economy and 0 is nearly complete control of the economy in private hands [after being inverted] (Gwartney, Lawson and Block, 1996). It will be used instead of the dummy variable for majority state ownership as a control.¹⁶ Regressions 1 – 5 use the first operationalization of majority state ownership, while models, 6 – 10 use the control operationalization.

The operationalization for the second independent variable – level of development – is the (logged) per capita income of each country in 1965.¹⁷ This year is chosen for several reasons. First, this variable is intended to capture an initial level of development prior to nationalization of industries.¹⁸ This allows for an **initial endowment** argument for countries, and especially Africa, and allows us to compare countries by a rough gauge of level of development as early as possible.

Moreover, if the political culture arguments for Africa are to be taken seriously, the initial starting point has to take place only after colonization. Otherwise, colonial practices could be misconstrued as indigenous cultural ones. Although clearly some colonial influences will be in this measure as the colonial period had a strong impact, this time point measures the level of development for most countries after decolonization and prior to widespread nationalization of industries or mines.

Using a measure of GNP from the same year as the measure of corruption, as well as majority state ownership, could lead to problems of simultaneity: both affect current levels of corruption, so some lag is appropriate. As Mauro's work indicates, that corruption has a significant impact on per capita GDP, including the GDP from the same year as levels of corruption may put corruption on both sides of the equation – as the dependent variable and as an important component of GNP. Choosing a measurement for development before the measure of corruption keeps the project more methodologically precise.

One final justification the use of 1965 is to remove the effects of majority state ownership. Quinn (2002, 199) showed that, in Africa, majority state ownership led to lower per capita incomes by creating more inward-oriented development policies (Quinn, 2002, 1999). Since most worldwide nationalizations occurred in the late 1960s and 1970s,¹⁹ the per capita income numbers should come before this period so that the effects of state ownership are not included in the per capita GDP number. Since there is a negative relationship between inward-oriented policies and growth, the per capita incomes should be from a period before most countries nationalized their economies – thus the effects of the nationalizations will not be included in the measure of development.²⁰ Examining Appendix II, one can see that majority state ownership of industry was a powerful predictor of the logged per capita income of these countries in 1982. Should the same

or later years be used, state ownership (or nationalizations) would be included twice in the regression model: once as a dummy variable and once as a powerful determinant of per capita GDP. Therefore, the inclusion of per capita GDP from the same period as majority state ownership would include effects of majority state-ownership twice.²¹ Finally, using a variable that measures a nation's initial endowment argument is conventional. For example, Barro (1991) used per capita incomes in 1960 as a starting endowment point, though he did not make cultural arguments or take into effect a lagged effect from decolonization. In sum, by including a GDP starting point for 1965, many potential problems associated with simultaneity are eliminated.²²

The third variable, political accountability is the measure of political and civil freedoms and comes from Freedom House.²³ Since these numbers began in 1972, an average of both the political rights and civil rights from 1972 to 1983 are included. This allows us to model the medium to long-term effects of such rights on bureaucratic efficiency – as opposed to immediate effects, which few would argue. Each of the indices of political rights and civil rights were summed and averaged for the years of available data. This makes an index that runs from two to fourteen, where two is the least free and fourteen the most free. [The Freedom House numbers were inverted to keep the variable more intuitive.] Since the variable is an average of twelve years, we measure the effects of medium- to long-term civil and political accountability, as opposed to short-term effects.²⁴

The fourth variable, the size of government expenditure as a percentage of GDP, comes from the Penn World Tables. It is the average level of government consumption, *g*, for the years 1980-1983. The fifth variable is a country's reliance upon mineral or fuel exports. It measures the percent of exports from fuels or minerals, weighted by GDP and comes from various World Bank publications.²⁵ The sixth variable, ethnolinguistic fragmentation, comes from Mauro's

(1995) appendix and measures the likelihood that two different people would speak the same language or be of the same ethnic group.²⁶

