CORRUPTION AND ECONOMIC DEVELOPMENT: NEW VARIABLES IN THE MIX

Beverlee B. Anderson[1]

California State University, USA

Abstract

Purpose: The purpose of the paper is to explore the relationships that are thought to exist between the corruption within a country and additional selected components that contribute to a country's sustainable economic development across regions of the world.

Design/methodology/approach: Using data from the World Bank on various aspects of development, data from Transparency International on perceptions of types and levels of corruption, and information on government types from the CIA World Fact Book, a series of statistical models were developed to examine relationships among corruption in its various forms and dimensions of economic development.

Research limitations: The research is limited by the availability of data from the sources over the time frame examined.

Findings: The findings are mixed, showing that some types of corruption have greater negative impact on specific aspects of economic development; however, it appears that the effect may be moderated by other country factors.

Originality/value: The study adds information on female participation rate, Strength of Legal Rights Index and the GINI Index into the mix.

Practical implications: Corruption's impact on economic development may be moderated by cultural and "other" factors.

Keywords: Corruption levels and Economic Development, FDI, GDP growth and Capital Formation, GINI

[1] Beverlee B. Anderson, College of Business Administration, California State University San Marcos, San Marcos, CA 92096-0001 USA, Email: banderso@csusm.edu

INTRODUCTION AND BACKGROUND

The previous version of this research was presented in a paper, "Corruption and Economic Development: A Puzzling Relationship", presented at the 2012 WASD Conference (Anderson, 2012). That research focused on the following research questions:

1. Is there a relationship between corruption levels and GDP growth?

2. Are there relationships among factors of economic development: Capital Formation, Direct Foreign Investment and Aid Assistance, and GDP growth?

3. Are there relationships between corruption and factors of economic development?

4. Is there a relationship between cultural values and economic development?

5. Is there a relationship between cultural values and level of corruption?

To answer these research questions, the following sources of secondary data were utilized:

Corruption data: The core data used in this study are from Transparency International, which collects data on the general public's views on and experiences of corruption. From the survey data published between January 2009 and September 2010, the organization creates a *corruption perception index* (CPI) for the 178 countries surveyed. The index ranges from 0 (highly corrupt) to 10 (very clean). In 2010, the least corrupt countries were Denmark, New Zealand and Singapore – all tied with scores of 9.3. The most corrupt country on the list was Somalia, with a score of 1.1.

Economic data: Economic data used in the study are from the World Bank's Data Bank (http://data.worldbank.org) The data analyzed include: 1) Gross Domestic Product Growth for 2010, which is "calculated as the annual percentage growth rate of GDP at market prices based on constant local currency. It is the sum of gross value added by all resident producers in the economy" (156 countries); 2) Capital Formation data, which includes "outlays on additions to the fixed assets of the economy

plus net changes in the level of inventories" (134 countries); 3) Direct Foreign Investment for 2005 (164 countries) and for 2010 (154 countries), which includes "new investment inflows less disinvestment by foreign investors divided by GDP". 4) Aid Assistance for 2009, which consists of "disbursements of loans made on concessional terms and grants by official agencies of members of the Development Assistance Committee by multilateral institutions and by non-DAC countries to promote economic development" (124 countries).

Cultural values data: In addition to corruption and economic data, information on country culture was also included in the study. Cultural values and characteristics data are based on Hofstede's five dimensions of national cultures: individualism/collectivism; power distance; masculinity/femininity; uncertainty avoidance; and long/short term orientation. Of the 178 countries identified with a CPI, the Hofstede Cultural dimensions scores were available on four dimensions for 91 countries, while scores for long/short term orientation were available for only 43 countries. (http://geert-hofstede.com/countries.html)

The findings of that research are shown in Tables 1 and 2.

Based on these results, the conclusions reached are as follows:

"The relationship of culture, corruption and economic development appear to be linked; however, the exact relationships are puzzling. Corruption does not appear to be directly correlated with Hofstede's cultural dimensions, but at the same time the linkages between corruption

	CPI	GDP Growth	Capital Formation	DFI 2005	DFI 2010	Aid Assistance
CPI	1.00	-.060	-.306**	.187*	.171*	-.257**
GDP Growth	-.060	1.00	.086	-.026	.009	.169
Capital Formation	-.306**	.145	1.00	-.038	-.004	-.021
DFI 2005	.187*	-.026	-.038	1.00	.932**	-.056
DFI 2010	.171*	.009	-.004	.932**	1.00	-.140
Aid Assistance	-.257**	.169	-.021	-.026	.009	1.00

Table 1. Correlations between Corruption Index and among economic factors

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

and economic development and culture exist. The unravelling of these puzzling relationships provides many opportunities for research projects into the future. Uncovering how these factors work together and/or against each other has the potential to help countries develop sustainable economic growth."

