6-1-2002

The Effects of Political Corruption on Caribbean Development (Working Paper No. 5)

Michael W. Collier
Florida International University, Latin American and Caribbean Center, mcollier@fiu.edu

The Effects of Political Corruption on Caribbean Development

by Michael W. Collier

Latin American and Caribbean Center
Florida International University
Miami, Florida

A paper prepared for the Caribbean Studies Association annual conference to be held from May 27 to June 2, 2002, in Nassau, Bahamas.

Bribery and corruption lead to a society where economic and political decisions become twisted. They slow social progress, hamper economic development, and drive up prices for products and services. A corrupt society is an unequal and unfair society.

Shell Oil (quoted in Friends et al. 2002)

Introduction

Why have the independent states and territories of the Caribbean not achieved higher levels of economic development? To many people in the Caribbean, the answer to this question lies in dependency theory (Cardoso & Faletto 1979). Many in the Caribbean see the root of their economic development problems in their legacies of imperialism and slavery. In particular they see their problems in the world capitalist system the former colonizers and now developed states imposed on the developing states. According to dependency theory, which emerges from structural Marxism, this world capitalist system fails to pay Caribbean states and territories a fair wage for their labor and a fair price for their exported natural resources and agricultural and manufactured products. Blame for this continuing dependency structure is placed on the collusion of developed state governments, international financial institutions (International Monetary Fund (IMF), World Bank, World Trade Organization (WTO), etc.), and the developed world's multinational corporations.

Developed states, on the other hand, take a more agency-based neoclassical economic view as they attribute the Caribbean's economic development problems more to the region's lack of diverse and open economies, government-ownership of inefficient state enterprises, continued restrictive tariff barriers, failure to institute free trade measures, and the lack of good governance measures. In particular, developed states are now focusing on how political corruption interferes with the "hidden hand" of market economies, which they argue leads to a lack of third world development. In the Caribbean, the developed states can point to The Bahamas as a perfect example of where a

diversified, open economy, combined with low corruption levels resulted in high economic growth. With a gross domestic product (GDP) per capita of $15,258, The Bahamas is the only independent Caribbean state listed as a high income developed state by the United Nations (UNDP 2001).

Caribbean citizens tend to overlook political corruption, the misuse of public power for private benefit, as a factor that retards the region's slow economic development. One reason for the downplaying of this political corruption factor is the lack of empirical evidence as to its effects. Recent United Nations and World Bank efforts to measure state socio-economic development indicators and governance factors, such as political corruption, now allow us to provide empirical evidence concerning the effects of political corruption on development. This paper will first review the literature on political corruption to see what others have found about its effects on state development. Through a series of statistical correlation and regression analyses, we will then test a number of hypotheses in an attempt to answer the question "What are the effects of political corruption on Caribbean development." This study finds that these effects are the most pronounced on a state's economic output and rule of law.

Literature Review and Theoretical Framework

The modern scholarly study of political corruption began in the 1960s and 1970s, spurred by the inclusion of corruption as an important factor in early modernization and democratization studies (Almond & Verba 1965, Huntington 1968). Since the 1960s, there have been hundreds of scholarly studies in the academic fields of anthropology, criminology, development studies, economics, financial management, international relations, public administration, political science, and sociology, all attempting to explain the causes and consequences of political corruption. These studies have adopted a variety of theoretical approaches. While the hundreds of mostly single-discipline corruption studies have produced rigorous theorizing and many useful case studies, the overall findings about the causes and consequences of corruption have been quite contradictory (Johnston 1986, p. 985).

Most scholarly corruption studies consist of single case studies that provide few theoretical generalizations that transfer to the study of corruption in other states. Lancaster and Montinola (1997, p. 185) highlight that "problems of definition, operationalization, and measurement have thus far constrained most students of corruption to ideographic single case studies....the lack of cross-national empirical studies prevents a more complete understanding of ... political corruption." Another scholar laments in her bibliography of political corruption that "high expectations about (corruption) theory [are] misplaced by a search for confirming data" (Johansen 1990, p. 35).

One of the main reasons for the dearth of quantitative empirical studies on political corruption was

the lack of an accepted measure of the levels of political corruption in world states. This situation changed in the late-1990s when Transparency International, the Berlin-based non-governmental organization that addresses corruption issues, began to publish an annual "Corruption Perception Index" for a limited number of world states. Over the past 5 to 6 years, Transparency International and the World Bank have refined the techniques for measuring the perception of state corruption and have continually added new states to their indexes, such that now there are good comparative corruption perception measures for most world independent states (see Transparency International 2001; Kaufmann et al. 2002). Using the latest World Bank corruption and governance measures, combined with the latest World Bank and United Nations Development Programme (UNDP) indicators of world development, it is now possible to provide empirical evidence of the effects of corruption on developing states.

While this study is about the consequences of political corruption, we cannot ignore the causes of corruption, if for no other reason than to rule out factors such as political rights, civil liberties, social trust, and economic openness that are often presented as both causes and consequences of political corruption. Political corruption is an extremely complex social phenomenon that encompasses a number of political, economic, and social factors. While there is not space in this study to discuss the many complex causes of political corruption, Table 1 summarizes the causes that have received both theoretical and empirical support in the author's previous works (see Collier 1998, 2000, 2001, 2002). Table 1 provides the structural factors that determine a ruling elite's opportunities for corruption and a rough index for measuring a state's level of corruption. Table 1 factors such as a state's economic openness and its levels of political rights and civil liberties, often combined to measure a state's level of democracy, are not included in the empirical analysis in this study as it is has been found that these factors are causes and not consequences of political corruption.