The seventh independent variable is a dummy variable for whether or not a country is in sub-Saharan Africa. Although Mauro's data base only includes eight countries that can be included and the sample is not random, these countries represented over 70 percent of the region's gross national product and over 40 percent of the population in 1980.²⁷ Some may argue that this sample is too small to measure effects on Africa. However, to make the argument that African political culture leads to higher levels of corruption in Africa, one has to assume a high level of homogeneity (i.e., a common culture to all of Africa). A small sample size is only a problem when the population from which the sample is taken contains a lot of variance. [For example, scientists do not take sample of water from around the world to find the boiling point as it is assumed that water from anywhere will have the same properties.] Since cultural arguments lump nearly all of Africa together, distinguishing between countries would be an anathema to this argument.²⁸ As such, this is only a test of the cultural explanation for Africa. Finally, even if the reader remains unconvinced that this sample is sufficient make robust predictions about the political culture of sub-Saharan Africa, it can operate as a control for any independent effects that may stem from a common African culture. The last variable, British heritage, is a Bernoulli variable. If the country was ever a British colony (or the UK itself), it takes the value of 1. Otherwise, it is 0.

Methods Ten regressions are estimated employing Tobit. This procedure is often used when data are truncated or censored. This can be seen in Appendix III where the values of corruption appear to flatten against a ceiling at higher income levels. Although this was most clearly the case for the variable of corruption, it will be used in each estimation procedure.²⁹ Two equations are estimated using bureaucratic inefficiency as the dependent variable: with and without a measure of

political and civil rights. Since an effective judiciary is an element of political and civil rights as well as bureaucratic efficiency, the regression is run with and without the possible source of endogeneity – otherwise the same measurement could be on both sides of the regression equation. However, the other model using bureaucratic inefficiency includes the variable of political and civil rights as it so dominates the literature. Then, the dependent variables of corruption and red tape are used. Finally, data from the Transparency International website are used for a control, though it is for the years 1980-85.³⁰

Each of these five are then re-estimated (Equations 6-10) using a continuous measure of state ownership of productive sectors as a control to the dummy variable. Thus, Table One has five regression models using the dummy variable, while Table Two also have five estimations, but with the control continuous measure of state ownership.

Results:

Table 1

	(1)	(2)	(3)	(4)	(5)
Estimation Procedure ³¹	Tobit	Tobit	Tobit	Tobit	Tobit
Dependent variable	Bureaucratic Inefficiency	Bureaucratic Inefficiency	Corruption	Red Tape	TI 80-85 Corruption
Independent Variables:					
Constant	3.0684 (2.336)	8.427*** (2.076)	10.282*** (3.240)	2.779 (2.728)	6.333* (3.689)
Majority State Ownership (Dummy)	1.532*** (0.3299)	1.095*** (0.348)	1.221*** (0.453)	2.084*** (0.382)	2.163*** (0.407)
Per cap GDP 1965ln	-1.297*** (0.257)	-1.890*** (0.229)	-2.087*** (0.353)	-1.225*** (0.297)	-1.590*** (0.379)
Political and Civil Freedoms 1972-83	-0.214*** (0.054)		-0.0944 (0.074)	-0.173*** (0.0062)	-0.195*** (0.074)
Government spending % GNP 80-83	-0.0418*** (0.013)	-0.018 (0.013)	-0.0497*** (0.0179)	-0.0320** (0.0151)	-0.0310* (0.017)
% Exports Fuels/Minerals	0.0071 (0.0053)	0.1559*** (0.0054)	0.0130* (0.008)	0.00591 (0.0068)	0.0088 (0.0066)
Ethnolinguistic Fractionalization	0.0010 (0.0059)	0.0038 (0.0065)	0.0027 (0.0081)	0.00591 (0.0068)	0.0025 (0.0073)
Sub Saharan Africa	-0.642 (1.175)	-1.160* (0.598)	-0.995 (0.750)	-0.921 (0.632)	-0.4215 (0.555)
British Legal Origins	-0.056 (0.315)	-0.269 (0.337)	-0.098 (0.433)	-0.61223 (0.36648)	-0.0178 (0.453)
Sigma	1.15257*** (0.204)	1.453*** (0.2549)	2.175*** (0.385)	1.542*** (0.273)	1.257*** (0.265)
N	64	65	64	64	45

*** = Significant at the 99% level
 ** = Significant at the 95%
 * = Significant at the 90% level
 Numbers in parentheses are standard errors.

