DIMENSION OF GOVERNANCE AND GROWTH NEXUS: MACRO-EVIDENCE IN ECOWAS.

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Abstract
Growth has been seen as the foundation of development while sustainable growth is attributed to the role of good governance. However, governance in Africa and in particular ECOWAS countries averagely is often considered as poor. This study contributes to the understanding of the roles of good governance by analyzing its effects on productivity in the short run and long run for a panel of 15 ECOWAS countries over the period 1996 and 2016. The empirical evidence is based on Vector-Auto-regression approach. With three panels differentiated by three dimensions of governance, a positive nexus between governance and economic growth was found. In addition, there is a strong evidence of uni-directional causality from governance to growth. Policy makers in the region are advised to place more emphases on maintenance of voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption in order to boost productivity domestically and attract more foreign direct investment (FDI) into the regional bloc.
Keywords: *Governance, Economic growth, VAR, FDI, ECOWAS*

INTRODUCTION

Recently, more attention has been on the role of governance on economic growth especially in Africa. Judging from experiences of India and China respectively, there are submissions that economic growth can best be driven by the level of quality of governance (Bota-Avram et al, 2018). Governance in Africa and in particular ECOWAS countries averagely is often considered as poor (Allafrica, 2000), The UNDP (2002) defined good governance as striving for rule of law, transparency, equity, effectiveness /efficiency, accountability, and strategic vision in the exercise of political, economic, and administrative authorities. Economic Community of West African States (ECOWAS) was established in 1975 and currently has 15 countries[1] as member states: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Guinea, Guinea Bissau, Ghana, Liberia, Mali, Niger, Nigeria, Senegal, Sierra lone, and Togo. The concept of governance in West African Countries started in 1957 when Ghana gained independence, followed by Guinea in 1958 and lastly Cape Verde in 1975. With the attainment of independence coupled with endowment of human and natural resources in the region, there was high hope that the region would recover from the developmental neglect and exploitation of the colonialists. However, what the region has achieved in economic growth and development has been sub-optimal (Sikod and Teke, 2012; Kauffman et al, 2005).

In the 1980s, most ECOWAS countries experimented structural adjustment programme (SAP) masterminded by World Bank and International Monetary Fund (IMF). The main aim of the programme was to bring about growth, restoring price stability and reducing external imbalances. However, SAP did not produce the desired results but its implementation led to accumulation of debts, and exacerbating poverty in many of the countries. The yoke of the debts crowded out investments in many instances, and made most of these countries to be heavily indebted (Sikod and Teke, 2012). Economic theory of growth and development predicted convergence[2]. Asian tigers justified the stand of the economic theory, but here have been divergence in the West African countries with stagnant per capita income (Wilson, 2015). From 2000 till 2014 before the crash in the oil price, the real growth rate of the ECOWAS region has consistently on average been below 5% as shown in the table below.

[1]ECOWAS (with most of its part in the sub-Saharan Africa) has 16 members before but Mauritania quit the organization in the year 1999

[2] Also sometimes referred to the catch-up effect, it is the hypothesis that poorer economies' per capita incomes will tend to grow faster than richer economies and this will result into all economies eventually converge in per capita income.

Table 1: Key indicators of ECOWAS's Economies

Indicators	2006-2008	2009-2011	2012-2014	2015	2016	2017
Nominal GDP (billion of US dollars)	367,0	480,5	665,7	637,4	571,4	583,3
Real Growth rate (%)	6.5	7.3	5.6	3.1	-0.2	2.0
Real Growth rate (excluding Nigeria)	4.6	4.5	6.4	4.7	5.3	6.6
GDP per capita (US dollar)	1331,8	1606,7	2054,4	1866,1	1628,5	1618,2
Population (million)	274,8	298,4	323,7	341,6	350,9	360,5

Source: *Annual Report of ECOWAS (2016)*

From Table 1, one can see the effect of the global economic recession on the growth rate of the region. The main trigger of the slowdown in the region's growth is attributed to the fall in oil prices which declined by at least 50% starting from the last quarter of 2014.