The literature on the consequences of political corruption falls into two general categories of indicators: (1) socio-economic output, and (2) economic investment sources. GDP per capita, which has been found to strongly correlate with a state's level of corruption, is one of the most-used socio-economic indicators to measure development. Lambsdorff (1999a) highlights, however, that there is little agreement in the literature as to the causal effects between GDP per capita and political corruption. The literature differs over whether a state's gross domestic economic output, as measured by GDP per capita, represents a cause or a consequence of corruption. One solution to this quandary can be found in the neoclassical economic theory concept of X-inefficiencies (Lambsdorff 2002). Drawing on the work of Leibenstein (1966), corruption theorists now point to the inefficiencies that corrupt government officials involved in policy-making and policy-execution create in a socio-economic system in order for the officials to benefit personally from their positions. The theory of X-inefficiencies offers that societies with high levels of corruption will experience significant self-imposed (X) inefficiencies in the use of societal

resources resulting in macroeconomic mismanagement, lack of organizational innovation, loss of competitiveness, and overall collective non-performance. Systems with large X-inefficiencies are driven more by the "invisible foot" or "grabbing hand" of the governing elite and less by the "invisible hand" of market mechanisms as theorized by Adam Smith and others of the neoclassical economic school. Under the theory of X-inefficiencies, corruption creates distortions in a socio-economic system that benefits the governing elite and government bureaucrats, and those groups allied closely with them, at the expense of the mass citizenry.

Under the theory of X-inefficiencies, GDP per capita, used as a measure of total societal economic output, becomes a logical indicator of development. This supports the proposition that states with high levels of economic X-inefficiencies created by a self-interested governing elite and government bureaucrats will display lower levels of economic growth as measured by GDP per capita. The X-inefficiencies also predict that capital available to the state would be used inefficiently, affecting not only the overall economic output, but also retarding the creation of infrastructure vital to sustained economic growth. This is especially true of governments that frequently support "white elephant" projects with public resources because they provide the governing elite more opportunities for obtaining economic rents (i.e., payoffs, kickbacks, bribes, speed money, etc.) than do more productive projects, such as building capital infrastructure and improving public welfare programs in education and health care.

These areas related to X-inefficiencies have been the focus of past efforts to lend empirical support to the relationship between corruption and development. A World Bank team (Kaufmann et al. 1999) finds, drawing from earlier work by Hall and Jones (1999), that by controlling for countries in equal stages of development, measures of GDP are a fruitful path for determining effects of corruption on development. For example, Lambsdorff (1999b) discovers in regressing the ratio of GDP to capital stock on corruption in a cross-section of 69 countries, that a 6-point increase in the TI Corruption Perception Index—say an increase from Colombia's 1999 rating to that of the United Kingdom—would increase Colombia's GDP by 20 percent. Tanzi and Davoodi (1997) show that high levels of corruption lower the quality of state infrastructure, thus supporting the proposition that high levels of corruption decrease the efficiency of capital use in a society. Mauro (1997 & 1998) also determines that corruption lowers public expenditures on education and health care, arguing that the causal mechanism for this effect concerns the fact that "white elephant" projects not related to education or health programs (i.e., construction of roads, dams, airports, seaports, etc.) offer public servants better opportunities to collect rents. This same logic also governs the propensity of governments to invest in new technologies. States with high corruption levels are also less likely to expend resources on technology projects as they are less lucrative for rent-seeking than the more traditional "white elephant" projects (A.T. Kearney, Inc 2002).

The theory of X-inefficiencies is based on the assumption that the governing elite, government bureaucrats, and those allied with these groups, will benefit from the self-imposed inefficiencies they impart on the state's economic system and public expenditures. While these groups benefit from corruption, others in society suffer. Gupta et al. (1998) offer that corruption increases societal income inequality as measured by the GINI Index. Controlling for a variety of variables in a cross-section of 37 countries, these authors find a strong positive impact of corruption on inequality. Other indicators of inequality and poverty, such as the UNDP's Human Poverty Index and Gender Development Index have not been used previously in models explaining the effects of corruption on development.

The second category of development indicators, economic investment sources, is a much-studied area in the corruption literature. Neoclassical economic theory holds that high investment levels are critical to a state's economic growth. Mauro (1995) was one of the first to show that corruption negatively impacts investment levels as corruption increases investors' risk in various investment sources. Resources for a state's economy come from several investment sources, including foreign direct investment, portfolio investments, domestic savings, international aid, and state budgets. Foreign direct investment has been the topic of most corruption studies. Wheeler and Moody (1992), Mauro (1995, 1997, 1998), and Wei (1997) all show the strong correlation of corruption to foreign direct investment levels—i.e., where foreign firms acquire ownership or control over a state's firms. No studies have attempted to establish the empirical relationship between corruption and portfolio investments—i.e., where foreign entities invest in a state's stock and bond markets. Domestic savings have also not been a topic of empirical corruption studies, however, it is a topic of some theorizing. North and Weingast (1989) argue that domestic savings require trust in a state's banking system. Without such trust, domestic savings will either not be deposited in local banks, or will be transferred to foreign banks. Alesina and Weder (1999) discover, using a variety of empirical models that aid donor countries do not discriminate against states with high corruption levels. Conversely, several of their models found that corrupt states are more likely to attract aid from developed states. Finally, while no empirical studies exist to support the proposition, it can be argued that states with higher corruption levels will also have higher debt levels. This assumes that states with higher corruption levels will borrow more in order to provide additional sources for the governing elite's rent-seeking. Moreover, states with high debt levels will have fewer domestic resources to dedicate to infrastructure building or public welfare programs in education and health care.