Table 2

	(6)	(7)	(8)	(9)	(10)
Estimation Procedure ³²	Tobit	Tobit	Tobit	Tobit	Tobit
Dependent variable	Bureaucratic Inefficiency	Bureaucratic Inefficiency	Corruption	Red Tape	TI 80-85 Corruption
Independent Variables:					
Constant	-6.8491*** (2.579)	-11.349*** (2.072)	-11.369*** (3.150)	-8.283*** (2.992)	-12.876*** (4.1447)
Majority State Ownership (index)	0.346*** (0.0858)	0.294*** (0.082)	0.297*** (0.1049)	0.479*** (0.0996)	0.253** (0.119)
Per cap GDP 1965ln	-1.514*** (0.282)	-2.009*** (0.224)	-2.0936*** (0.3443)	-1.533*** (0.327)	-2.124*** (0.479)
Political and Civil Freedoms 1972-83	-0.163*** (0.059)		-0.0724 (0.0717)	-0.1078 (0.0681)	-0.1135 (0.088)
Government spending % GNP 80-83	-0.0260* (0.014)	-0.0193 (0.014)	-0.0210 (0.0174)	-0.0170 (0.0165)	-0.0168 (0.020)
% Exports Fuels/Minerals	0.0097* (0.0054)	0.0125** (0.0056)	0.015** (0.0066)	0.01444** (0.0063)	0.0135* (0.0084)
Ethnolinguistic Fractionalization	0.0051 (0.0063)	0.007 (0.0065)	0.0091 (0.0094)	0.00202 (0.0073)	0.0009 (0.0089)
Sub Saharan Africa	-0.1.52*** (0.754)	-1.735*** (0.766)	-1.685*** (0.698)	-1.905*** (0.663)	-1.1420 (0.908)
British Legal Origins	-0.484 (0.350)	-0.605* (0.441)	-0.533 (0.427)	-0.0898 (0.4057)	-0.3389 (0.547)
Sigma	1.2388*** (0.287)	1.375*** (0.249)	1.849*** (0.338)	1.668*** (0.3045)	1.858*** (0.382)
N	60	61	60	60	45

*** = Significant at the 99% level

** = Significant at the 95%

* = Significant at the 90% level

Numbers in parentheses are standard errors.

Findings Examining the above results, we can draw several conclusions. Only two variables were significantly associated with corruption in each model: majority state ownership and level of development. Majority state ownership of important sectors of the economy was positively and significantly associated with inefficiency, corruption, and red tape in all 10 estimations. Therefore, either measurement of majority state ownership leads to the same conclusions. In addition, the level of development of countries in 1965 was negatively associated with corruption, red tape, and inefficient bureaucracies. The rejection level was 99% for all ten equations. Thus, level of development in 1965 was a strong predictor of levels of corruption 15 to 18 years later.

A few findings were mixed vis-à-vis the strength of their statistical significance. For example, although political and civil rights were negatively associated with inefficiency, red tape, and corruption in all 10 estimations, this finding was only statistically significant in equations 1, 4, 5, and 6. However, it was not significant in estimations 3, 8, 9, and 10. These results have mixed support for this finding, especially with the continuous measure for state ownership.

Second, the percent of a country's exports comprised of fuel or minerals was positively associated with corruption, inefficiency, and red tape. The direction was consistent in each estimation, though it was only highly significant in four estimations: 2, 7, 8, and 9. It was significant at 90% in models 3, 6, and 10. It was not significant in 1, 4, and 5.

Several other findings are of importance for their non-significance. First, the percent of government spending was not positively and significantly associated with corruption, inefficiency, and red tape as per the expectation of the hypothesis. In fact, the variable was negatively associated with these outcomes in every equation. Moreover, it was highly significant in three estimations (95%) and moderately significant in two (90%). These were models 1, 3, 4, 5, and 6 respectively. As such, government spending – while controlling for majority state ownership,

levels of development, and levels of democracy – does not lead to more inefficiency, corruption, and red tape. Moreover, it might have lowered these outcomes.

