Corruption, Institutional Quality and Economic Growth in West African Countries (1995-2017)

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Abstract

This study examines the relationship among corruption, institutional quality and economic growth; and analyses the interaction effects of corruption and institutional qualities such as political stability and absence of violence (pv), government effectiveness (ge), regulatory quality (rq), control of corruption (cc), voice and accountability (va), and rule of law (rl) on economic growth (gdp) in West African Countries. Time series data covering the period between 1995 and 2017 were employed with Panel VAR method. Our results showed that corruption (cp) and economic growth are negatively related at lag one, and positively related at lag two, but the results were statistically insignificant. All institutional quality indicators, except ge are negatively related to economic growth at lag one, but at lag 2, positively related except rq, cc, and pv. These results were also statistically insignificant, except that of pv

which is statistically significant.

Our results also showed that interaction of control of corruption with corruption (cccp); regulatory quality with corruption (rqcp); and political stability and absence of violence with corruption (pvcp) negatively affect economic growth in West Africa both at lag one and two and were statistically insignificant. These results are expected in countries that are poorly rated both in terms of corruption and institutional quality. The study suggests reasonable policy interventions aimed at reducing the incidence of corruption as well as improving institutional quality in West Africa Countries.

Keywords: corruption, institutions, economic growth, West Africa

1. Introduction

Corruption has been defined by several authors in different ways. According to Macrae (1982), it is defined as an arrangement that involves an exchange between two parties (the demander and the supplier) which has an influence on the allocation of resources either immediately or in the future; and involves the use or abuse of public or collective responsibility for private ends.

Some studies have shown that corruption can hinder growth. For example, studies such as Mauro, (1995); and Mo, (2001), have shown that corruption can create social-political instability which can create uncertainty; and this is capable of lowering productivity and economic growth. Some others posit that corruption can spur growth (see Leff, 1964; and Becker and Maher, 1986). These studies argued that those criticizing corruption often failed to quantify the disruptions effect of bureaucracies when it comes to the promotion of economic development. In their explanation, they argued that bribery can allow entrepreneurs to gain influence on the decision-making process which fosters economic growth by reducing uncertainty and supporting the innovative activities of entrepreneurs.

In the literature there is no agreement about the effects of corruption on economic growth. Some researchers notably, (Murphy, Kelvin, Shleifer and Vishny, 1991; Mauro, 1995) who are the proponents of sand in the wheels hypothesis argued that corruption retards economic growth by hurting innovative activities because innovators need government- supplied goods which are produced exclusively by government such as permits, licenses, and import quotas, more than established producers do. Demand for these goods is high and inelastic; hence, they become primary target for corruption. On the other hand (Leff, 1964; Acemoglu and Verdier, 1998) who are the proponents and supporters of grease the wheels hypothesis explained that corruption can promote growth. They argued that corruption serves as compensation for bureaucrats, which induces a more efficient provision of government services and it provides a leeway for entrepreneurs to bypass inefficient government regulation.

Considering the disagreement above, this article seeks to verify which of the two hypothesis (i.e. sand in the wheels hypothesis and grease the wheels hypothesis) is valid in West African Countries. Aside from the above, most studies on corruption-growth relationship have failed to look into the role of institutional quality on the relationship between corruption and

economic growth especially in West African Countries. Studies have shown that the relationship between corruption and growth depends on institutional environment (De Vaal and Ebben, 2009). Recently, most West African Countries were on the list of highly corrupted nations and poorly rated in terms of their institutional quality, yet some of them still recorded increase in their economic growth. This then provokes the need to critically examine the role of institutional quality on the relationship between corruption and economic growth in the countries studied.

2. Literature Review

In the literature of corruption-growth relation, there are two important hypothesis. One is Greese the Wheels Hypothesis, which is also known as 'virtuous bribery story' (Wei, 1998). This hypothesis postulated that corruption is not inconsistent with growth, but can foster it. It asserted that corruption of all types and forms can make positive contributions to economic and political development of an economy. The hypothesis asserted that bribes often work as 'grease' on the wheels of commerce when bureaucratic bottlenecks constituted a stumbling block to efficiency in commerce and industry. Some of the pioneering works on this theory are Leff, (1964); and Becker and Maher, (1986). According to Leff (1964), "corruption can be like grease, speeding up the wheels of commerce". Citing practical example, Leff asserted that "if corruption does slow down economic growth, East Asia must be an exception because while the region seems corrupt, it is able to attract lots of foreign investment and generate growth".