Another issue not discussed in the development literature is the consequences of corruption on societal levels of the rule of law. In the Caribbean, the wide-scale breakdown in the rule of law is largely related to the transnational trade in illegal drugs (see Griffith 1997, Bryan 2000). Every state in the Caribbean is affected by the illegal drug trade. Some states such as Jamaica, Trinidad and Tobago, St Vincent, and St. Lucia are drug producers growing local marijuana crops. The

larger role of Caribbean states are as drug transshipment points for illegal cocaine and heroin shipments bound from South American drug producing countries to markets in the United States and Europe. The mixture of corruption and drugs creates a vicious cycle of crime and violence that is engulfing many of the small Caribbean states. Corruption is what allows the illegal drug trade to flourish. Drug money payoffs to government officials, police officers, and justice system officials cause these officials to "look the other way" as the drug gangs go about their business on many Caribbean states. For example, in Jamaica it has been found that the "Drug Dons" ally with "Political Dons" in many of the parliamentary constituencies. The Drug Dons provide resources to the Political Dons, resources that are then used by the Political Dons to support political patronage networks that eventually result in parliamentary votes. In return, the Drug Dons are allowed by the government to operate virtually unimpeded in many constituencies. Thus, in Jamaica, while the Members of Parliament can truthfully claim that they have never met a Drug Don, this does not mean that their political patronage networks have not been enriched by drug money funneled through the intermediary Political Dons (see Munroe 1999, chap. 4). Other Caribbean states have similar structures that allow drug-financed corruption to fuel the breakdown of the rule of law.

Corruption alone is not the only variable that affects a state's level of development. The other key variables that must be consider concern resource endowments and geography—variables that speak to a state's potential comparative advantage. It can be assumed that those states with the best resource endowments are the most likely to develop faster. The most important resource endowments include: (1) energy resources, (2) non-petroleum natural resources, and (3) arable land. Geography is also a much-discussed variable that must be included in development models (Hausmann 2001). Tropical states, those located largely between the Tropic of Cancer (23.5 degrees North latitude) and Tropic of Capricorn (23.5 degrees South latitude) are considered less likely to develop due to their poorer soil, erratic climates, and vulnerability to infectious diseases. States that are landlocked face other geographic constraints as their local companies experience increased transportation costs for the export and import of natural resources, agricultural products, and manufactured goods. Island states face similar constraints as they are reliant on costly air and sea transport and cannot take advantage of cross-border trade by land routes as can continental states. At first glance, Caribbean states are often penalized in all of these comparative advantage variables. Few have energy resources, non-petroleum natural resources, or large amounts of arable land per capita. At the same time, all Caribbean states (except Bermuda) are tropical, and all but four are island states when using this study's definition of the Caribbean that includes Belize, Bermuda, The Bahamas, the Greater and Lesser Antilles, Guyana, Suriname, and French Guiana.

In order to test the full effects of political corruption on Caribbean development thus requires a number of individual hypothesis tests. A state's level of political corruption will be the primary independent variable of interest in each model. The models will have to control for both resource

endowment and geographic factors. Therefore, the hypothesis tests must regress resource endowment, geography, and political corruption levels on a variety of dependent variable indicators related to a state's socio-economic output and economic investment sources. The following research design section develops these hypothesis tests in greater detail.

Research Design

This study tests two working hypotheses:

Hypothesis 1: Controlling for state resource endowment and geography, states with the lowest levels of corruption will display the highest levels of socio-economic output.

Hypothesis 2: Controlling for state resource endowment and geography, states with he lowest levels of corruption will display the highest levels of economic investment resources.

While this study is about Caribbean development, the samples used to test the above hypotheses are drawn from the total population of world small and medium size developing states. Small and medium size states are defined using Crowards (2002) Caribbean Development Bank study, which uses cluster analysis to place states in categories based on their population, land area, and total income. States are defined as developing if they fall into the UNDP's list of low- or middle-income states (see UNDP 2001, p. 258). This criterion defines a total population of 133 independent small or medium size developing states worldwide. To generalize to a population of 133 states at the 95 percent confidence level requires a sample (N) of 99. To generalize to a population of 133 states at the 90 percent confidence level requires a sample (N) of 45. Due to states not having measurements for all variables in this study, samples used in this study's hypothesis tests range from 94 to 26 states.

The above sampling discussion reveals that the generalizability of the hypothesis test results in this study are limited. All of this study's hypothesis tests, except one (technology achievement), fall within the range for 90 to 95 percent confidence levels. With better than 95 percent confidence used as a normal social science standard, this study's hypothesis tests can therefore only be generalized to the states that make up the samples for the individual tests. The larger Caribbean states are included in these samples. Conditions in these states, which are part of this study's sample, are generalizable from the hypothesis tests. However, we cannot generalize this study's results to any of the Caribbean's smaller states such as, Aruba, Bermuda, French overseas states, the United Kingdom territories, members of the Organization of Eastern Caribbean States, or the Netherlands Antilles. The Bahamas is also not included in any of the samples due to its status as a high-income state.