There can be growth without development but there can never be development without growth and this make growth a concern of every economy that desires development (Todaro and Smith, 2011). Different constraints such as inefficient transportation and trade barriers along corridors and borders, a heavy reliance on family and informal sources of financing, insufficient supply of reliable and affordable power or energy and lack of good governance have been blamed for the situation (Bota-Avram, et al, 2018). Cule and Futon (2013) opined that the impact of good governance on economic growth is backed up by the idea that one believes that an economy with a high regulatory control, stable and consistent political environment and a reduced level of bureaucracy would be able to provide an effective business framework which would trigger growth. Moreover, it is evident that the quality of governance also reflects in accountability and transparency of the bureaucrats (Demirguc-Kunt et al, 2006). All the afore-mentioned key elements enhance the performance of any economy. Sach et al (2004) established that an improved business climate is a major factor in attracting both national and international investors into the economy which will enhance economic growth. The implication of this is that inclusive growth occurs in a democratic environment where the government is socially accountable in delivery of services and responsiveness to the needs of its citizens. This study aims at providing answer to the question: does good governance allow ECOWAS countries to achieve minimum economic growth in order to reach a level of development similar to those of emerging and industrialised countries? Following the introductory part of the study is the review of literature. Section three dwells on methodology while results are discussed in section four. The conclusion of the study is in section five.

2 EMPIRICAL REVIEW

Impact of the quality of governance on the growth of the economy has been observed by scholars (Wilson, 2015). Some explored the causal relationship between country-level governance and growth few selected countries in Sub-Saharan Africa which did not cover all countries in ECOWAS (Knack and Keefer, 1995; Mauro, 1995; Alesina, 1997). Growth has been seen as the foundation of development while sustainable growth is attributed to the role of good governance. Contemporary studies on the relationship between governance and economic growth emphasize the role of property rights and the quality of institutions (Knack and Keefer, 1995; Ndulu and O'Connell, 1999; Rivera-Batiz, 2002; North, 1990 and 2005; Olson, 1996; Grier and Tullock, 1989; Keefer and Knack, 2002; Gutierrez-Banegas and Ruiz-Porras, 2014).

In a cross-sectional analysis of some developing countries, Chauvet and Collier (2004) found that those countries suffering from poor governance, on average, experienced 2.3 percent points less GDP growth per year relative to other developing countries. There are also other recent findings that suggest a strong causal effect running from better governance to better development outcomes. In spite of such a broad array of support for the positive impact of good governance on economic growth, there are only few studies that showed results to the contrary. For example, an important challenge to the significance of good governance for the economic growth of African countries comes from Sachs et al. (2004). In an empirical analysis, they show that the differences in performance

among African countries cannot be explained by differences in the quality of their governance once differences in their levels of development have been accounted for and thus conclude that a focus on governance reforms is misguided.

Huynh and Jacho-Chavez (2009) have used a nonparametric method to analyze the relationship between governance and growth. Their findings indicate that three of the six indicators of governance: voice and accountability, political stability, and rule of law are economically and statistically significant, while regulatory control, control of corruption, and government effectiveness are insignificant. The authors state that their empirical results support the findings of Glaeser, La Porta, de Silva, and Shleifer (2004) that poor countries get out of poverty and grow through good policies. Using the studies by Knack, Stephen, Baliamoune-Lutz and Stefan Lutz, and alongside the study of Transparency International in Cameroon, Sikod and Teke (2012) established that there is a direct relationship between governance and economic performance, and that Cameroon lagged behind in development in a major part because of bad governance which led them to give a policy implication that as governance indicators improve, the economic performance will also improve.

Another study was conducted by Cebula and Foley (2011) to test three hypotheses, one of which is about how quality government regulation affects per capita real GDP. By using panel data and PLS estimation for OECD countries over the period of 2003-06, the authors conclude that better regulatory quality is positively associated with economic growth because it has a positive effect on the way market functions, and it allows for the avoidance of unnecessary costs of managing businesses in the marketplace.

Ahmad et al (2012) used panel data over the period of 1984-2009 for 71 developed and developing countries to test whether corruption affects growth. Their study demonstrates that the relationship between corruption and long-run economic growth is hump-shaped. Their results also suggest that the quality of public institution has a crucial impact on any country's growth performance. They conclude that there are many ways through which corruption can lessen economic growth, such as lowering domestic and foreign direct investment, and overblown government expenditure.

Another study was done by Aisen and Veiga (2013) to determine the impact of political instability on the growth. The authors used the system-GMM estimator for linear dynamic panel data models on a sample covering 169 countries for the period of 1960-2004. Their results have proved that political instability and lower GDP per capita are strongly associated. Political instability has negative effects on economic growth by reducing the rates of productivity growth, and lowering capital and human accumulation.

Emara and Jhonsa (2014) used the Two-Stage Least Square method for a cross-sectional dataset of 197 countries to investigate the interrelationship between the improvement in the quality of governance and the increase in per capita income. Their findings show that there is a strongly positive and statistically significant causation from the quality of governance to per capita income. The results also prove a positive causation in the opposite direction. The authors used their results to interpret the relationship between the studied variables for 22 MENA countries. They contend that one of their surprising results is that even though most of the studied MENA countries had low performance on all six indicators of governance, these MENA countries' income per capita is relatively higher than the rest of the countries in the sample.

