



CORRUPTION AND ECONOMIC DEVELOPMENT: AN ECONOMETRIC PERSPECTIVE ON REGIONAL VARIATIONS

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Abstract: Corruption is a widespread phenomenon and is hard to measure and quantify. Ever since the publication perception of corruption indices by Transparency International (TI) and University of Gottingen for various countries in 1994 attempts have been made to investigate the sources and impact of corruption on the economy. Considering an economic approach to corruption, in this paper we examine the sources of corruption using the data on cross-section of countries at different stages of economic development at two points of time 2003 and 2013. Further we investigate regional differences in the causes of corruption. Using corruption perception index, we find that economic growth, size of the public sector and the human development are significant individually in both the years. There are statistically significant regional differences in the sources of corruption. The growth impact on corruption is not significant at the regional level. Similarly, the size of the public sector is significant in Asia Pacific, EU and in American continent countries. Finally, literacy is significant in every region except in the Middle East. The results have interesting policy implications for economic growth, especially in low-income countries with high rates of corruption.

Keywords: Corruption · Government expenditure · Regional variations ·

JEL Classification: D72 · H 53 · O 11 · C33

INTRODUCTION

Corruption is universal since time immemorial. Dating back to the fourth century BC in India, Kautiliya discussed forty forms of corruption among the public servants (Kangle, 1972). Corruption in one form or the other is a universal-its magnitude and manifestations differ from region to region and for a region from time to time. We consider the corruption in the realm of public sector. Hardly there is any country where the corruption does not

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exist. It becomes a hot topic especially before the election in a democratic environment. Until 1980s inclusively, the subject of corruption used to be discussed under sociology, political science, history, public administration and the science of law. After the publication of corruption index in 1995, several attempts have been made to examine empirically the sources and impact of corruption globally as well as at the country level. Corruption has its adverse effects not just on static efficiency but also on investment, growth and inflation. Bardhan (1997) reviewed some issues on corruption and development. The complexity of the issues and the weakness of available statistical techniques make it essential to be cautious while explaining the origin of the issues econometrically. Later studies on the issue of corruption do observe some interesting pattern in the prevalence of the corruption.

Two strands of the studies on corruption can be discerned- first on its sources and second seeking to examine its impact on economic development. Using alternative indicators of corruption, a significant positive association between corruption and inflation is observed, even after controlling for a variety of other determinants of the latter (Al-Marhubi, 2000; Akça, Ata, & Karaca, 2012; Ali & Sassi, 2016). Data used was panel comprising cross section of countries over period of time. At the aggregate level, several studies are available to examine sources of corruption which give mixed results.

Best of our knowledge, no attempt has been made to study the sources of corruption at the regional level. Corruption is generally regarded as an outcome of a country's socio-economic and political institutions and in a society may be reflection of bad policies and inefficient institutional setup (Svensson, 2005). Among the various arguments offered for the corruption among the countries in the literature most important ones are as follows. First the religion of majority of the society in a country. Second, federal structure of the country is another factor that affects the corruption. Thirdly, structure of the economy for instance the openness and size of the government sector. Finally, human development is also a factor affecting the corruption. The rest of the paper is organized as follows: section 2 provides a working definition of corruption and briefly reviews the literature on the determinants of corruption. Section 3 introduces the endogeneity of corruption in terms of economic growth and size of the government and human development in the equations we estimate. The section also describes the estimation method for the equation. Section 4 describes the data while section 5 presents estimation of models explaining and discusses the regional differences in the causes of corruption in terms of growth, human development and size of public sector by allowing the

coefficient of corruption to vary across regions of the world. Section 6 concludes the paper.

REVIEW OF LITERATURE

Corruption as considered in this paper is the use of public office for private gain and hence is limited to public sector only. Theoretically it is regarded as a special case of the principal-agent problem with the general public as the principal and the public official as the agent (Acemoglu & Verdier, 2000; Bardhan, 1997; Barreto, 2000; Ehrlich & Lui, 1999; Gray & Kaufmann, 1998; Tanzi, 1998; Mauro, 1995). Since, the corruption is an act in which the power of public office is used for personal gain it contravenes the rules of the game (Jain, 1991). Bardhan (2006) discussed why similar countries may end up with different equilibrium levels of corruption, why such equilibria tend to persist, and why corruption in some countries seems to be more damaging to the economy than in others.