The other hypothesis also known as Sand in the Wheels Hypothesis believes that corruption has nothing palatable for economic growth. It can lead to poor allocation of resources, an increase in economic restrictions or less investment, and therefore economic decline. According to Mo (2001), corruption can reduce the level of human capital and private investment. It could create a barrier to investors, with less investment leading to slower economic growth (Wei, Shang-Jin 2000, Javorcik, 2009) and consequently also has a detrimental effect on economic development. Based on this, there is no agreement on the relation between corruption and economic growth. Previous empirical evidence has found that there is a negative association between corruption and economic growth. The empirical contribution of Mauro (1995) who examined the effects of corruption on economic growth using a sample of 70 countries over 1980-1983 periods, provided evidence that corruption lower investment thereby lowering economic growth. In another study by Mauro (1998), he provided empirical evidence that corruption may have considerable adverse effect on economic growth, largely by reducing private investment.

Based on the findings of previous researchers; Mo (2001) employed data similar to Mauro (1995) to examine the impact of corruption on growth and the relative importance of the channels of transmission. He found that a 1% increase in the corruption level reduced the growth rate by about 0.72%. His findings showed also that, the most important channel through which corruption affects economic growth is political stability, which accounted for about 53% of the overall effects. The other channels included the human capital investment and the share of private investment in GDP. Pellegrini and Gerlagh (2004) studied the effect

of corruption on economic growth, directly and through its impact on investment, schooling, trade openness, and political stability. Their findings showed that corruption has a negative effect on economic growth. Their results also showed that the main effect of corruption on economic growth is transmitted through the investment decision.

Like previous studies, Meon and Sekkat (2005) found that corruption has a negative effect on economic growth. However, the negative effect of corruption on economic growth was independent of its impact on investment but depended on the quality of governance. The study of Hodge, Sriram, Prascada, and Duhs (2009) sought to determine the transmission channels through which corruption indirectly affects growth. To this end, they used a sample of 81 countries for the time period 1984-2005 and considered a cross-country panel data within a simultaneous equation framework. Their results showed that by reducing investment in physical capital and human capital levels and by increasing political instability, it was found that corruption hindered growth. Corruption, however, was found to promote growth by reducing government size and by increasing trade volume.

Using a sample of 81 countries for the period between 1984 and 2000, Johnson and La Fountain (2011) examined the impact of corruption on growth of output per worker in United States of America. Their findings showed that corruption has a negative and significant effect on growth in United States. Consistent with the previous studies, they also found that corruption decreased investment. More recent empirical studies have examined the conditional corruption-growth relationship. Specifically, they examined whether the effect of corruption on economic growth depend upon certain conditions. In this vein, Rock and Bonnet (2004) provided evidence that the relationship between corruption and investment and growth were different for small and large countries. According to Easterly (1993), most countries with higher corruption experience less economic growth, Mauro (2002), affirmed that the relationship between corruption and economic growth in particular is complex. In countries where institutional environment is relatively good, it is expected that corruption will mainly take the form of rent seeking activities that slow down growth. In contrast, when the institutional environment presents a low level of economic freedom, it is expected that entrepreneurs will use bribes to circumvent cumbersome regulations and thus corruption will promote growth. Recent studies have begun to examine corruption's impact on economic growth contingent on a country's institutional environment. Typically political, rather than economic, institutions have been the focus. Mendez and Sepulveda (2006) used the Freedom House Democracy Index, which measures civil liberties and political rights. After splitting countries into groups classified as "free" or "not-free," they found no relationship between corruption and growth in "not-free" countries but a small, positive, growth- maximizing level of corruption in "free" countries but not consistent with the idea that corruption mitigates some of the impact of poor institutions. Aidt, Duta and Sena (2006) control for political institutions using the voice and accountability index, one of five indicators of governance constructed by Kaufmann, Kraay, and Zoido-Lobaton (1999). This index attempts to measure the degree to which citizens participate in the selection of their government and have the ability to hold government officials responsible for policy outcomes.

3. Theoretical Framework and Model Specification

Various theories of economic growth ranging from the classical to the endogenous growth theories have been propounded to identify and explain the various variables influencing growth. While the classical theorists laid much emphasis on capital as major determinant of economic growth, neoclassical extended the Harrod-Domar classical formulation by the inclusion of labor and the introduction of a third independent variable, technology, to the growth equation, (Solow, 1956 and Swan, 1956). Two major drawbacks of this theory include the impossibility of analyzing the determinants of technological progress within its framework. The failure of the model to explain the large differences in the residuals across countries with similar technologies, led to a widespread discontentment with the neoclassical models (Todaro, 2003). Endogenous Growth Models were developed as a response to the criticisms of the neoclassical growth model and to offer better explanation of the process of long-run economic growth.