In addition, Wilson (2015) tested the causal relationship between quality of governance and economic growth in China at the provincial level and found out that under some certain circumstances, successful economic growth could be achieved without reliance on the improvements in formal governance institutions and that such economic growth can in turn support subsequent governance improvements.

A major issue that has been raised repeatedly with respect to the applicability of industrial policies that were successful in East Asia to Africa economies is "governance." Therefore, from the above literature one can conclude that the effects of governance on economic growth might be positive, negative or neutral. Therefore, this study measures association and causality between the dimensions of governance and economic growth in the Economic Community of West African State countries.

3 THEORETICAL FRAMEWORK AND METHODOLOGY

This study is based on the governance-growth hypothesis. Professionalization of the bureaucracy is an important factor that drives economic growth without leaving out institutional and policy perspective (Bota Avran, 2018). The hypothesis emphasises that long-term investment can in turn drive growth through a stable and trusted bureaucracy. Also, it assumes that effective enforcement by an impartial system of governance will bring about a conducive environment that can spur innovation and investment for economic growth. According to the hypothesis, when an economy begins to growth, there is a high demand for more of property rights, rule of law and other necessary policies to sustain growth (Wilson, 2015). Following the hypothesis, in accordance with Wilson (2015); the model is specified using the Toda-Yamamoto's approach of Vector Auto-Regressive (VAR) system as:

$$(Governance)_{i,t} = a_{1,i} + \sum_{k-1}^{ki} \gamma_{1,i}^{(k)} (Governance)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (GDP)_{i,t-k} + \varepsilon_{1,i,t} \quad (1)$$

$$(GDP)_{i,t} = a_{2,i} + \sum_{k-1}^{ki} \gamma_{2,i}^{(k)} (GDP)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{2,i}^{(k)} (Governance)_{i,t-k} + \varepsilon_{2,i,t} \quad (2)$$

Testing for the causality of quality of governance and economic growth in the ECOWAS region, Granger Causality test was used as specified in equations 1 and 2 respectively. In addition, VAR/VECM model was used to check the potential for causality across the countries in the ECOWAS region (difference in their private-state interaction and level of government participation at the onset of the country's economy). Taking the heterogeneity into consideration, heterogeneous panel vector autoregressive VAR/VECM model was adopted to examine the dimension of governance and growth nexus in ECOWAS with time series data between 1996 and 2016. The Panel Unit Root test summary consisting of Levin-Lin-Chu (to check for the common unit-root among the variables), and Im-Pesaran-Shin and Augmented Dickey-Fuller (ADF-Fisher) are used to check for stationary and orders of integration of each of the variables respectively. In addition, the Pedroni Residual Co-integration test was used to check for long-run equilibrium among the variables. In the absence of co-integration, we ran the VAR model while Wald coefficient test was employed to check for joint significance or short run effects of the variables. For the heterogeneous causality tests, block-bootstrapped p-values were calculated to test for cross-sectional dependency as well as heterogeneous panel Granger causality tests [introduced by Dumitreseu and Hurlin (2012) to account for the individual coefficient of each country in the region].

Adjustment was made to the Wilson (2015) model with inclusion of three dimensions of the governance variables: Economic Dimension, Political Dimension, and Institutional Dimension. i = 1 .., N for countries and t = 1,….T for time to test for the cross country heterogeneity level.

$$(GDP)_{i,t} = a_{1,i} + \sum_{k-1}^{ki} \gamma_{1,i}^{(k)} (GDP)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (ECO)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (POL)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (INS)_{i,t-k} + \varepsilon_{1,i,t} \quad (3)$$

$$(ECO)_{i,t} = a_{1,i} + \sum_{k-1}^{ki} \gamma_{1,i}^{(k)} (ECO)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (GDP)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (POL)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (INS)_{i,t-k} + \varepsilon_{1,i,t}$$

(4)

$$(POL)_{i,t} = a_{1,i} + \sum_{k-1}^{ki} \gamma_{1,i}^{(k)} (POL)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (GDP)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (ECO)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (INS)_{i,t-k} + \varepsilon_{1,i,t}$$

(5)

$$(INS)_{i,t} = a_{1,i} + \sum_{k-1}^{ki} \gamma_{1,i}^{(k)} (INS)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (GDP)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (ECO)_{i,t-k} + \sum_{k-1}^{k_i} \beta_{1,i}^{(k)} (POL)_{i,t-k} + \varepsilon_{1,i,t}$$

(6)