Concept of corruption as used here is a purely economic approach rather than legal one since not all corrupt practices are illegal and not all illegal activities are corrupt practices. From these arguments corruption emerges due to discretionary power of the relevant public official responsible for the administrative regulations and policies in a discretionary manner, economic rents facilitated by the discretionary power, and weak institutional structure such that officials are left with an incentive to exploit their discretionary power to extract or create rents (Aidt, 2003)

A brief survey contrasting the arguments for the corruption under the two schools of Public Choice¹ namely Chicago Public Choice and Virginia Public Choice schools on how corruption influences economic efficiency argues that the later explanation is more realistic because it includes the influence of bureaucratic corruption (Otáhal & Grochová, 2011). Hence, sources of corruption are likely to be influenced by its character and organization of socio political and economic institutions prevailing in a country. Earlier studies on sources of corruption exist both at micro and macro level. In countries with a higher share of government expenditure on administrative tiers and (given local revenues) a larger number of local public employees, stimulate corruption (Fan, Lin, & Treisman, 2009). A danger of uncoordinated rent-seeking as government structures becomes more complex. Some authors suggest that corruption subsides “on its own” in poor countries with growth (Bai, Jayachandran, Malesky, & Olkin, 2013).

The causes of cross-national variation in corruption may be derived from a theoretical literature in political science or economics, and none is so theoretically implausible that it can simply be ignored. According to the

corruption literature, by economists and non-economists, suggesting that the pervasive and cumbersome regulations in developing countries generate corruption. Following this argument, the economic growth is a factor responsible for corruption. Some argue that a larger share of government expenditure in GDP leads to lower corruption especially in countries with abundant natural resources (Saha & Ali, 2017).

Fourteen sources of corruption for the prevalence of corruption include inter alia effectiveness of the legal system, majority religion of the society, democracy with or without a freer press and more vigorous civic associations, economic development of countries- where populations are more educated and literate, the normative separation between 'public' and 'private' is clearer, relative salaries in public office, political instability, state intervention in the economy (in the form of regulation, taxation, or state commercial activity), country's exposure to competition, endowments of valuable natural resources (Treisman, 2000). Religion of majority of population as one of the sources of corruption along with the income level, democratic institutions preserved for a continuous period, the political instability, and colonial heritage of the country (Serra, 2006). In some economies with substantial endowments of valuable natural resources such as fuels, minerals, and metals, corruption may offer greater potential gain to officials who allocate rights to exploit such resources and is measure factor contributing to corruption leading to internal political instability (Saha & Ali, 2017).

Measurement of Corruption: Based on how corrupt the public sector is perceived to be, the Corruption Perception Index (here after CPI) for a country defines corruption as the abuse of public office for private gain. Transparency International (hereafter TI) has developed this measure. The CPI Score measures perceptions of the degree of corruption as seen by business people, risk analysts, and the general public and ranges between 0 and 10. The Corruption Perceptions Index for 2013 scores 177 countries and territories on a scale from 0 to 100. No country has a perfect score, and two-thirds of countries score below 50 and this indicates a serious, worldwide corruption problem. Besides Corruption Perceptions Index, other measurement indexes of corruption are available in the literature see for instance the, the Global Corruption Barometer, the Bribe Payers Index, all from Transparency International. The Control of Corruption Index by the World Bank and the Corruption Index by the International Country Risk Guide are also popular indexes used in some studies. Business International Corporation (BIC), first published for 1981-83 and Mauro (1995) was first to use it. Data from another firm, Business International. Political Risk Services Inc. (International Country Risk Guide, ICRG)

publishes annual report on similar index which was first used by Tanzi and Davoodi (1997). Political Risk Services, Inc., a private firm publishes the International Country Risk Guide, used and described in detail by Keefer and Knack (1993). The indices were compiled by the IRIS Center (University of Maryland) and are available for over 100 countries. All indices are on a scale from 0 (worst, most corrupt) to 6 (best, least corrupt). There are 106 observations in the Barro (1991) sample for which the corruption index is available. Ades and Tella (1997) report a survey of German business in 1994. The Global Competitiveness Index since 2004 has served to assess country performance, a time frame that has seen great changes in the global economic landscape and seen also an exploration of new avenues. Correlation among various measures is reasonably high in some pioneered empirical analysis of corruption (Lisciandra, 2014; Mauro, 1995; Knack & Keefer, 1995).