The measure of corruption, the main independent variable of interest in this study, is taken from the World Bank's working paper *Governance Matters II* (see Kaufmann et al. 2002). Corruption is measured on an index scale of –2.5 to +2.5, with +2.5 indicating the least (zero) corruption. Developed through analysis of a number of other corruption perception indexes, business risk surveys, and good governance indexes, this corruption index measures the perceptions of corruption in a state that public power is being exercised for private gain. Corruption indexes for 1997-1998 were used to ensure that the corruption independent variable met time ordering criteria and lagged the 1999 measures of the development indicators used in this study as dependent variables.

The resource endowment control variable was developed as an index ranging from 0 to 3 indicating if a state is energy endowed, has substantial non-energy natural resources, or is endowed with substantial arable land. A state with a score of 3 on the index indicates it meets the requirements for all three of these resource factors. A state with a score of 0 on the index indicates it meets none of the resource requirements. A state with a score of 1 or 2 on the index indicates it meets 1 or 2 of the resource requirements. The individual resource factor requirements were established as follows using 1999 data:[4]

> A state was coded as energy endowed if: the state was a major energy exporter (it exported more than 50% of its own commercial use), the state imported less than 50% of its commercial energy needs, or more than 50% of the state's total electricity consumption was generated by other than fossil fuels (hydro, nuclear, etc.). Sources: WB 2001, CIA 2001.

A state had substantial non-energy natural resources if: the state was a major exporter of ores and metals (10% or more of its merchandise export totals); or the state possessed non-mineral, non-agricultural or non-petroleum natural resources that were a major export commodity. Sources: WB 2001, CIA 2001.

> A state was endowed with substantial arable land if it possessed more than .25 hectares of arable land per capita. Sources: WB 2001, CIA 2001.

The geography control variables were developed using a world map (see CIA 2001). Three dichotomous dummy variables, coded 1 and 0, were created to reflect the important geography factors. If 50 percent or more of a state is located between the Tropic of Cancer and the Tropic of Capricorn it was coded as having a Tropical Location. A state with no major seaports was coded as a Landlocked State. States completely surrounded by water were coded as Island States.

A number of state socio-economic output factors are used as the dependent variables to test Hypothesis 1. These socio-economic factors include:

GDP Per Capita (US$): Measured as a state's total gross domestic product divided by its total population. Sources: UNDP 2001, CIA 2001. GDP per capita should be considered as a proxy variable for a state's total economic output. By limiting this study's sample to small and medium size developing states, we comply with the Kaufmann et al. (1999) findings that by controlling for countries in equal stages of development, measures of GDP are a fruitful path for determining effects of corruption on development.

Capital Formation Per Capita (US$): Consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." Source: WB 2001.

Human Development Index: A composite index measuring average achievement in three basic dimensions of human development—a long and healthy life, knowledge, and a decent standard of living. Index scale: .000 to 1. Source: UNDP 2001.

Educational Index: An index based on the adult literacy rate and the combined primary, secondary, and tertiary gross students enrollment ratios. Rather than measure the resources invested in education, this index measures the output of the education system. Index scale: .00 to 1. Source: UNDP 2001.

Life Expectancy Index: An index created by normalizing the measure of life expectancy at birth across states. This index can be used as a proxy variable for the output of a state's health system. Index scale: .00 to 1. Source: UNDP 2001.

Human Poverty Index: A composite index measuring human deprivation in the three basic dimensions captured in the human development index—longevity, knowledge, and standard of living. Index scale 0 to 100, with 0 meaning no poverty. Source: UNDP 2001.

GINI Index: A measure of the extent to which the distribution of income (or consumption) among individuals or households within a state deviate from a perfectly equal distribution. Index scale 0 to 100, with 0 being perfect equality. Source: UNDP 2001.

Gender Development Index: A composite index measuring average achievement in the three basic dimensions captured in the human development index—a long and healthy life, knowledge, and a decent standard of living—adjusted to account for inequalities between men and women. Index scale: .000 to 1. Source: UNDP 2001.

Technology Achievement Index: A composite index based on eight indicators in four dimensions: Technology creation, diffusion of recent innovations, diffusion of old innovations and human skills. Index scale: .000 to 1. Source: UNDP 2001.

Rule of Law: A composite index that measures the extent to which people have confidence in and abide by the rules of society. These include perceptions of the incidence of both violent and non-violent crime. Index scale: -2.5 to +2.5, with +2.5 being the strongest rule of law. Source: Kaufmann et al. 2002.

A number of state economic investment source factors were used as the dependent variables to test Hypothesis 2. These economic investment source factors include:

Foreign Direct Investment Per Capita (US$): Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. Source: WB 2001.

Portfolio Investment Per Capita (US$): Investment excluding liabilities constituting foreign authorities' reserves covers transactions in equity securities and debt securities (i.e., stocks and bonds). Source: WB 2001.

Domestic Savings Per Capita (US$): Calculated as GDP less final consumption expenditure (total consumption). Source: WB 2001.

Aid Per Capita (US$): Official development assistance received through grants or loans, net of repayments. Source: UNDP 2001.