The linkage between governance and economic growth is specified in equations 3-6 respectively. Where: a_i is the country level effect, $(GDP)_{i,t}$ represents economic growth with the value logged and $(ECO)_{i,t}$ indicates economic dimension of governance. $(POL)_{i,t}$ is political dimension of governance, $(INS)_{i,t}$ means institutional dimension of governance. Both GDP and the dimensions of governance are stationary variables while $\varepsilon_{i,t}$ is the normally distributed error terms with zero mean. The heterogeneity of the cross-country is accounted for in the model by allowing the coefficients $\gamma^{(k)}$and $\beta^{(k)}$, and the lag length K_i, to vary across the countries. Finding a significant effect in the model when the two null hypotheses for causality are tested and the coefficients $\beta_{1,i} = (\beta_{1,i}^{(1)}, \ldots\ldots, \beta_{1,i}^{k_i})$ and $\beta_{2,i} = (\beta_{2,i}^{(1)}, \ldots\ldots, \beta_{2,1}^{k_i})$ are found to be zero for all the countries against the alternative are considered as evidence for the presence of the corresponding causal relationship in at least one country in the sample. Equation 3 indicates that economic growth depends on governance (the 3 indicators of governance: economic, political and institutional). On the other hand, the 3 dimensions of governance are presented as causes of economic growth in equations 4-6 respectively.

Table 2: Descriptions of Variables and Data Sources

VARIABLES	MEASUREMENT(S)	SOURCES
Governance	Aggregated governance measures which consist of an average value of six governance indicators	World Development Indicator
Gross Domestic Product	Growth, measured by GDP which is the market value of all goods and services produced within a country	World Development Indicator
Economic Dimension of Governance	It is the un-weighted average of both government effectiveness and regulatory control	World Development Indicator
Political Dimension of Governance	The un-weighted average of voice and accountability and political stability and absence of violence	World Development Indicator
Institutional Dimension of Governance	The un-weighted average of rule of law and control of corruption	World Development Indicator

***Source**: Author*

4 EMPIRICAL RESULTS AND DISCUSSION

4.1 Panel Unit-root test for time series

Testing the time-series of dimension of governance (ECO, POL, and INST) and growth (GDP) is the first step of the Toda-Yamamoto approach on Granger causality in order to investigate the presence of unit root in series and to determine their order of integration.

Table 3: Panel Unit-root Test

Variables	Method	At level		At First Difference		Comment
		Statistics	Prob.	Statistics	Prob.	I(1)

GOV	Levin, Lin & Chu t*	-1.13175	0.1289	-11.3861	0.0000	
	IPS W-Stat	-0.24576	0.4029	-8.92861	0.0000	
	ADF – Fisher Chi-Square	29.2187	0.5061	129.803	0.0000	
	PP-Fisher Chi-Square	27.8819	0.5767	131.371	0.0000	
GDP	Levin, Lin & Chu t*	-1.57985	0.0571	-8.29686	0.0000	I(1)
	IPS W-Stat	3.18975	0.9993	-10.1800	0.0000	
	ADF – Fisher Chi-Square	40.2207	0.1007	151.787	0.0000	
	PP-Fisher Chi-Square	28.4673	0.5457	182.115	0.0000	
ECO	Levin, Lin & Chu t*	-2.27893	0.0113	-25.8985	0.0000	I(1)
	IPS W-Stat	-5.28602	0.0000	-24.6680	0.0000	
	ADF – Fisher Chi-Square	87.0778	0.0000	822.137	0.0000	
	PP-Fisher Chi-Square	107.403	0.0000	1066.53	0.0000	
POL	Levin, Lin & Chu t*	-3.11586	0.0009	-13.7865	0.0000	I(1)
	IPS W-Stat	-3.39338	0.0003	-15.3632	0.0000	
	ADF – Fisher Chi-Square	70.4734	0.0000	368.666	0.0000	
	PP-Fisher Chi-Square	73.0552	0.0000	807.284	0.0000	
INS	Levin, Lin & Chu t*	-1.93248	0.0267	-23.1941	0.0000	I(1)
	IPS W-Stat	-4.42176	0.0000	-21.0774	0.0000	
	ADF – Fisher Chi-Square	76.6938	0.0000	768.878	0.0000	
	PP-Fisher Chi-Square	77.1543	0.0000	1147.64	0.0000	

Source: Author

Table 3 gives the summary of the panel unit root test. The null hypothesis is that there is unit root which means that the variables are not stationary. Rejecting the null hypothesis means validation of the alternative hypothesis that there is no unit root (based on the significance level of 5%). In the GOV time-series, the Levin-Lin Chu t* statistics for common unit root p-value (0.1289) > 0.05, the null hypothesis of the presence of unit root is rejected. Also the individual unit root tested by the Im-Pesaran-Shin, Augmented Dickey-Fuller (ADF-Fisher) and PP-Fisher tests respectively are rejected. The p-values of the various tests are 0.4029, 0.5061 and 0.5767 respectively, they are greater than the specified significance level of 5%; therefore, the null hypothesis is rejected. Since it is not stationary at first level, we applied first order difference to make it stationary at d=1. From the results of first difference, the statistical p-values of all the methods are < 0.05; it can then be inferred that there is presence of unit root.