The theory views innovation brought about by investment in knowledge generation as the driving force of long term economic growth (Romer, 1986). More importantly, variants of endogenous growth models including Lucas (1988), Jones and Manuelli (1990), Barro (1990) and Rebelo (1991) have demonstrated that policy variables can have significant impact on long-run economic growth.

This study adopts the famous Barro (1990) model. This is because the model permits the inclusion of a wider range of policy variables including corruption. This model provides both the theoretical foundation and analytical tool for analysis of impact of corruption on economic growth in West African countries. It uses a production function of the form;

$$Y_{i,t} = f\left(L_{i,t}, K_{i,t}, A\right) = A K_{i,t}{}^{\alpha} L_{i,t}{}^{\beta} \tag{1}$$

Where: Y = total output of the economy, A = efficiency or total factor productivity parameter, K = Capital, L = Labor input, α= contribution of capital, β= share of labour, i= country specific, t= time period.

Endogenous growth models impose constant returns on the reproducible factors of production. This kind of model gives no room to non-reproducible factors of production, such as land and labour, and gives primary focus on capital, therefore equation (1) becomes;

$$Y_{i,t} = A K_{i,t}{}^{\alpha} \tag{2}$$

From equation (2) capital can be decomposed to human capital and physical capital, thus

$$K = \left(K^{\phi}{}_{\rho} K^{\delta}{}_{H}\right)^{\alpha} \tag{3}$$

Substituting equation (3) in (2), we have:

$$Y_{i,t} = A\left(K_{\rho}{}^{\phi} K^{\delta}{}_{H}\right)^{\alpha} \tag{4}$$

We can simplifying equation (4) and have the following:

$$Y_{i,t} = K_\rho{}^{\phi(\alpha)} K_H{}^{\delta(\alpha)}$$

$$\text{Let } \quad K_\rho{}^{\phi(\alpha)} = K^\eta{}_\rho$$

$$\text{Let } \quad K_H{}^{\delta(\alpha)} = K_H{}^\theta$$

Equation (4) then becomes;

$$Y_{i,t} = A\left(K^\eta{}_\rho K^\theta{}_H\right) \tag{5}$$

Following Mo (2001) and Pellegrini and Gerlagh (2004) where they identified the direct and indirect effects of corruption on economic growth and in line with Barro's model, this study adopts the endogenous growth model since it allows the inclusion of more policy variables such as corruption and institutional quality indicators which are political stability and absence of violence, government effectiveness, control of corruption, voice and accountability, rule of law and regulatory quality in economic growth equation.

According to Lambsdorff (2001) and Hodge et al (2009), corruption negatively impacts on economic growth through its adverse effect on physical capital. Therefore, physical capital (K_ρ) can be augmented by an incorrupt government. Therefore, we can state that physical capital is a function of corruption, thus we have;

$$K_\rho{}^\eta = f(cp) \tag{6}$$

Substituting equation (6) in (5) we have;

$$Y_t = A\left(cp^\eta, K^\theta{}_H\right) \tag{7}$$

This can be written in linear form as;

$$\ln Y_t = \ln A + \eta \ln cp + \theta \ln K_H + \mu_t \tag{8}$$

Given other variables that determine growth, such as ln A which represents private investment (pinv) and institutional quality which are measured by pv, ge, rl, rq, va and cc, where pv = political stability and absence of violence, ge = government effectiveness, rl= rule of law, rq= regulatory quality, va= voice and accountability, cc= control of corruption, t= time, i= cross country specific. We can present the ten variable vectors that include all endogenous variables as follows;

$$Z^v{}_{it} = \Psi_0 + \sum_{j=1}^{p} \Phi_j Z^v{}_{it-j} + f^v + d_{it} + v_t \tag{10}$$

Where $Z_{it-1}{}^v$ is the ten variable vectors that include all endogenous variables Ψ_0 is the constant values of 10x10 matrix; $\sum\limits_{j=1}^{p}$ is the lag length of the matrix; Φ_j refers to the 10x10 matrix coefficients to be estimated; f^v is the vector of country-fixed effects; d_{it} is the vector of time-fixed effects; subscript i, t is the country specific and time period; and V_{it} is the white-noise error term. Equation (10) serves as our estimation equation used to examine the impact of corruption on economic growth and the interaction effect of corruption and institutional quality on economic growth in selected West African countries respectively).