Second, the African variable was not positively associated with corruption in any of the estimation procedures. Not only did the variable carry the opposite sign in every estimation, but it was also statistically significant at the 95% level in models 6, 7, 8, and 9. Additionally, it was significant at the 90% level in model 2. This finding may come as a surprise to many Africanists. Nonetheless, the relatively low number of countries from that region limits the generalizability of these findings – unless one assumes the homogeneity of African culture. Then these results can be extended to all of sub-Saharan Africa (except for South Africa).

Third, ethnolinguistic fractionalization did have the predicted positive association with inefficiency, corruption, and red tape – though it was not statistically significant in any of the estimation procedures. Fourth, having a British heritage was negatively associated with corruption in each model as predicted. However, it was only significant in one estimation model and that at the 90% level.

Reconciling the two different sets of models, 1-5 and 6-10, the greatest differences were for government spending and percent of exports of fuels and minerals. With the models using the tipping point suggested by Quinn, more than 50% ownership of either the largest export sector or most capital intensive industries, both political and civil rights as well as percent of government spending as a percent of GNP were more likely to be significant. However, in the second set of equations, using the index of state ownership, the export of fuels and minerals were more likely to be significant. The changes may be attributable to the differences between the use of a tipping point and a continuous variable. Most of the other findings were similar across the estimations.

Conclusions

This analysis adds to the debate on corruption and bureaucratic efficiency in several ways. First, the analysis highlights the influence of majority state ownership of productive resources in increasing corruption, red tape, and inefficiency. The relationship between majority state ownership and corruption was positive and significant in each case. Second, this analysis re-emphasizes the importance of level of development and wealth on corruption.

Third, this analysis calls into question the prevalent notion that reducing the size of government would necessarily lead to less corruption. In fact, this variable carried the opposite sign for every equation. By including measures of political and civil freedom, levels of development, and majority state ownership, the degree to which government functionaries were held accountable to a voting public or to market forces was modeled.³³ However, even where the variable was not significantly shown to reduce inefficiency, corruption, and red tape, the size of government was never shown to increase corruption as predicted. Therefore, one could argue that more government spending – within a context of political and civil rights – should not increase levels of corruption, red tape, and bureaucratic ineffectiveness – despite putting more revenues in the hands of bureaucrats.

Fourth, the findings illustrate that sub-Saharan African difficulties with corruption, inefficient bureaucracies, and red tape in the 1980s were not due to the region's political culture or a common colonial legacy. The real sources of corruption and inefficiency are traceable to variables that affect countries cross nationally. Therefore, this analysis has shown that knowing that a country is in Africa does not help one to predict its levels of corruption, red tape, or bureaucratic inefficiency. This is not to argue that corruption in sub-Saharan Africa (or elsewhere) was not a problem, merely that the search for causation need not resort to political culture for an explana-

tion. Similar levels of wealth and state ownership resulted in similar, or worse, levels of red tape, inefficiency, and corruption in non-African countries.

Fifth, the export of fuel and minerals was sometimes associated with inefficiency, red tape, and corruption. It seems that the mixed findings may have to do with majority state ownership. Many mineral exporting countries feature majority state ownership of this sector. For example, nearly every OPEC country has majority state ownership of oil, as do many mineral exporting countries, such as Zaire (now the Democratic Republic of the Congo) and Zambia. Past studies on mineral exporting probably did not control for majority state ownership. However, given the mixed findings here, majority state ownership may not explain all the findings.

Sixth, the role of ethnolinguistic fractionalization and British heritage seem to have little to do with corruption, at least while controlling for other variables.

In sum, countries throughout the world in the early 1980s featured lower levels of inefficiency, corruption, and red tape when they had less than majority state ownership of their most productive sectors and if they were more developed. Higher levels of government spending did not lead to increases in corruption, and it may have lessened it. So too, with more political and civil rights: more democracy did not lead to more inefficiency, corruption and red tape – but probably lessened them – though the results are not robust. Countries that relied more heavily on exports of minerals and fuels may have been more corrupt, though the findings were mixed. Moreover, African countries do not appear to be more corrupt, inefficient, or have more red tape than other countries. As such, African culture cannot be blamed for higher levels of corruption – as African countries had lower levels controlling for rivals (in some models). Finally, having higher levels of ethnolinguistic fractionalization or having a British heritage did not affect the levels of corruption, inefficiency, or red tape.