NEW VARIABLES STUDIED

With this background, the decision was made to include more variables in the study, some of which were hoped would shed more light on the puzzling relationships. The additional variables considered are: the labour participation rate of females (over age 15), the Strength of Legal Rights Index, the GINI Index 2008, and the type of government of the country.

Female labour participation rate is the proportion of the population ages 15 and older that is economically active. The information is from the World Bank, which bases its figures on data from International Labour Organization, Key Indicators of the Labour Market data base. The reason for including this variable is the notion that there would possibly be less corruption if women were actively engaged in the labour market. It is also possible that GDP growth may be impacted by increased participation of women in economic activities. Information on this variable was available for 166 of the 173 countries included in the study.

Strength of Legal Rights Index "… measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and therefore, facilitating lending. The index ranges from 0 to

	CPI	GDP Growth	Capital Formation	DFI 2005	DFI 2010	Aid Assistance
Power Distance	-.663**	.119	.391**	-.135	-.103	.043
Uncertainty	-.155	-.233*	-.205	.023	-.023	-.230
Individualistic	.670**	-.134	-.367**	.097	.073	-.041
Masculine/Fem	-.189	.080	.045	-.010	-.038	.143
Long/Short term	.098	.184	.543**	.103	.192	-.297

** Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table 2.
Correlations between cultural dimensions, corruption and economic factors

10, with the higher scores indicating that these laws are better designed to expand access to credit" (World Bank website, 2012). The Haggard and Tiede, (2011) article states that "... aggregate indices perform better than the discrete components of rule of law that are highlighted in the theoretical literature (p. 682). Their article further suggests that more attention should be paid to "...how multiple dimensions of rule of law complex operate to promote or retard economic growth". Information on this variable was available for 163 of the 173 countries included in the study.

GINI Index "measures the extent to which the distribution of income or consumption expenditures among individuals or households ... deviates from a perfectly equal distribution. A 0 represent perfect equality, while 100 implies perfect inequality" (World Bank website, 2012). The World Bank data are reported to come from a variety of government and non-governmental sources. Unfortunately, GINI Index numbers were available for only 48 of the 173 countries included in the study.

Government type indicates the basic form of government. The *CIA World Factbook 2009*, includes 31 different government types; the descriptions are shown in Figure 3.

The CIA, however, cites that for some countries, more than one definition applies. The type of government combined with the *Strength of the Legal Rights Index* were seen as related to whether or not firms were more inclined to "bend the rule through bribery [corruption]… or lobbying" (Harstad and Svensson, 2011, p. 46). Information on government type was available for 168 of the 173 countries included in the study.

ANALYSIS AND FINDINGS

Government type: It was hoped that government type would yield some good information and could be found to be related to the level of corruption, as measured by the Corruption Index, and the growth in GDP. However, based on the CIA classifications, the majority of countries consisted of governments that fell into only three classifications: Republic (41%), Parliamentary Democracy (14.5%) or Constitutional Monarchy (10.4%). Eight of the government types were identified as being found in only one country and 10 types were not associated with any of the 168 countries studied.

Government Type	Description	% of Sample
Absolute monarchy	Monarch rules unhindered	0
Anarchy	Absence of governmental authority	.6
Authoritarian	State authority imposed onto many aspects of citizens' lives	0
Commonwealth	Founded on law and united by compact of the people for the common good	.6
Communist	State plans and controls the economy—goal is classless society	2.3
Confederacy (Confederation)	A union on compact or treaty between states, provinces or territories that creates a central government	.6
Constitutional	Operating under an authoritative document that sets principles and fundamental laws	1.2
Constitutional democracy	The sovereign power of the people is spelled out in a constitution	5.2
Constitutional Monarchy	A monarch is guided by the constitution	10.4
Democracy	Supreme power is retained by the people	2.3
Democratic Republic	Supreme power rests in the body of citizens entitled to vote for officers and representative	2.3
Dictatorship	A ruler or small group wields absolute power	.6
Ecclesiastical	Administered by church	0
Emirate	Supreme power is in hands of an emir	.6
Federal (Federation)	Sovereign power is formally divided between a central authority and a number of constituent regions	1.2
Federal Republic	Powers of the central government are restricted and component parts retain a degree of self-governance	5.2
Islamic Republic	Laws are required to be compatible with the laws of Islam	.6
Maoism	A continuous revolution is necessary if the leaders are to keep touch with the people	0
Marxism	Struggle of workers to form a classless society	0
Marxism-Leninism	Expanded form of communism	0
Monarch	Supreme power is in hands of a monarch or with constitutionally limited authority	1.7
Oligarchy	Controlled by a small group based on wealth or power	0
Parliamentary democracy	A parliament selects the government according to party strength expressed in elections	14.5