METHODOLOGY

Most of the earlier studies have considered cross country data with per capita income as the main variable. In our analysis, we consider growth rate instead of per capita income. Besides, in many countries especially in developing countries the cumbersome and pervasive regulations mostly inherited from colonial rule in India termed as “inspector raj” considered as a main culprit for corruption. Implementation of these regulation increases the government expenditure. In a federal structure corruption in the federal states is higher than the central level ones, presumably because the competition between autonomous levels of government to extract bribes leads to ‘overgrazing of the commons’. Finally, available evidence that countries where talented people are allocated to rent-seeking activities tend to grow more slowly (Murphy, Shleifer, & Robert, 1991). Some of the studies have included educational attainment of the adult population or years of schooling, but we believe because of wide variations in the standard of school education literacy is a better indicator. In the present study we assume that literacy rate has also some influence on the corruption level due to free media in the society.

Trying several specifications and choosing the one most favourable to the desired empirical result, is exactly what this work attempts. The estimation of the model relies on linear OLS regressions of the following form:

$$C = \alpha + \beta M + \gamma I + \delta Z$$

where the dependent variable is the level of corruption perceived in each country, M is the variable of interest that we want to test, I is a set of basic control variables always included in the regression, while Z is a set of up to

three variables chosen from the most relevant explanatory factors considered by past studies. We choose to have growth rate of income as the only I-variable in the specification, for it has been included in lieu of per capita income considered in several earlier empirical studies on corruption and always found strongly statistically significant. The explanatory variables considered in the present study are economic growth (EGR) rate of GDP, government consumption (GOVT), and education in terms of literacy rate (LIT) of adult population. Thus we adopt following specification of the model

$$C = \alpha + \beta(\text{Growth}) + \gamma (\text{Literacy}) + \delta (\text{Share of Govt Expenditure})$$

Opinions may differ about the most appropriate methodology to assess the validity of alternative explanations; some methods are clearly not suitable for this kind of analysis for various reasons. First, some of the explanatory factors are likely to be correlated, it would risk omitted variable bias to test hypotheses individually without also controlling for correlated alternative hypotheses. For instance, before assuring a country that the corruption could be reduced through good governance by reducing state intervention in the economy, one would want to know not just that state intervention is positively correlated with corruption but that this relationship holds controlling for other characteristics of countries that correlate with both lower corruption and lower state intervention. The risk of controlling for too many factors simultaneously is that the data may not contain enough variation to distinguish clearly between them. We would rather take this risk than risk reaching invalid conclusions. This does mean one should place greater emphasis on the positive than the negative results. Second, many of the variables are likely to be endogenous: whether or not they cause corruption, corruption may cause them. If a low level of economic development is conducive to corruption, corruption itself is known to impede development. Openness to imports and the give-and-take of democratic politics may constrain corruption, but corrupt officials may themselves create barriers to imports and restrict democratic politics. A large or intrusively regulatory state may create opportunities for corruption while low official wages may increase the incentive to take bribes, but corrupt officials and politicians are likely both to swell the size of the state in order to increase their spoils and to award themselves high pay. Finally, political instability may enhance incentives (or reduce opportunities) for corruption, but corruption may itself prompt public protests, challenges to the incumbent regime, even external invasion in short, political instability.

Where possible, we have several alternative specifications in the explanation of corruption to handle the danger of misspecification. For the

corruption perception index (CPI), we begin by showing model (M1) that includes only the 'most exogenous' variables representing economic growth. In the next column labelled as model 2(M2), we include size of public sector as a proxy for democracy that is if the country has experienced uninterrupted democracy, the size of public sector will be large. In the third model (M3), democracy may be restricted by corrupt officials, as well as influenced by some of the exogenous factors such as educational development which has been considered as literacy rate of adult population. Column 4 shows a model (M4) in which, we include all the three variables likely to be 'highly endogenous'.