Appendix I

Correlations for measurements of Corruption

Correlations

		Tranparency 80-85	REDTAPE	Corruption	Bureaucratic Efficiency
Tranparency 80-85	Pearson Correlation	1.000	.885**	.948**	.941**
	Sig. (2-tailed)	.	.000	.000	.000
	N	49	47	47	47
REDTAPE	Pearson Correlation	.885**	1.000	.791**	.924**
	Sig. (2-tailed)	.000	.	.000	.000
	N	47	68	68	68
Corruption	Pearson Correlation	.948**	.791**	1.000	.933**
	Sig. (2-tailed)	.000	.000	.	.000
	N	47	68	68	68
Bureaucratic Efficiency	Pearson Correlation	.941**	.924**	.933**	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	47	68	68	68

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations for some Significant Interval Level, Independent Variables

Correlations

		POLCIV2	RGDP65LN	govt%gdp
POLCIV2	Pearson Correlation	1.000	-.680**	.428**
	Sig. (2-tailed)	.	.000	.000
	N	67	66	67
RGDP65LN	Pearson Correlation	-.680**	1.000	-.332**
	Sig. (2-tailed)	.000	.	.006
	N	66	67	67
govt%gdp	Pearson Correlation	.428**	-.332**	1.000
	Sig. (2-tailed)	.000	.006	.
	N	67	67	68

** . Correlation is significant at the 0.01 level (2-tailed).

Appendix II

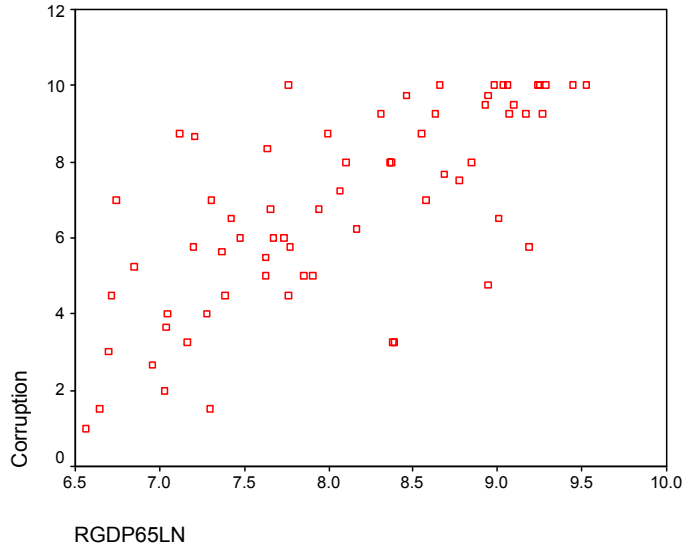
Predicting 1982 GDP logged with 1965 GDP logged and State Ownership

Dependent Variable	Per cap GDP 1982ln
Independent Variables:	
Constant	6.63*** (0.417)
Per cap GDP 1965ln	0.962*** (0.050)
State Ownership	-0.261*** (0.068)
R ²	.945
Adjusted R ²	.892
N	63