Equation (10) can then be expressed as follows:

$$
\begin{bmatrix} gdp_{it} \\ cp_{it} \\ ge_{it} \\ cc_{it} \\ rl_{it} \\ rq_{it} \\ va_{it} \\ pv_{it} \\ pinv_{it} \\ phc_{it} \end{bmatrix} = \begin{bmatrix} a_0 \\ a_1 \\ a_2 \\ a_3 \\ a_4 \\ a_5 \\ a_6 \\ a_7 \\ a_8 \\ a_9 \end{bmatrix} + \sum_{j=1}^{p} \begin{bmatrix} a_{1j}\ b_{1j}\ c_{1j}\ d_{1j}\ e_{1j}\ f_{1j}\ g_{1j}\ h_{1j}\ i_{1j}\ j_{1j} \\ a_{2j}\ b_{2j}\ c_{2j}\ d_{2j}\ e_{2j}\ f_{2j}\ g_{2j}\ h_{2j}\ i_{2j}\ j_{2j} \\ a_{3j}\ b_{3j}\ c_{3j}\ d_{3j}\ e_{3j}\ f_{3j}\ g_{3j}\ h_{3j}\ i_{3j}\ j_{3j} \\ a_{4j}\ b_{4j}\ c_{4j}\ d_{4j}\ e_{4j}\ f_{4j}\ g_{4j}\ h_{4j}\ i_{4j}\ j_{4j} \\ a_{5j}\ b_{5j}\ c_{5j}\ d_{5j}\ e_{5j}\ f_{5j}\ g_{5j}\ h_{5j}\ i_{5j}\ j_{5j} \\ a_{6j}\ b_{6j}\ c_{6j}\ d_{6j}\ e_{6j}\ f_{6j}\ g_{6j}\ h_{6j}\ i_{6j}\ j_{6j} \\ a_{7j}\ b_{7j}\ c_{7j}\ d_{7j}\ e_{7j}\ f_{7j}\ g_{7j}\ h_{7j}\ i_{7j}\ j_{7j} \\ a_{8j}\ b_{8j}\ c_{8j}\ d_{8j}\ e_{8j}\ f_{8j}\ g_{8j}\ h_{8j}\ i_{8j}\ j_{8j} \\ a_{9j}\ b_{9j}\ c_{9j}\ d_{9j}\ e_{9j}\ f_{9j}\ g_{9j}\ h_{9j}\ i_{9j}\ j_{9j} \\ a_{10j}\ b_{10j}\ c_{10j}\ d_{10j}\ e_{10j}\ f_{10j}\ h_{10j}\ i_{10j}\ j_{10j} \end{bmatrix} \begin{bmatrix} cp_{it-j} \\ ge_{it-j} \\ cc_{it-j} \\ rl_{it-j} \\ rq_{it-j} \\ va_{it-j} \\ pv_{it-j} \\ pinv_{it-j} \\ phc_{it-j} \\ gdp_{it-j} \end{bmatrix} + \begin{bmatrix} \mu_{1t} \\ \mu_{2t} \\ \mu_{3t} \\ \mu_{4t} \\ \mu_{5t} \\ \mu_{6t} \\ \mu_{7t} \\ \mu_{8t} \\ \mu_{9t} \\ \mu_{10t} \end{bmatrix} \quad (11)
$$

Where cp = corruption, ge = government effectiveness, cc = control of corruption, rl = rule of law, rq = regulatory quality, va= voice and accountability, pv = Political Stability and Absence of Violence, pinv = private investment and phc = Private investment in Human capital

4. Methodology

This study makes use of Panel Autoregressive (PVAR) Method. This method is an extension of traditional vector autoregression (VAR) introduced by Sims (1980) with a panel data approach. The method has been used by various authors such as (Pesaran, and Smith, 1995), (Holtz-Eakin, Newey, and Rosen, 1988), (Canova, and Gali, 2004), (Love, and Zicchino, 2006), and (Canova, and Ciccarelli, 2013) in macroeconomics analyses. The approach is a flexible method that treats all the variables in the system as endogenous and independent, without concern on causality direction. It is a system of equation model that allows for unobserved individual heterogeneity and improves asymptotic results. Panel Vector Autoregressive Model employs General Method of Moment in its estimation and each variable is regressed on its own lag(s) as well as the lags of all other variables in the system

to address endogeneity problem. Specifically, STATA PVAR code developed by Dr. Inessa Love of the World Bank was used for the study. In dynamic panel, fixed effects estimator is not consistent because they are correlated with regressors due to lags of the dependent variables. We employ forward mean differencing or othorgonal deviations (the Helmert technique), following Love and Zicchino (2006). This technique allows us to remove the fixed effects through the transformation of all variables in deviations from forward means.