The Levin-Lin Chu t* statistics for common unit root p-value of the GDP is 0.0571, > 0.05. Also the individual unit root test conducted by the Im-Pesaran-Shin, Augmented Dickey-Fuller (ADF-Fisher) and PP-Fisher statistics at the p-values of 0.9993, 0.1007 and 0.5457 respectively are greater than the specified significance level of 5%, signifying rejection of the null hypothesis of the presence of unit root. First order difference to make it stationary at d=1 was applied. With the result from first difference, the test statistical p-values of all the methods are < 0.05. Therefore, we fail to accept the null hypothesis that there is unit root. In the ECO time-series, the Levin-Lin Chu t* statistics p-value for common unit root is 0.0113 while the individual unit root test conducted by the Im-Pesaran-Shin, Augmented Dickey-Fuller (ADF-Fisher) and PP-Fisher statistics has the p-value of 0.0000, 0.0000 and 0.0000 respectively we reject the null hypothesis that there is presence of unit root which means that the data are stationary. The Levin-Lin Chu t* statistics p-value for common unit root for POL time-series is 0.0009, while the individual unit root tests conducted by the Im-Pesaran-Shin, Augmented Dickey-Fuller (ADF-Fisher) and PP-Fisher statistics have the p-values of 0.0003, 0.0000 and 0.0000 respectively; the alternative hypothesis of no presence of unit root is accepted. According to the INS time-series, the Levin-Lin Chu t* statistics for common unit root p-value (0.0267) < 5%, we reject the null hypothesis of the presence of unit root. The individual unit root tests conducted by the Im-Pesaran-Shin, Augmented Dickey-Fuller (ADF-Fisher) and PP-Fisher statistics are 0.0000, 0.0000 and 0.0000 respectively, we therefore fail to accept the null hypothesis that there is presence of unit root.

4.2 Panel Co-integration Test

Based on the outcomes of the stationary tests, the Pedroni Residual Co-integration test was conducted to ascertain the long-run relationship; as this will determine the direction of whether to use Vector Auto-regression model (VAR) or Vector Error Correction model (VECM). One of the conditions for running the panel co-integration test is that the variables are stationary at the same level.

Table 4: Pedroni Residual Co-integration Test

Method	Common AR Coefficient			
	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-2.948185	0.9984	-2.612984	0.9955
Panel rho-Statistic	2.437032	0.9926	2.188641	0.9857
Panel PP-Statistic	1.111001	0.8667	0.583068	0.7201
Panel ADF-Statistic	1.792682	0.9635	1.173057	0.8796
	Individual AR Coefficients			
Group rho-Statistic	3.618577	0.9999		
Group PP-Statistic	1.079420	0.8598		
Group ADF-Statistic	1.459869	0.9278		

Source: *Author*

The null hypothesis of Pedroni Residual Co-integration test is that there is no co-integration. among the variables and the decision rule is that the probability value that conforms more to either the null or alternative hypothesis out of the 11 probability values in the test are taken. The result in Table 4 shows that co-integration does not exist among GDP, ECO, POL and INS; implying that there is no long-run relationship between the variables of dimension of governance (economic, political and institutional) and growth of the 15 ECOWAS countries between 1996 and 2016. Therefore, VAR is used as technique of analysis.

Due to the interest in the Granger non-causality tests, we first established the number of correct lags because the number of lags has a significant influence on the results of the Granger non-causality test. Using the lag order selection criteria[3], the LR test statistic (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC) and Hannan-Quinn Information Criterion (HQ) techniques reveal a maximum lag length of 2 for each of the variables (see appendix).