DATA BASE AND EMPIRICAL RESULTS

The main dependent variable of the study is the annual index of 'perceived corruption' published by Transparency International (TI). The perception of corruption may have as serious consequences for economic development as corruption itself. However, two reasons convincing for using this indicator are that, first, the Transparency International ratings — and the component surveys and ratings from which they are formed — turn out to be highly correlated among themselves. Secondly, there is no better alternative objective data set that measures the extent of corruption. The dependent variable in our model is thus the corruption perception index (CPI) published by TI for the years 2003 and 2013. The analysis is based on cross-country data covering both developed and developing countries. Literacy rate used in this study refers to average values over the period 1998-2003 and 2008-13. The main dependent variable is TI's annual index of 'perceived corruption', for 2013 and 2003. In all, 116 countries appear in the 2013 ratings and 94 countries in 2003 ratings. The sample could have been larger if observations were available for some variables, but we choose to restrict the sample in order to have each variable covering the same countries and, therefore, to lower the chance of bias the estimates. Literacy, Growth Rate and Size of the Government are three variables selected for our analysis.

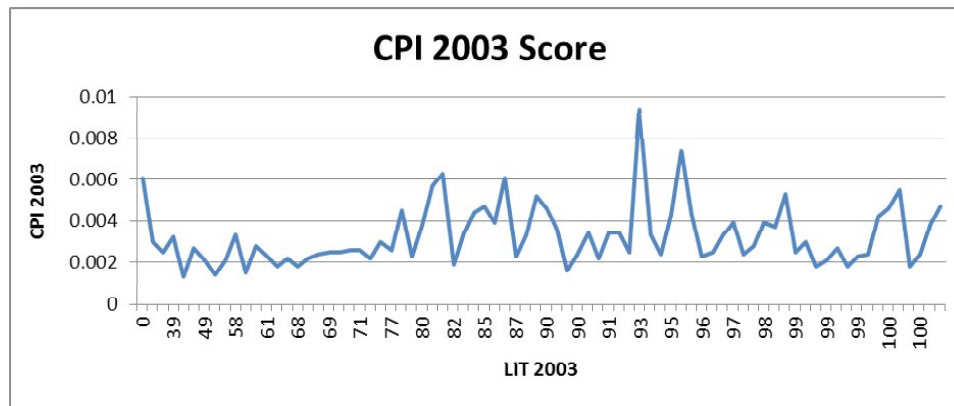
Summary Statistics: Summary statistics of the data are presented in Table 1. The summary statistics indicate that growth rate of GDP and other variables vary greatly across countries in our sample for both years 2003 and 2013.

The change in variation in the CPI between 2003 and 2013 is marginal. The CV for the CPI for 2003 is marginally higher than that for CPI 2013. The coefficient of variation is 0.50 for 2003 and 0.47 for 2013 since our samples include countries that are perceived to be highly corrupt as well as those

Table 1: Summary Statistics

Variable	Mean		Median		Minimum		Maximum	
	2003	2013	2003	2013	2003	2013	2003	2013
CPI_2003	5.40000	44.4052	4.70000	38.0000	1.80000	8.00000	9.70000	91.0000
GR_Rate2003	3.28462	3.39226	2.50000	3.20000	-7.80000	-6.40000	11.1000	12.5000
G_GDP_2003	28.0026	16.0972	29.5000	15.6136	10.7000	5.57211	49.2000	38.1154
Lit2003	28.0615	86.4034	29.5000	93.5000	10.7000	27.0000	49.2000	100.000
Variable	Std. Dev.	Std. Dev.	C.V.	C.V.	Skewness	Skewness	Ex. kurtosis	Ex. kurtosis
CPI_2003	2.72232	20.8585	0.504134	0.46973	0.203658	0.654685	-1.45592	-0.655343
GR_Rate2003	3.78561	2.97673	1.15253	0.87750	-0.075873	0.155984	0.723196	0.577195
G_GDP_2003	10.9416	5.67425	0.390736	0.35250	0.042499	0.604702	-1.18868	0.872335
Lit2003	10.9059	17.4702	0.388642	0.20219	0.031969	-1.70767	-1.16926	2.44971
Countries	39	116						