Parliamentary government	Similar to above	2.9
Parliamentary monarchy	State headed by a monarch who is not directly involved in policy formation or implementation	1.2
Presidential	Executive branch exists separately from a legislature	0
Republic	Representative democracy in which elected representatives vote on legislation	41
Socialism	Planning, producing and distribution of goods are controlled by a central government	0
Sultanate	Supreme power in the hands of a sultan	.6
Theocracy	Deity is recognized as the supreme civil ruler, but laws interpreted by ecclesiastical authorities	.6
Totalitarian	The state controls all	0

Table 3. Types of governments

This skewed distribution, heavily weighted toward Republics, made standard statistical analyses, which require normal distributions or a minimum number of cells with less than 5, to be inappropriate tools for studying the range of government types. Therefore, statistical analysis was run using only the three government forms that exist in 10 per cent or more of the studied countries. Cross-tabulations and differences in means were the statistical tests used. There was only one statistically significant finding associated with government type, and that was the level of corruption. The findings indicate that the least corrupt countries (Mean = 6.09) are more likely to have a Constitutional Monarchy, while corruption appears more prevalent in countries classified as Republics (Corruption Index Mean = 3.15).

Other Variables: The three other new variables were either indexes or percentages, which made correlation analysis an appropriate statistical test to use. These three variables were tested between each other and between the Corruption Index and GDP Growth in 2010. The findings are shown in Table 3

Female labour participation is positively associated with the Strength of Legal Rights and the GINI Index. The relationship between female participation in the labour force and the GINI Index was expected to be negative—the higher the participation rate, the greater the equality; however, that is not what was found. At the .05 level of significance, it appears that the higher the percent of female participation, the

greater (higher) the inequality in a country. This was quite a surprise! The positive relationship between female labour participation and the strengths of legal rights is understandable and somewhat expected. With rights and contracts being protected, women are more likely to participate in economic activities.

The Strength of Legal Rights is also found to be significantly correlated with the Corruption Index and the GINI Index. It is positively associated with the Corruption Index, indicating that the stronger the legal rights enforcement, the less corrupt the country. In addition, the negative correlation with the GINI Index shows that stronger legal rights and enforcement tends to be associated with more equality. None of the new variables were found to be associated with GDP growth, which was disappointing. It was hope that at least one of the new variables would be associated with economic growth.

CONCLUSION

The relationship of culture, corruption and economic development appeared to be linked; however, the exact relationships are puzzling. In an attempt to better understand possible linkages, four new variables were added to the analysis: female participation in the labour market, the GINI Index on equality, the Strength of Legal Rights Index, and the type of government. Relationships were found among the additional variables and between the new variables and corruption, however, no relationships were found between the new variables and economic

	Female Labour Participation	Strength of Legal Rights	GINI Index 2008	Corruption Index	GDP Growth 2010
Female Labour Participation	--	.221**	.297**	.021	.110
Strength of Legal Rights	.221**	--	-.412**	.346**	-.061
GINI Index 2008	.297*	-.412**	--	.012	.155
Corruption Index	.021	.346**	.012	--	-.060
GDP Growth 2010	.110	-.061	.155	-.060	--

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2 tailed)

Table 4. Correlations between the additional variables, corruption and economic growth

growth. The unravelling of these puzzling relationships provides many opportunities for research projects into the future. Uncovering how these factors work together and/or against each other has the potential to help countries develop sustainable economic growth.

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ABOUT THE AUTHOR

Beverlee B. Anderson received her PhD in Marketing from The Ohio State University. She currently serves as Professor of Business and Marketing at California State University San Marcos. She has held a variety of teaching and administrative positions at Universities in the United States. She is past President of Marketing Educators Association and has taught in graduate programmes in Mexico and India.