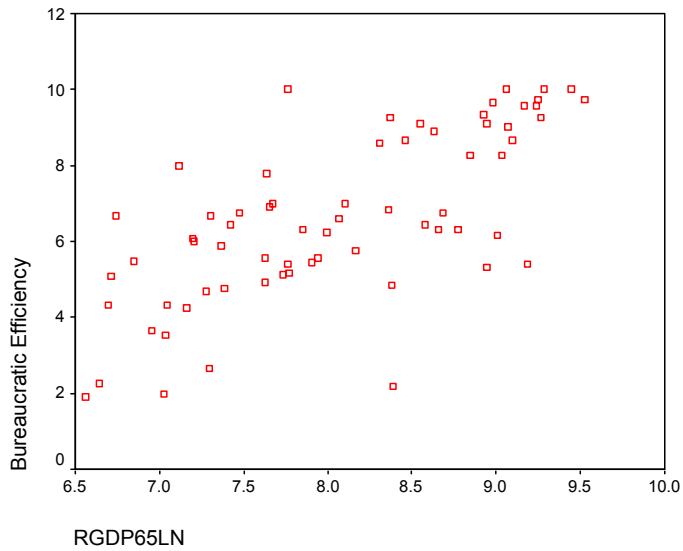
*** = Significant at the 99% level

Appendix III

In this first graph, the distribution appears to flatten against a glass ceiling as logged GDP increases. The upper right hand side shows the limit, or glass ceiling, which indicate truncated data, which has problems for inference. This is why Tobit is used.



In the second graph, the data does not appear to be as truncated, but Tobit is used for consistency.



Appendix IV

Countries listed as having majority state ownership and using Mauro's data:

Algeria, Angola, Austria, Bangladesh, Colombia, Ecuador, Egypt, Ghana, Greece, India, Indonesia, Iran, Iraq, Israel, Italy, Jamaica, Liberia, Mexico, Nicaragua, Nigeria, Norway, Pakistan, Peru, Portugal, Sri Lanka, Sweden, Thailand, Trinidad, Turkey, Venezuela, and Zaire.

Countries listed as not having majority state ownership:

Argentina, Australia, Belgium, Brazil, Cameroon, Canada, Chile, Cote d'Ivoire, Denmark, Dominican, Finland, France, Germany, Haiti, Ireland, Japan, Jordan, Kenya, Korea, Kuwait, Malaysia, Morocco, Netherlands, New Zealand, Panama, Philippines, Saudi Arabia, South Africa, Spain, Switzerland, Taiwan, United Kingdom, United States, Uruguay, and Zimbabwe.

Moreover, Singapore was excluded as it was an outlier. Hong Kong was excluded when political and civil rights were included, since it was still a colony. Austria, Greece, Indonesia, Israel, and Italy were coded as one because they scored a two on the government ownership score of Gwartney et al. (1996). In addition, Chile was listed as zero as it scored an eight on this index. Otherwise, they were coded by Quinn's category (e.g., more than 50% of largest export sector or most capital-intensive industries).

For the data taken from the home page of Transparency International, the countries listed as having majority state ownership were a sub-set of the above (except for Bolivia and Uganda):

Austria, Bangladesh, Bolivia, Colombia, Ecuador, Egypt, Greece, India, Indonesia, Israel, Italy, Mexico, Nigeria, Norway, Pakistan, Portugal, Sweden, Thailand, Turkey, Uganda, and Venezuela.

Those listed without majority state ownership were these:

Argentina, Australia, Belgium, Brazil, Cameroon, Canada, Chile, Denmark, Finland, France, Germany, Ireland, Japan, Jordan, Kenya, (S) Korea, Malaysia, The Netherlands, New Zealand, Philippines, South Africa, Spain, Switzerland, Taiwan, United Kingdom, and the United States.

Countries included from Gwartney were these:

Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Botswana, Brazil, Cameroon, Canada, Chile, Colombia, Congo, Cote d'Ivoire, Denmark, Dominica Republic, Ecuador, Egypt, Finland, France, Germany, Ghana, Greece, Haiti, India, Indonesia, Iran, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kenya, Korea, Madagascar, Malawi, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Niger, Nicaragua, Nigeria, Norway, Pakistan, Panama, Peru, Philippines, Portugal, Senegal, Singapore, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Tanzania, Taiwan, Thailand, Togo, Trinidad, Turkey, Uganda, United Kingdom, United States, Uruguay, Venezuela, Zambia, Zaire, and Zimbabwe.

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Endnotes

¹ This article does not attempt to give a comprehensive overview of work on corruption. It is intended as a test of general arguments on a little used, but promising, data set which measures corruption prior to simultaneous economic and political reforms in many parts of the world, especially sub-Saharan Africa. However, do see citations for recent scholarship. Also, see Bibliography for some additional references.

² See at http://wbln0018/worldbank.org/prm/prmhom.nsf/9af1d8ac9171a5b48525668e0063ebc7/20eedc8823188525668e0066103?OpenDocument#_3vs_.