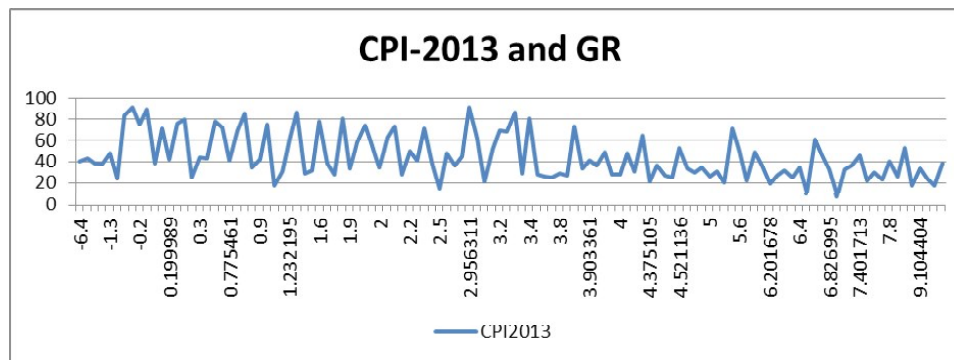
that are perceived to be highly honest covering both developed and developing ones. In general variation in other variables is higher in the year 2003 than those in 2013. Expectedly, mean of growth rate and literacy level is higher in 2013 than in 2003. As expected, the average size of public sector is lower in 2013 than in 2003.



Aggregate Analysis: Simple correlations or OLS regressions, though an essential starting point, need to be supplemented where possible by an exploration of the direction of causation. The standard technique used in some studies is to correct for endogeneity of corruption employing the instrumental variables or two-stage least-squares method of estimation. This, however, requires the identification of suitable instruments but the gain is only marginal. A large question mark, therefore, remains over the

impact of some of the other key variables due to aggregation of countries. In both tables, White heteroskedasticity-corrected standard errors are available but have not been reported because it does not change the result significantly.

The CPI score for 2013 takes the values from 0 to 100, with a higher score indicating higher corruption (rescaled). The number of cases varies because data are unavailable for many countries for the added variables (only 39 countries have data for all the variables under consideration). The CPI for the year 2013 is available for 177 countries and territories. A country or territory's score indicates the perceived level of public sector corruption on a scale of 0 - 100, where 0 means that a country is perceived as highly corrupt and 100 means it is perceived as very clean. A country's rank indicates its position relative to the other countries and territories included in the index.



The analysis is based on cross-country data for both developed and developing for two bench mark years 2003 and 2013. Countries included in the sample in each year for each model varies depending on availability of data, for the objective was to include variables covering the same countries. Literacy rate is the average of five years 1999-2003 and 2009-2013. Estimation results when the corruption perception index released by the TI is used as the corruption variable and the share of general government final consumption expenditures in GDP is used as the proxy for government size are presented (An & Kweon, 2017). In Table 2 we consider economic growth in Model (1) and its coefficient is negative and significant in both the years. The negative coefficient of economic growth in Model (1) suggests that higher growth leads to lower corruption. Column (2) presents M (2) which includes the government size; its effect on corruption is given by the coefficient and is significantly positive in both the years. Column (3) we have Model 3 or M (3) with literacy rate as a proxy for education development and the coefficient is positive in both the years. Thus, when

we try single explanatory variable then our results are robust across the years. Finally, in column 4, we have all the three variables together in Model 4. For the year 2003 our results show that none of the variable is significant. However, the coefficients are significant in Model 4 when estimated for the year 2013.

Table 2: Model Explaining Corruption-Aggregate Analysis

IndVariables	2013				2003			
	M1	M2	M3	M4	M1	M2	M3	M4
Intercept	53.78516	19.07656	-4.37128	-0.49267	6.34424	1.42482	1.42098	2.50595
p-value	0.00000	0.000483	0.110485	0.962245	<0.00001	0.16595	0.16988	0.05130
Gr Rate	-2.76512			-1.2169	-0.28747			-0.15271
p-value	0.00001			0.048978	0.01169			0.15547
G/GDP		1.573484		0.946877		0.141958		0.233491
p-value		0.000000		0.003172		0.00015		0.75273
LitRate			56.45311	39.1009			0.141796	-0.11199
p-value			0.042939	0.000187			0.00016	0.87995
Adj R ²	0.155718	0.183221	0.223542	0.333617	0.137096	0.307308	0.304374	0.311086
N	116				39			