5. Results and Discussions of Findings

Our results showed that corruption (cp) reduced and economic growth by 0.9% at lag one, and at lag two, corruption increased economic growth by 29%. However, these results were statistically insignificant. The results partly support Grease the Wheels Hypothesis, and partly Sand in the Wheels Hypothesis. These results might not be surprising for countries like West African Countries whose governments are battling with how to develop economically and fighting high level of corruption. The results corroborate that of Becker and Maher (1986) who maintained that corruption could be used as a tool for competitive bidding for the allocation of licenses to entrepreneurs who offered the highest amount of bribes; and that of Mauro (2002), who submitted that when institutional environment presents a low level of economic freedom, it is expected that entrepreneurs will use bribes to circumvent cumbersome regulations and thus corruption will promote growth. Shleifer and Vishny (1993) also supported this argument and contended that the grease hypothesis in practice would allow the private sector to buy their way out of the inefficiencies that public political officers would have introduced.

All institutional quality indicators, except government effectiveness (ge) are negatively related to economic growth at lag one, but at lag 2, they promoted economic growth except the regulatory quality (rq), control of corruption (cc) and political stability and absence of violence (pv). These results were also statistically insignificant, except that of pv that was statistically significant. The results confirm the importance of quality institutions. In a country that is ranked as one of the poorest in terms of quality institutions, nothing much is to be expected. These results are presented in Table 1 below.

Table 1. Results of the Relationship among Corruption, Institutional Quality and Economic Growth in West African Countries

gdp	b_GMM	se_GMM	t_GMM
gdp	.84775552	.46523456	1.822211
cp	-.09242731	.14064147	-.65718393
rl	-.08671864	.1521808	-.56983955
rq	-.10942436	.1825265	-.59949848
cc	-.21642895	.14260697	-1.5176603
va	-.16563741	.20378436	-.81280726
ge	.42218243	.50678067	.83306735
pv	-.06074777	.25727326	-.23612158

L2.gdp	-.14131904	.11895504	1.1880037
L2.cp	.29120558	.17516724	1.6624432
L2.rl	-.1428653	.20714057	-.68970217
L2.rq	.02991474	.09180444	.32585292
L2.cc	.07774816	.13983111	.55601476
L2.va	-.26503537	.21836118	-1.2137476
L2.ge	-.31494301	.15886069	-1.9825107
L2.pv	.52389573	.23668964	2.2134291

Given the role of institutional quality and the influence of corruption on economic growth, we interacted control of corruption with corruption (cccp); regulatory quality with corruption (rqcp); and political stability and absence of violence (pvcp) with corruption to see how they affect economic growth in West Africa. Our results showed that interaction of control of corruption with corruption (cccp); regulatory quality with corruption (rqcp); and political stability and absence of violence with corruption (pvcp) negatively affect economic growth in West Africa both at lag one and two. These results were statistically insignificant. The results confirmed the sand in the wheel hypothesis of corruption-growth relation. This is expected in the sense that combining poor institutional quality with high level of corruption is detrimental to any economic development. These results are presented in Table 2 below:

Table 2. Results of the Interaction Effects of Corruption and Institutional Quality on Economic Growth in West African Countries

Gdp			
	bGMM	se_GMM	t_GMM
Lgdp	.98443898	.20131239	4.8901064
Cpi	.28439775	.14996176	1.8964685
L.cccp	-.03021044	.09665022	-.31257493
L.rqcp	-.17281766	.11430063	-1.5119573
L.pvcp	-.20161164	.12369956	-1.6298493
L2.gdp	-.15342367	.07294415	-2.1033032
L2.cp	-.34301328	.10447501	-3.2832087
L2.cccp	-.01619184	.0874483	-.18515904
L2.rqcp	-.07903309	.06380835	-1.2386011
L2.pvcp	.38487527	.09883941	3.8939453

6. Conclusion and Recommendations

The study concluded that corruption is detrimental to economic growth in West African Countries, confirming the sand in the wheel hypothesis. It was also noted that control of corruption regulatory quality; political stability and absence of violence have not been effective in reducing the effect of corruption in West African Countries. The study recommends reasonable and forceful policy interventions aimed at reducing the incidence of corruption as well as improving institutional quality in West Africa Countries.

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