Debt Service Per Capita (US$): Debt service is the sum of principal repayments and interest actually paid in foreign currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the International Monetary Fund. Source: WB 2001.

The analysis for this study was conducted using the Statistical Package for the Social Sciences (SPSS). Tables 2 through 4 summarize the analysis. Table 2 provides a descriptive summary of the sample used in the analysis. In Tables 3 and 4, the correlation and ordinary least squares (OLS) regression analyses that are carried out in three phases are summarized. First, a bivariate correlation analysis was conducted using only the corruption independent variable with each of the dependent variables. This procedure reveals the strength of the bivariate relationships between corruption and each socio-economic output and economic investment source dependent variable

defined above. Table 3, Column 1 provides the Pearson's correlation statistic for the bivariate correlation. Second, multivariate OLS regression tests of Hypotheses 1 and 2 were conducted by regressing the control variables for resource endowment and geography and the corruption independent variable on each dependent variable. Table 3, Column 2 provides the b coefficient for the corruption variable for these hypothesis tests, while Column 3 provides the Pearson's correlation (R^2) for the same tests. Table 4 provides the b coefficients for the control variables for resource endowments and geography from these same hypotheses tests. Finally, the hypothesis test models were re-run without the corruption independent variable as a sensitivity analysis to determine the amount of the Table 3, Column 3 Pearson's correlation (R^2) for each test that could be attributed to the corruption variable. These results are shown in Table 3, Column 4. Table 3, Column 5 provides the number (N) in the sample for each hypothesis test.

Bias in the above hypothesis tests that could affect the validity of this study's results originates from several sources. First, the researcher does not have control of the measurement of the corruption independent variable or any of the dependent variables defined above. Since these variables all come from World Bank, UNDP, or US Central Intelligence Agency sources, it is assumed they have come under some scrutiny—*in fact these are considered the best* measurement of each variable available. The corruption and rule of law variables are further suspect as they are based on the "perceptions" of businesspersons, government officials, analysts, and citizens who live or work in the developing states, however, these are also considered the best measurements of these variables currently available. All economic output variables are also suspect because they do not include figures for the informal economies that can account for 50 percent of more of the economic transactions in some developing states. Second, the resource endowment variable described above is only a rough estimate of this concept for the sample states. A study that focused primarily on resource endowment as the main variable of interest would use a more refined measurement of this variable. Third, the concept of development is much more complex than the models developed in this study reveal. In this study, variables such as economic openness and levels of democracy, both of which exhibit strong correlations with socio-economic factors such as GDP per capita, are assumed to work through the intervening corruption variable (see Table 1). More appropriately, economic openness and levels of democracy have causal links to both corruption and the socio-economic factors used as dependent variables in this study. To include these variables in this study's hypothesis tests would require the use of structural equation models whose analysis are beyond the scope of this study. If the above biases were accounted for in this study, combined they should have made the results of the regression tests more significant, thus strengthening the overall results showing the significant effects that corruption has on state development.

Findings

Eight of the ten hypothesis tests using socio-economic output factors as dependent variables support Hypothesis 1. Only the regression models for life expectancy index and GINI index were not significant. In Table 3, the economic factor tests for the variables GDP per capita and capital formation per capita were among the strongest of any of the dependent variables. Both of these economic variables showed moderate (greater than .40) bivariate correlation with the corruption variable. They also demonstrated highly significant results for the corruption variable in the Hypothesis 1 model, revealing that the corruption variable accounts for a significant amount of the variance explained by each model. The GDP per capita hypothesis test reveals that if a state were to improve its corruption index measure by 1 unit, its GDP per capita would increase by $3017. Moreover, if a state were to improve it corruption index measure by 1 unit, its capital formation per capita would increase by $642. These large dollar value increases for GDP per capita and capital formation per capita, combined with the fact corruption accounts for 23.8 percent and 22.6 percent of the variance in these two variables respective hypothesis tests, indicate just how significant corruption levels are to state economic development. These tests reveal how X-inefficiencies inserted into a state's economic system decrease the systems overall output. The capital formation variable is also an indicator of the serious effects that "white elephant" projects can have on a state's economy.

When moving away from the economic output variables in Table 3, the tests of the composite socio-economic variables that measure human longevity, knowledge, and standard of living, support the hypothesis in 2 of 3 areas, however, the results are not as strong as for the above purely economic variables. The test of the human development index variable, which includes measures for income, education, and health, supports Hypothesis 1, however, the effects that a 1 unit increase in the corruption index measure would have on the human development index (.086) are small. Additionally, Table 3 shows that the overall influence of the corruption variable on the model variance (7.6 percent) is much weaker than for the above economic variables. Similar results are found for the educational index variable. Although the hypothesis test of the education index supports Hypothesis 1, its overall results are not strong. At best we can say that corruption has a weak effect on a state's educational system output. Finally, the test of the life expectancy index variable does not support Hypothesis 1. This study reveals that corruption has no significant effect on the output of a state's health system in this study's sample.

The Table 3 tests of variables dealing with socio-economic inequality are also not as strong as the economic output variables. The test of the human poverty index, which includes measures for human longevity, knowledge, and standard of living, support Hypothesis 1, however, the effects that a 1 unit increase in the corruption index measure would have on the index (-7.62) is small and the overall influence that the corruption variable has on the model variance (6.5 percent) are weak. The same is generally true of the gender development index. The Hypothesis 1 test using the GINI Index as the dependent variable was not significant. This may be attributed to the small

number of cases (N=59) included in this test, or the fact that income inequality has no relationship to corruption levels.