4.3 Vector Auto-Regression (VAR) Results

Table 5: VAR with POLITICAL DIMENSION OF GOVERNANCE (POL) as the dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP(-1)	-0.399353	0.243870	-1.637566	0.1027
LGDP(-2)	-0.230054	0.199838	-1.151206	0.2507
ECO(-1)	-0.637204	0.141406	-4.506211	0.0000
ECO(-2)	-0.212251	0.129889	-1.634088	0.1034
POL(-1)	-0.199231	0.069063	-2.884775	0.0042
POL(-2)	0.046732	0.066295	0.704910	0.4815
INS(-1)	0.344147	0.134090	2.566539	0.0108
INS(-2)	0.303153	0.127196	2.383357	0.0179
C	0.032925	0.017972	1.832010	0.0681
R-Squared		0.386900	F-statistic	20.58819
Adj. R-Squared		0.368108	Prob(F-statistic)	0.000000
Durbin-Watson stat		1.728673		

Source: *Author*

[3] The table for test for selecting the number of lags is available in Appendix

Table 5 depicts the vector auto-regression result with POL as the dependent variable. The result shows that the lag of GDP has negative impact on the political dimension of governance (POL). In the first period, one percent increase in the GDP brought about 39.9 percent decreases in the political dimension of governance without a significant impact. This displays the scenario in the ECOWAS countries. As GDP increases political stability is been threaten and terrorism emerges as group of citizens coarse together to share in the national cake by forceful means thereby bringing a decrease in the quality of governance from the political dimension. Furthermore, the second lag of GDP shows a negative relationship with economic dimension (ECO). A 1% increase in INS brought about 34 percent and 30 percent increases in POL in the first and second periods respectively. The Institutional dimension of governance (INS) has significant effect on political dimension (POL). The R-squared shows that about 38 percent variations in the dependent variable is explained by the regressors in the model, signifying that growth in the ECOWAS region cannot enhance an improvement in the political dimension of governance.

Table 6: VAR with ECONOMIC DIMENSION OF GOVERNANCE (ECO) as the dependent variable

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LGDP(-1)	0.341198	0.167068	2.042272	0.0421
LGDP(-2)	0.042411	0.136903	0.309788	0.7570
ECO(-1)	-0.505749	0.096873	-5.220760	0.0000
ECO(-2)	-0.008973	0.088983	-0.100839	0.9198
POL(-1)	-0.025827	0.047313	-0.545873	0.5856
POL(-2)	0.093953	0.045417	2.068687	0.0396
INS(-1)	0.106503	0.091861	1.159399	0.2474
INS(-2)	0.080994	0.087138	0.929487	0.3535
C	-0.026807	0.012312	-2.177282	0.0304
R-Squared		0.510710	F-statistic	34.05328
Adj. R-Squared		0.495713	Prob(F-statistic)	0.000000
Durbin-Watson stat		1.694825		

Source: *Author*

Table 6 represents the vector auto-regression result with economic dimension of governance (ECO) as the dependent variable. It shows that the lag of GDP has positive association with the economic dimension of governance (ECO). In the first period, one percent increase in the GDP brought about 34 percent increase in the economic dimension of governance (ECO). Second, ECO has a significant effect on political dimension (POL) in the first and second periods respectively. The R-squared implies that about 51 percent variation in the dependent variable is explained by the regressors in the model. Therefore, growth in the ECOWAS region can enhance an improvement in the economic dimension of governance.

Table 7: VAR with INSTITUTION DIMENSION OF GOVERNANCE (INS) as the dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP(-1)	0.120975	0.176308	0.686154	0.4932
LGDP(-2)	0.181352	0.144475	1.255247	0.2105
ECO(-1)	-0.364232	0.102231	-3.562840	0.0004
ECO(-2)	0.044411	0.093905	0.472933	0.6367
POL(-1)	0.045972	0.049930	0.920740	0.3580
POL(-2)	0.047799	0.047929	0.997285	0.3195
INS(-1)	-0.088730	0.096942	-0.915292	0.3609
INS(-2)	0.080874	0.091958	0.879467	0.3800
C	-0.017050	0.012993	-1.312262	0.1906
R-Squared		0.448572	F-statistic	26.53954
Adj. R-Squared		0.431670	Prob(F-statistic)	0.000000
Durbin-Watson stat		1.755360		

Source: *Author*

Table 7 shows the vector auto-regression result with institutional dimension (INS) as the dependent variable. The lag of GDP has a positive relationship with the economic dimension of governance (ECO). A 1% increase in the economic dimension of governance led to 36 percent decline in the institutional quality of governance. In the second period of ECO, the political dimension of governance (POL) does not have a significant impact on institutional dimension and also, the institutional dimension does not have a significant impact on itself. The R-squared shows that the model captures about 44 percent variations in the dependent variable as explained by the regressors.