³ Transparency International at www.transparency.de/ or at www.gwdg.de/~uwvw/icr.htm.

⁴ For other definitions, see A.J. Heidenheimer and M. Johnson, eds., *Political Corruption: Concepts and Contexts* (New Brunswick: Transaction Publishers, 2002); P. Bardham, "Corruption and Political Development: A Review of Issues" *Journal of Economic Literature* 35, 3 (1997): 1320-1346; also J.S. Nye, "Corruption and Political Development: A Cost-Benefit Analysis" *The American Political Science Review* 61, 2 (June, 1967): 417-427.

⁵ In 1995, these data had one sub-Saharan African country. In 1996, there were five, and by 2001, they had 14.

⁶ In fact, this lends support to the use his data in this analysis and an external prop for its validity.

⁷ Importantly, according to this author, the government of Botswana does not own a majority share of this sector.

⁸ For another discussion of the agent-principal dynamic, see North, 1981.

⁹ Argentina, Peru, and Turkey.

¹⁰ His measures are inverted to try to make the measures more intuitive, as per an anonymous reviewer's suggestion (e.g., the higher the number, the more corrupt). This does not affect the results aside from switching signs.

¹¹ This does not "prove" that the measure is good, but that it meets the standard of internal or convergent validation. See Manheim and Rich (1995, 75).

¹² See <http://www.gwdg.de/~uwvw/> for the countries and ratings. However, only 45 of the 54 countries were included due to missing data. This measure does have two more years averaged in, but the data are used as a control and are not the primary data for testing. For sources, see <http://www.gwdg.de/~uwvw/hist-sou.htm>

¹³ For the purposes of this analysis, a country as having significant state-ownership of the economy when the government controls more than 50% or more of the following: (1) most major industries -- usually resulting from explicit programs of nationalization or state investment, or (2) the major export producing sector -- usually entailing either minerals or petroleum. In this latter case, to be included by this definition, a state has to control over 50% of the **entire** sector and not merely between 50.1 and 100% of one competing company within the sector. Moreover, for majority state-ownership of resources to have inward-oriented effects, it must include the means of production as well as distribution. Therefore, the existence of state-owned and operated marketing boards does not constitute a sufficient condition for an economy to be defined as state-owned: the same inward-oriented policy regimes are not necessarily associated with these institutions. Rather, state-ownership of export producing sectors refers to cases where the state has rights over the commodity itself, before it is marketed.

¹⁴ The most important sources were these "The Library of Congress Country Studies Website," at <http://lcweb2.loc.gov/frd/cs/cshome.html>; Quinn, 2002, 1999; Rood, 1976; *Africa South of the Sahara*, S.V. various years and countries; and Kennedy, 1988; and Investment Promotion Network at Pananet at www.ipanet.com. One quality control check for this variable comes from Gwartney, Lawson, and Block (1996). They created an index of economic freedom and have one sub-category called government-operated enterprises as a share of the economy. This index runs from 0 to 10. Where it registered a two or less, the dummy variable automatically became a 1, regardless of other coding schemes, and where it was an 8 or higher, the dummy variable would become a zero. Otherwise, majority state ownership of an exporting sector or the most capital-intensive industries was arrived at through content analysis and country specific references.

¹⁵ Also, monarchies are not coded as state owned, because, as Olson (1993) begins one of his famous articles, monarchies (compared with other authoritarian systems and not democratic ones) are run differently than are other autocracies, using an agent-principal discussion. This is because ownership and distribution of state resources by a monarch are rarely considered corrupt in the same sense as in other countries. He or she usually owns privately what is considered to be public elsewhere. Moreover, the monarch at this point becomes the acting principal who is better able to monitor agents than are "the people." Finally, time lines for monarchs should not be as short as they are for officials controlling publicly held resources -- which cannot be passed on to their progeny which would impact their acceptance of corruption which would diminish the worth of these resources. Thus, Jordan, Kuwait,

and Saudi Arabia are excluded from state ownership variable as monarchies. These monarchies are head of government as well as head of state. Constitutional monarchies do not feature monarchical control of oil or mineral reserves.