Our results suggest that government size has a significant positive impact on corruption in both the years. This finding is in line with the conclusions in earlier studies that higher corruption is significantly associated with higher public expenditures particularly on education, health and defence purchases (Rose-Ackerman, 1999; Alesina & Angeletos, 2005; Goel & Nelson, 1998; Mauro, 1998; Gupta et al., 2001). Our results show that the opportunity for corruption might increase as the size of the government becomes larger because the coefficient is positive and significant. Our result however do not corroborate the findings that a larger government size results in less corruption at almost all degrees of corruption (Billger & Goel, 2009). Column (3) has M (3) with literacy rate as a proxy for education development and its coefficient is positive and significant. The coefficient is positive and significant at the aggregate level, and this suggests that corruption increase with literacy rate in the results for both the years. Model (4) examines the robustness of our estimated coefficient for each year. Our results remain robust even when we tried all the three variables in the model (M 4) for the year 2013, but not for the year 2003 since none of the coefficient is significant.

Regional Variations: Most of the earlier studies based on all the countries consider together fail to reach any conclusion regarding the

sources of corruption and lead to mixed results at aggregate level. As indicated earlier, sources of corruption vary from country to country and for a country time to time, we perform the analysis at regional level for the year 2013. To the best of our knowledge the regional variations in the sources of corruption has not been attempted earlier.

The analysis in this paper makes it possible to subject such images about the aggregate results to further scrutiny. For instance, it may turn out that the variables that caused perceived corruption index what it is for Russia are not same for other EU countries. Latin American countries are not significantly more corrupt than their Western European and North American counterparts once one controls for their lower economic development and less stable democracy. But these may well be explained in part by historical or cultural factors characteristic of the countries. Similarly, Catholic or Islamic traditions may explain the relatively small and statistically insignificant residual effect. To explore such questions further we perform the disaggregated analysis for regional groupings.

For the purpose of regional analysis, we have considered 116 countries for year 2013 divided into six groups so that twenty-two of the countries are from Africa, 20 from Asia and South Asia Pacific, 25 from America and Latin America, 16 from Eastern European and Central Asia, 12 from Middle East, and 21 countries are from European Union. Estimated model regressions for each of the six regional groups for the year 2013 are presented in Table 2.

At the regional level, the evidence shows a very small rather statistically insignificant and negative relationship between corruption and economic growth except for Africa where the coefficient is positive. Further, in the model for Africa, the coefficient of literacy rate is positive and significant, whereas the other coefficients of growth rate and government size do not turn out to be significant. In most African countries, corruption is decentralized and uncoordinated with each agent exacting a bribe at every stage of a transaction without regard to whether the payer eventually succeeds in getting what he/she is trying to obtain. This is the reason why economic growth and size of the government do not influence corruption in African and Eastern European and Central Asian countries. In this respect our results do not support the result that corruption retards economic growth directly by lowering productivity, and indirectly by restricting investment (Anoruo & Braha, 2005; Adem, 2021) Rather it has direct and significant relationship with literacy rate because the countries with large endowments of valuable raw materials — fuels, minerals, and metals — corruption offer greater potential gain to officials who allocate rights to