The Table 3 test using the technology achievement index is quite interesting. Only 26 of the sample states were included in this test as the other states did not have a UNDP developed technology index score. Still, with such a small sample, the overall results were quite significant. Table 3 demonstrates that an improvement in the corruption index by 1 unit will cause the technology index to improve by .141. Additionally, 34.7 percent of the variance in the model for this hypothesis test can be attributed to the corruption variable. Thus, while we can only generalize to the sample of 26 states with a measure for the technology achievement index, it appears that for these 26 states corruption is a strong and highly significant factor in whether a state is able to adopt new technologies in hopes of increasing their economic output.

The Table 3 test using the rule of law variable is also interesting. Rule of law has the strongest and most significant relationship with corruption of any of the other variables included in the Hypothesis 1 socio-economic output tests. The bivariate analysis reveals a strong .714 correlation between the two variables. Table 3 reveals that a 1 unit increase in the corruption variable will cause an .841 increase in the rule of law—an extremely strong effect considering the two variables are measured on the same scale. When rule of law is used in the Hypothesis 1 model as the dependent variable, corruption explains 51.9 percent of the variance in the rule of law—also an extremely strong effect for any social science model. Thus, Table 3 reveals that corruption has a strong and highly significant effect on a state's rule of law.

The second set of Table 2 variables analyzed are those used in testing Hypothesis 2, which is concerned with the effects of corruption on economic investment sources. Here only two of the five tests supported Hypothesis 2—foreign direct investment per capita and domestic savings per capita. The tests indicate that an improvement in the corruption variable by 1 unit will increase foreign direct investment per capita by $110 and increase domestic savings per capita by $293. While these relationships are significant, they tend to be weak as corruption only accounts for 7.3 percent of the variance in the Hypothesis 2 model using foreign direct investment as the dependent variable, while corruption accounts for only 7.0 percent of the variance when domestic savings per capita is used as the dependent variable. The portfolio investment per capita variable was not significant, possibly due to there being a small number (N=56) of states in its test. As a result of these hypothesis tests it can be stated that corruption does have an affect on the amounts of foreign direct investment and domestic savings that a state will have made available for its economic growth.

The aid per capita variable did not pass the Hypothesis 2 tests. Therefore, it can be concluded that, up to 1999, a state's level of corruption had no effect on the decisions of developed states and international financial institutions (IMF, World Bank, etc.) toward dispensing development

funding. This supports Alesina and Weder's (1999) findings that aid donor countries do not discriminate against states with high corruption levels. When plotting aid per capita and corruption on a bivariate scatterplot, an interesting relationship was revealed. For states with corruption index measures between –2.5 and +1.0, there was no discernible pattern in the scatterplot. However, for states with corruption index measures above +1.0, there was a strong linear correlation that showed as corruption levels improved, aid greatly increased. So while it appears that donors are not discriminating against corrupt states, it also appears that they also provide increased aid amounts to those states who reach a certain level of freedom from corruption.

Finally, while the Table 3 debt service per capita showed significant results in the Hypothesis 2 testing, the pattern in the variables was the opposite of that hypothesized. Table 2 reveals that as a state's corruption conditions improved, its total debt service per capita also increased. This demonstrates that the states that are most corrupt are not the ones who are borrowing the most, instead the sample states without significant corruption problems have the largest debt burdens. Thus, in contrast to the assumption that corrupt governing elites will borrow more in order to increase their opportunities for rent-seeking, it appears that states with lesser corruption levels are borrowing more, possibly to stimulate their economic output.

A short analysis is also required of the Table 4 regression results for the resource endowment and geography control variables. The resource endowment index was significant in 8 of this study's 15 hypothesis tests. It was most significant in terms of its effects on the economic factors of GDP per capita and capital formation and the economic investment factors of foreign direct investment and domestic savings per capita. Tropical location was a significant factor in 12 of this study's 15 hypothesis tests. This study thus reveals the power of this factor in explaining state development, in particular the debilitating effect that geography can have on a state's progress toward development. The variables for landlocked and island states were each significant in less than half of this study's hypothesis tests. This reveals that these variables need additional scrutiny before inclusion in development models. However, this study demonstrates that a state's resource endowment and its tropical location are factors that must be considered in any development model.

Findings Relative to the Caribbean

Since nine Caribbean States were in the sample for this study, the results of this study can be generalized to those nine states which include: Belize, Cuba, Dominican Republic, Guyana, Haiti, Jamaica, Puerto Rico, Suriname, and Trinidad and Tobago. Table 2 reveals that these Caribbean states are statistically better than comparable small and medium-size developing states in other regions in terms of average corruption levels and GDP per capita. This is despite the Table 2 demonstration that the Caribbean states have the lowest levels of resource endowment of any

region. Table 5 summarizes the levels of political corruption measured among Caribbean states. The Bahamas is included in Table 5 for comparison even though it was not in the sample as it is considered a developed high-income state. Additionally, the right column in Table 5 reveals the relative corruption ranking of other Caribbean states based on the author's previous work (see Collier 2000). Overall, Table 5 and this study demonstrate that the Caribbean has a real political corruption problem that is significantly retarding the region's development.