Table 8: VAR with GDP as the dependent variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LGDP(-1)	0.130641	0.055438	2.356544	0.0192
LGDP(-2)	0.123511	0.045428	2.718829	0.0070
ECO(-1)	-0.019452	0.032145	-0.605124	0.5456
ECO(-2)	-0.024710	0.029527	-0.836845	0.4034
POL(-1)	0.042174	0.015700	2.686279	0.0077
POL(-2)	0.006540	0.015071	0.433985	0.6647
INS(-1)	-0.012252	0.030482	-0.401936	0.6881
INS(-2)	0.006576	0.028915	0.227412	0.8203
C	0.031770	0.004085	7.776377	0.0000
R-Squared		0.103450	F-statistic	3.764488
Adj. R-Squared		0.075969	Prob(F-statistic)	0.000340
Durbin-Watson stat		2.108795		

Source: *Author*

The result presented in table 8 depicts the vector auto-regression model with GDP as the dependent variable. The result shows that the lag of GDP has significant impact on GDP. In the first period, 1% increase in the GDP brought about 13 percent increase in subsequent period, while in the second period, 1% increase in GDP led to about 12 percent increase in GDP. It reveals that the economic dimension of governance (ECO) in the two lags has a negative impact on the GDP. Also, the result shows that POL (political dimension of governance) has positive effect on GDP. In the first period, 1% increase in the POL led to about 4.21 percent increase in GDP, while in the second period, 1% increase in POL resulted to about 0.6 percent increase in GDP. In addition, the institutional dimension of governance (INS) has insignificant association with GDP. However, the R-squared shows that the model captures 10 percent variation in the dependent variable, which is explained by the regressors. This low R squared became a major concern but the R-squared(s) previous studies conducted on this subject matter are low. Mira and Hammadache, (2017) using cross-country panel data of 42 countries got a low R-Squared of 17 percent. Bota-Avram et al (2018), in its study of 136 countries recorded an R-squared of 45%. In addition, figures 1-3 are clear evidence that only a small portion of growth can be explained by the dimensions of governance in ECOWAS economies.

4.4: Granger Causality/Block Exogeneity Wald Tests

Table 8: Granger Causality/Block Exogeneity Wald Result

Dependent variable: GDP			
Excluded	Chi-Square	Df	Prob.
ECO	0.906416	2	0.6356
POL	7.237414	2	0.0268
INS	0.261126	2	0.8776
ALL (GOV)	**12.66152**	**6**	**0.0487**
Dependent Variable: ECO			
LGDP	4.956290	2	0.0839
Dependent Variable: POL			
LGDP	5.395264	2	0.0674
Dependent Variable: INS			
LGDP	2.697270	2	0.2596

Source: *Author*

Table 8 presents the result of the VAR Granger Causality/Block Exogeneity Wald tests with the null hypothesis of no granger causality. It reveals that a tangible evidence of Granger causality runs from the overall country-level governance **(ALL GOV)**. Breaking down the governance indices into the three dimensions; economic and institutional dimensions of governance do not have evidence of causality running from them to GDP but there is causality running from political and economic dimensions respectively to GDP. The causality from GDP to the three dimensions of governance is not confirmed (p-value is > 0.05). From this, it is established that a unidirectional causal relationship exists between the quality of governance and growth in ECOWAS.

Table 9: Pairwise Dumitrescu Hurlin Panel Causality Tests

Null Hypothesis	**W-Stat.**		**Prob.**
POL does not homogeneously cause LGDP	5.47220	4.40329	1.E-05
LGDP does not homogeneously cause POL	3.06879	1.03172	0.3022
INS does not homogeneously cause LGDP	4.04943	2.40739	0.0161
LGDP does not homogeneously cause INS	4.46812	2.99474	0.0027
ECO does not homogeneously cause LGDP	4.03327	2.38473	0.0171
LGDP does not homogeneously cause ECO	2.42999	0.13559	0.8921

Source: *Author*

Table 9 shows the result of the heterogeneous panel granger causality of each cross-sectional unit independently. This is similar or equivalent to the result of the VAR Granger Causality/Block Exogeneity Wald tests in table 8. The low output of R-squared obtained in this analysis may be mainly as a result of nations in the ECOWAS that have high level of quality of governance but with very low GDP (e.g Cape Verde). In contrast, some countries such as Nigeria with low level of quality of governance and yet maintain high GDP, accounting for over 70 percent of the GDP of the region. She is referred to as the economic powerhouse of West Africa (ECOWAS Annual Report, 2016).