¹⁶ Unfortunately, this lowers the n from 64 to 45, as Gwartney did not code as many countries.

¹⁷ The data for the per capita income of all the countries come from the Penn World Mark V Tables, 5.6; see Real GDP per Equivalent Adult in 1985 dollars. It was logged because this gave the data a more normal distribution. It can be found online at <http://cansim.epas.utoronto.ca/pwt/retrieve.html>.

¹⁸ Moreover, other variables often associated with development are not included, e.g., level of education; having two indicators or the same concept may violate Gauss-Markov assumptions of the independence of each variable. In addition, Hong Kong is excluded, as only independent nations are included.

¹⁹ For an overview of nationalizations see Rood, 1976; Krasner, 1978; and Krasner, 1985; Quinn, 2002, 1999.

²⁰ Quinn, 2002, 1999; for relationship between inward oriented policies and growth, see World Bank, 1987, 1981.

²¹ Should the equation for corruption be $Y = a + bX_1 + bX_2 + \dots + bX_k$, and bX_1 is equal to current GDP, and should state ownership be a significant determinant of GDP, [$bX_1 = a + bY$], then state ownership will be included in the equation for corruption twice, once as state ownership, and then the second time as a powerful determinant of GDP through corruption. Therefore a starting point of GDP some time prior to its current effects on GDP has to be included. Cause must precede effect, so having a previous GDP is better than having a current one given the very hypothesis of this analysis.

²² This is not to imply that the effects of colonization disappeared with decolonization. However, it is to claim that it is a better reflection of an initial endowment argument as all cases were independent by then.

²³ Gastil, various years.

²⁴ Data were available only for the even years from 1972 to 1980. To obtain the value for the odd years, I simply averaged the two years. Then the overall average from 1972 to 1983 was used -- including the extrapolated data. Otherwise, the later years would be overweighted.

²⁵ Most data are single years between 1980-83. Most data come from the World Bank, *The World Development Report* (WDR) for 1986 and 1989 (for Africa). Other data come from the 1993 WDR, which were averaged from 1970 and 1991 and assumed to be representative for the early 1980s. Finally, for Botswana and Angola, data were taken from *Africa South of the Sahara*, 1984/85.

²⁶ The original source was Taylor and Hudson, 1972. For a different measure, see Collier (2000) who has been working on the variable ethnic domination and has linked it to civil war – though not to corruption directly. See http://econ.worldbank.org/files/3164_Collier_Ethnic_Diversity.pdf

²⁷ They are as follows: Angola, Cameroon, Cote d'Ivoire, Ghana, Liberia, Nigeria, Zaire (now the Democratic Republic of the Congo), and Zimbabwe. The cultural argument requires us to exclude South Africa from the sample. Calculated from World Bank 1989. With the inclusion of the South African case within the region, the results showed a slight positive effect of being in Africa, though only at a 90% confidence level. Otherwise, the results are the same.

²⁸ South Africa is the obvious exception as it was an apartheid state (minority white rule) until 1990. Using the assumption of homogeneity of African political culture, South Africa has to be excluded, as it is usually excluded from such studies. A culture of South African exceptionalism marks many if not most sub-Saharan African research.

²⁹ The Tobit procedure estimates a “normal” error structure for the countries near and at the upper limit of ten. It assumed that the data is truncated and projects a new distribution beyond this limit with “normal” error structures so that they are more similar to the rest of the distribution projecting past the censored or truncated data. See Kmenta, 1986, 560-566. The data also appear to be interval, not rank order, a Probit estimation is not called for.

³⁰ Singapore was left out of the data set, as it was an outlier.

³¹ The results from OLS were nearly identical in every case. However, given the cap/ceiling on the corruption data, Tobit is used, though the findings were nearly identical to OLS. In model 3, polciv was significant at 10%. In model 3, minfuel fell just below 10% sign..

³² See above note. In model 6, British heritage was not significant and political and civil rights were less so. In model 10, ethnolinguistic fractionalization was significant at 10% while percent of minerals or fuels was insignificant.

³³ Author, 2000.