Like other small and medium developing states, this study reveals that the most significant effects of corruption on Caribbean development are in total economic output (GDP per capita), capital formation, and in the rule of law. The X-inefficiencies that Caribbean governing elite are inserting into the Caribbean economies are a major cause of the region's degraded economic outputs and low levels of capital formation. The desires of Caribbean governing elite to share in the spoils of the illegal international drug trade are decreasing the rule of law as evidenced by the skyrocketing crime and violence rates across the region. In slightly weaker, but still significant ways, the levels of Caribbean corruption also affect the educational output, inequalities, and economic investment sources of these small and medium size states.

It is easier to see the effects of political corruption on Caribbean states when the Table 3 results are used to predict how improvements in political corruption can affect conditions in individual Caribbean states. Table 6 shows the predictions for conditions in Haiti and Jamaica if there were a 1 unit improvement in political corruption in each of those states. A 1 unit improvement in the corruption levels in Haiti would only bring it up to the approximate corruption levels now found in Suriname. While a 1 unit improvement in political corruption in Haiti would improve its annual socio-economic conditions across the board, the most significant effects would be a 206.1 percent increase in GNP, a $5.0 billion increase in capital formation, $860.2 million increase in foreign direct investment, and a $2.3 billion increase in domestic savings. A 1 unit improvement in political corruption in Jamaica world bring it up to a corruption level slightly better than The Bahamas. Table 6 demonstrates that with this corruption improvement would come an 84.7 percent increase in GNP, a $1.7 billion increase in capital formation, a $286.4 million increase in foreign direct investment, and a $761.6 million increase in domestic savings. Economic improvements of these magnitudes, even if over a 5-10 year period, would be considered economic miracles in most Caribbean states. As this study demonstrates, to achieve these economic improvements only requires a 1 unit improvement in a state's level of corruption.

Conclusion

In attempting to explain the effects of political corruption on Caribbean states, this study has in fact done so for most world small and medium size developing states. High levels of political corruption have a major economic effect on these developing states as it decreases overall economic output

(GDP per capita) and reduces capital formation. It also has a major effect on a state's rule of law—the more the corruption the weaker the rule of law. High levels of political corruption are also shown to have an effect on a state's educational output, societal inequalities, and on the levels of economic investment sources available, particularly foreign direct investment and domestic savings. International aid was not shown to be related to a state's level of corruption. This may soon change, however, as the recent Monterey Consensus has pledged more aid to developing states provided they open their economies to trade, reduce human rights violations, and reduce political corruption. These new rules should soon affect who receives aid from the World Bank, IMF, and Western banks that work closely with the World Bank, IMF and other international financial institutions. This study's main conclusion is that political corruption does have a major effect on the development of the small and medium size states in our study. If these states, including those in the Caribbean, ever hope to develop they must address their corruption problems. How do they address the complex causes of corruption? Table 1 provides a starting point for states to assess their corruption problems and begin needed corrections.

In a small way, this study has also tested one aspect of dependency theory. Cardoso and Faletto (1979) highlight that the dependency structure does not always start with the external components of the world capitalist system. Dependency can also start internal to developing states with the local bourgeoisie who control state economic systems, as occurs throughout the Caribbean.

> [Capital] [a]ccumulation is the result of the appropriation of natural resources by local entrepreneurs and the exploitation of the labor force by this same local group. The starting point for capital accumulation is thus internal (Cardoso & Faletto 1979, p. xix).

These internal groups are then linked through international markets and financial institutions to the world capitalist system, thus creating the system of dependency. This study demonstrates that this local bourgeoisie consists of government officials, government bureaucrats, and those economic, political, and social groups allied with them. It is this group whose acts of political corruption place the X-infficiencies in state economic systems and thus create the degradations to state development addressed in this study. Protestors of world no-liberal economic reforms would do well to address this internal link to the world capitalist system, instead of focusing their protests solely on the more visible external components of the system (developed states, World Bank, IMF, WTO, multinational corporations, etc.).

Finally, this is far from the final study of the effects of political corruption on Caribbean development. Future studies should strive to include more unbiased measures for state political corruption levels. Measures for corruption levels in the micro-states in the Caribbean (e.g., the far right column of Table 5) are vitally needed. Measures of other independent and dependent variables also need refining, particular the inclusion of informal economic measures in state economic output factors. A better picture of the effects of corruption would also be obtained by

using a structural equation model analysis that allows important variables such as economic openness, levels of democracy, and GNP per capita to be included in the overall models used to test for the consequences of political corruption on state development. In the mean time, until more Caribbean states have corruption measures and other variables are measured with less bias, this study provides empirical evidence that political corruption does have a serious effect on the overall development of small and medium size developing states.

References

Alesina, A. & Weder, B. (1999) Do Corrupt Governments Receive Less Foreign Aid? *National Bureau of Economic Research Working Paper* 7108, Cambridge, MA.

Almond, G. A., & Verba, S. (1963). *The Civic Culture*. Boston, MA: Little, Brown and Company.

A.T. Kearney, Inc. (2002). Globalization's Last Hurrah. *Foreign Policy* (January/February), 38-51.

Bryan, Anthony T., (2000). Transnational Organized Crime: The Caribbean Context. The Dante B. Fascell North-South Center Working Paper Series, Working Paper No. 1 (October).