The result of this study conforms partly to economic literature and it confirmed results of some of previous studies such as Bota-Avram et al (2018), Calderoân and Chong (2000), Chauvet and Collier (2004). It provides evidence of Granger causality from quality of country level governance to economic growth and so also the causality from economic growth to country-level governance is not confirmed. The result of this study also establishes a unidirectional causality from governance to economic growth. Sikod and Teke (2012), using Cameroon agrees with this study that there is a unidirectional causality running from governance to growth. It is

noted also that the result of this study is at variance with Sachs et al, 2004; Wilson, 2015) which uses heterogeneous Granger causality introduced by Dumitreseu and Hurlin (2012)

5. CONCLUSION

This study focuses on the dimensions of governance and growth nexus in ECOWAS between 1996 and 2016. The model employed gross domestic product (GDP) as regressand while governance broken down into three dimensions; Economic (ECO), Political (POL) and Institutional (INS). The panel unit root test indicated that the gross domestic product (GDP) used in capturing growth was not stationary at level but when first differenced, they were all stationary. Due to no co-integration among the variables, the vector autoregressive model, Wald coefficient test, block exogeneity Wald test and Dumitrescu Hurlin Granger Causality test were employed as the estimation techniques in the study and the findings indicated a unidirectional causality running from the quality of governance as a whole to GDP. The findings of this study show a positive and significant effect of the political dimension of governance on economic growth while the economic and institutional dimension of governance does not have a significant effect. The model estimated revealed that the political dimension of governance has a positive effect on growth but it is significant while there is negative effect from the economical and institutional dimension of governance but its effect is not significant. The causality test shows a significant impact of governance on growth but no reverse case. Theoretically and logically, the improvement in the resources available to the government ought to bring about causality running to quality of governance from growth but the region has exhibited something different. Amidst the four traps identified by Collier (2007), the bad governance trap is one that many of the ECOWAS countries fell victims of as shown in the estimates of their qualities of governance being in deficit.

Good governance has a great role in promoting inclusive economic growth. Eradicating poverty will be a mirage without high and sustained growth that can boost productive jobs and brings benefits to entire economy. Consequently, improvement in the quality of the political dimension can spur economic growth in ECOWAS member states.

Based on the obtained results of this study, the following are recommended:

Policy makers both domestic and external may have to place significant emphases on the maintenance of the voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption in other to attract more foreign direct investment (FDI) into the region of ECOWAS. Similarly, political dimension of governance which constitute voice and accountability and political stability and absence of corruption needs more attention as it has a significant influence on growth. The ECOWAS committees can also bring about incentive for improvement in the quality of governance as we have it that some of the countries in bad governance will be exempted from some benefits.

In addition, property right and contract laws that are well backed by effective and impartial judiciary system of government should be put in place to drive growth. International agencies that give aid can also give some benchmark level of governance reform that must be achieved before a certain level of aid can be given to the countries in the region so as to improve the quality of governance.

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APPENDIX

Panel Unit Root Test for GOV

Panel unit root test: Summary
Series: GOV
Date: 08/11/18 Time: 16:00
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.13175	0.1289	15	297
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.24576	0.4029	15	297
ADF - Fisher Chi-square	29.2187	0.5061	15	297
PP - Fisher Chi-square	27.8819	0.5767	15	300

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: D(GOV)
Date: 08/11/18 Time: 16:07
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.3861	0.0000	15	283
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.92861	0.0000	15	283
ADF - Fisher Chi-square	129.803	0.0000	15	283
PP - Fisher Chi-square	131.371	0.0000	15	285

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel Unit Root test for LGDP

Panel unit root test: Summary
Series: LGDP
Date: 08/11/18 Time: 16:10
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.57985	0.0571	15	289

Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	3.18975	0.9993	15	289
ADF - Fisher Chi-square	40.2207	0.1007	15	289
PP - Fisher Chi-square	28.4673	0.5457	15	300

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: D(LGDP)
Date: 08/11/18 Time: 16:14
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-8.29686	0.0000	15	277
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-10.1800	0.0000	15	277
ADF - Fisher Chi-square	151.787	0.0000	15	277
PP - Fisher Chi-square	182.115	0.0000	15	285

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: ECO
Date: 08/22/18 Time: 03:25
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.27893	0.0113	15	293
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.28602	0.0000	15	293
ADF - Fisher Chi-square	87.0778	0.0000	15	293
PP - Fisher Chi-square	107.403	0.0000	15	300

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: POL
Date: 08/22/18 Time: 03:29
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				

Levin, Lin & Chu t*	-3.11586	0.0009	15	287
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.39338	0.0003	15	287
ADF - Fisher Chi-square	70.4734	0.0000	15	287
PP - Fisher Chi-square	73.0552	0.0000	15	300

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Panel unit root test: Summary
Series: INS
Date: 08/22/18 Time: 03:33
Sample: 1996 2016
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 4
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.93248	0.0267	15	295
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.42176	0.0000	15	295
ADF - Fisher Chi-square	76.6938	0.0000	15	295
PP - Fisher Chi-square	77.1543	0.0000	15	300

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.