Table 3: Models explaining Corruption-Regional Variations-2013

Independent Variables	Middle East and North Africa				European Union			
	(1) M1	(2) M2	(3) M3	(4) M4	(5) M1	(6) M2	(7) M3	(8) M4
Intercept	39.2508	31.9566	-16.4919	-16.9047	67.61958	9.405483	-619.46	-255.359
p-value	0.003399	0.105103	0.670133	0.70645	1.13E-13	0.515138	0.080915	0.316151
GrRate	-0.0002			0.168687	1.981665			2.275527
p-value	0.999927			0.957552	0.201202			0.039153
G/GDP		0.465519		-0.05624		2.789527		2.741971
p-value		0.681121		0.964906		0.000441		0.000338
LitRate			68.4159	69.36591			695.8891	267.8486
p-value			0.166043	0.240635			0.054705	0.306512
R Square	8.69E-10	0.017593	0.182475	0.182883	0.084472	0.486355	0.180741	0.64463
N	12	84% score below 50			21	23% score below 50		
Independent Variables	Eastern Europe and Central Asia				Asia - Pacific			
	(9) M1	(10) M2	(11) M3	(12) M4	(13) M1	(14) M2	(15) M3	(16) M4
Intercept	35.24725	23.76898	420.8594	381.7935	62.16936	7.017881	-22.1479	-11.3099
p-value	1.07E-07	0.012535	0.047134	0.091117	1.07E-07	0.515138	0.261982	0.597448
GrRate	-1.08656			-0.45644	-3.6125			-2.1363
p-value	0.156511			0.587117	0.156511			0.118501
G/GDP		0.48499		0.388586		2.880509		1.209944
p-value		0.347309		0.463456		0.000441		0.230165
LitRate			-394.077	-359.142			79.46582	59.68435
p-value			0.063639	0.116977			0.002079	0.01422
R Square	0.138037	0.063278	0.224645	0.313417	0.242176	0.319766	0.417681	0.591237
N	16	95 % score below 50			20	64% score below 50		

Independent Variables	America				Africa (SSA)			
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	M1	M2	M3	M4	M1	M2	M3	M4
Intercept	51.10642	9.175124	-70.9896	-62.2787	32.23608	30.14708	14.93283	7.076667
p-value	8.04E-08	0.534145	0.05602	0.085859	0.002196	0.000433	0.110485	0.667791
GrRate	-2.24015			-1.82563	0.217921			1.167974
p-value	0.211305			0.233991	0.894152			0.501858
G/GDP		2.483031		1.099078		0.196218		-0.10106
p-value		0.021266		0.302255		0.624009		0.825148
LitRate			126.389	106.1408			28.64133	33.67838
p-value			0.003318	0.019303			0.042939	0.045016
R Square	0.067062	0.209912	0.318121	0.414723	0.000907	0.012242	0.1894	0.221266
N	25	66 % score below 50			22	90 % score below 50		

exploit such resources (Ades & Tella, 1999). And that is the reason why coefficient of literacy rate is significant in Africa, Eastern European and Central Asia, South Asia and Asia Pacific.

Challenges to the status quo are less frequent than in more equalitarian or individualistic religions in more hierarchical systems (for example, Catholicism, Eastern Orthodoxy and Islam). As suggested by Treisman (2000) a Protestant tradition appears to have smaller effect on perceived corruption. Moreover, in some Islamic system religion may also impact on the quality of the legal system (La Porta *et al.*, 1999). Religious fractionalization may also have an impact on corruption and other characteristics associated with the quality of government (Alesina *et al.*, 2003). This may be the reason why in Middle East none of the variables is found significant both individually and together because of strict Islamic traditions. The coefficients of literacy rate and size of public sector are significant in three regions namely the EU, Asia Pacific and South Asian and American continents.

CONCLUSION

A universal phenomenon corruption has various forms and its manifestation varies from country to country and sometimes from time to time in a country. Corruption is difficult to measure and quantify, but Corruption Perception Index (CPI) has been compiled by Transparency International based on single perception indexes computed from surveys of business people, local citizens or experts' opinions from 1994 onwards. After the publication of CPI, several attempts have made to examine the sources of corruption across the countries.

Our results at the aggregate level suggest that *economic development*, as predicted by all previous studies, is generally associated with less corruption. The estimated coefficient is indeed highly significant in all the regressions run, and maintains a constant negative sign. It could be argued that economic development exerts a major control on corruption, by increasing the chance of identifying and punishing illicit rents appropriations and, thus, lowering the governments' incentives to behave dishonestly. However, not only economic development reduces corruption at the aggregate level, but at regional level it does not reduce corruption may slow down the economic development. Future research on causes of corruption should therefore carefully address the endogenic problem existing in the correlation between corruption and economic development. An attempt is made in the present paper to examine the regional variations in the sources of corruption for the year 2013 and our results suggest that it

remains an urgent priority for future research to undertake disaggregate analysis for regional groupings.

Note

1. Chicago Public Choice scholars model argue that corruption improves efficiency of the rule of law and thus the overall economic efficiency, the Virginia Public Choice models explain how corruption reduces efficiency of the rule of law and thus the overall economic efficiency.

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