Cardoso, F. H., & Faletto, E. (1979). *Dependency and Development in Latin America.* Berkeley, CA: University of California Press.

CIA (US Central Intelligence Agency). (2001). *The World Factbook.* Washington DC.: US Central Intelligence Agency.

Collier, M. W. (1998). *Political Corruption in the Eastern Caribbean: A Comparative Analysis.* Paper presented at the Caribbean Studies Association, Twenty-Third Annual Conference, St. Johns, Antigua, May 25-31, 1998.

Collier, M.W. (2000). *Political Corruption in the Caribbean Basin: A Comparative Analysis of Jamaica and Costa Rica.* Ann Arbor, MI: UMI Dissertation Services.

Collier, M.W. (2001). Failed Policy: Analyzing Inter-American Anti-Corruption Programs (pp.173-202). In V. Kubalkova (Ed.), *Foreign Policy in a Constructed World*. Armonk, NY: M.E. Sharpe.

Collier, M.W. (2002). Explaining Political Corruption. *Crime, Law & Social Change,* (forthcoming).

Crowards, T. (2002). Defining the Category of "Small" States. *Journal of International Development*, 14, 143-179/

Friends, Ivory, & Sime. (2002). *The Governance of Bribery and Corruption, A Survey of Current Practice.* (February).

Griffith, I. L. (1997). *Drugs and Security in the Caribbean, Sovereignty Under Siege.* University Park, PA: Pennsylvania State University Press.

Gupta, S., Davoodi, H., & Alonso-Terme. R. (1998). Does Corruption Affect Income Inequality and Poverty? International Monetary Fund Working Paper, No. 98/76.

Hall, R., & Jones, C. (1999). Why do Some Countries Produce so much more Output per Worker than Others? *Quarterly Journal of Economics*, CXVIII, 337-47.

Huntington, S. P. (1968). *Political Order In Changing Societies*. New Haven, CT: Yale University Press.

Hausmann, R. (2001). Prisoners of Geography. *Foreign Policy*, January/February, 44-53.

Johansen, E. R. (1990). *Political Corruption: Scope and Resources; An Annotated Bibliography.* New York, NY: Garland Publishing.

Johnston, M. (1986). The Political Consequences of Corruption: A Reassessment. *Comparative Politics*, 18(4)(July),

459-77. Reprinted In A. J. Heidenheimer, M. Johnston, & V. T. Le Vine (Eds.), (1989), *Political Corruption; A Handbook* (pp. 985-1006). New Brunswick, NJ: Transaction Publishers.

Kaufmann, D., Kraay, A., & Zoido-Lobaton, P. (1999). *Governance Matters.* Washington, DC: World Bank.

Kaufmann, D., Kraay, A., & Zoido-Lobaton, P. (2002). *Governance Matters II, Updated Indicators for 2000/01.* Washington, DC: World Bank.

Lambsdorff, J. G. (1999a). Corruption in Empirical Research – A Review. Transparency International Working Paper. Berlin, Germany: Transparency International.

Lambsdorff, J. G. (1999b). The Impact of Corruption on Capital Productivity. Unpublished Manuscript, Gottingen University.

Lambsdorff, J. G. (2002) How Corruption in Government Affects Public Welfare – A Review of Theories. Unpublished Manuscript, Gottingen University.

Lancaster, T. D., & Montinola, G. (1997). Toward a methodology for the comparative study of political corruption. *Crime, Law & Social Change, 27*, 185-206.

Leibenstein, H. (1966). Allocative Efficiency vs. X-Efficiency. *The American Economic Review*, LVI, 392-415.

Mauro, P. (1995). Corruption and Growth. *Quarterly Journal of Economics*, CX, 681-712.

Mauro, P. (1997). The Effects of Corruption on Growth, Investment, and Government Expenditure: A Cross-Country Analysis (83-107). In *Corruption and the Global Economy*, Washington DC: Institute for International Economics.

Mauro, P. (1998). Corruption and the composition of government expenditure. *Journal of Public Economics*, LXIX, 263-79.

Munroe, T. (1999b). *Renewing Democracy into the Millennium, The Jamaican Experience in Perspective*. Kingston, JM: The Press University of the West Indies.

North, D.C., & Weingast, B.R. (1989). The Evolution of Institutions Governing Public Choice in Seventeenth Century England. *Journal of Economic History*, IL, 803-32.

Tanzi, V. & Davoodi, H. (1997). Corruption, Public Investment, and Growth. International Monetary Fund Working Paper, 97/139.

Transparency International. (2001). 2001 Corruption Perceptions Index. Berlin, Germany: Transparency International.

UNDP (United Nations Development Programme). (2001). *Human Development Report 2001*. New York, NY: Oxford University Press.

Wei, S. J. (1997). How Taxing is Corruption on International Investors. National Bureau of Economic Research Working Paper 6030, Cambridge, MA.

Wheeler, D., & Moody, A. (1992). International Investment Location Decicions: The Case of U.S. Firms. *Journal of International Economics*, XXXIII, 57-76.

WB (World Bank). (2001) *2001 World Development Indicators CD-ROM.* Washington DC: World Bank

---

[1] While this 1999 data is measured simultaneously with the 1999 data used to measure the development factors that are used as this study's dependent variables, it is considered that this data does not change substantially from year-to-

year and approximates the data that would have been found in 1997 or 1998.