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Do the Disaggregated Governance Index Exhibit Causality with Economic Growth in Nigeria

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Abstract

The study sought to find out the causality that exist between economic growth and the disaggregated components of governance drawing experiences from Nigeria within the time frame of 1996 to 2018. The work using T-Y causality test was able to itemized that indeed given the overall governance index, a unidirectional causality exists from economic growth to the aggregated governance index, while for the disaggregated components there was no causation amongst any of the variables to economic growth, except for control of corruption flowing in a unidirectional manner to economic growth. In this manner, it is suggestive that the interactions amongst these components is quite strong in Nigeria, more so that it is the growth of the economy that will serve as a signal towards improving these governance correlates. it is therefore, advocated that strategies to stem the tide of poor performance of these governance correlates on all cylinders should be employed.

Keywords: Governance, Economic Growth, Causality, Toda-Yamamota Test

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Background to the Study

Governance being the viable structure, which societal welfare is enhanced has in recent times been rigorously investigated to foreclose the argument of its import on the development process of a country. Overtime in the discourse of what constitute good governance has led to the conceptualization of good governance by scholars like Schneider (1999) to view good governance as the ability of a country to exert proficient and novel ways in harnessing the resources of a country for the betterment of its citizen. In the same vein The United States Agency for International Development USAID (2019) espouse on good governance to be the harmonization of the complex system of activities intricately woven from structures, traditions, functions and processes, with the targeted goal of ensuring that citizen participation, accountability and transparency are attained. United Nations Development Program UNDP (2019) however, sees governance as the wielding of foresight by an administrative authority to ply political and economic activities in a manner that strives to birth rule of law, transparency, equity, effectiveness, efficiency and accountability.

In this regards the World Bank Development Indicators (2018) has provided six governance indicators to include Voice and accountability, Political Stability, Government Effectiveness, Regulatory quality, rule of Law and control of Corruption.

Economic growth is a fundamental indicator about the health of an economy. The import of this statement as alluded by Kaufmann & Kraay (2002) cannot be overemphasized as economic growth if it assumes a positive trajectory there is an enhanced national income and the level of employment, which increases the standard of living and reduces poverty (Agarwal, 2017). In conceptualization of economic growth Acemoglu (2009) sees economic growth as the increase in output produced in an economy, while Guha (1981) says economic growth is the increase in per capita income and individual welfare, Growth rates of per capita income in inter-country differences, if sustained overtime, is impactful on the living standards of such countries. For instance, comparison between the growth experiences of the East Asian economies and the majority of sub-Saharan African economies since 1960. (Snowdon & Vane, 2005).

Towards this connection the issue of governance has been at the fulcrum of attracting aid inflow from the developed economies to Africa and most developing economies to assist in the growth process. In this light, Africa and especially sub-Saharan countries in Africa have been mostly affected by these conditionalities given the enormity of bad governance indicators replete amongst these countries. This has precipitated the institutionalization of New Partnership for Africa's Development(NEPAD), whose primary goal is to ensure the improvement of governance amongst sub-Saharan entities. This thinking is further buttressed by scholars such as Owens(1987) and Sen(1990) that have called out for political and economic freedom as a requisite for economic growth. It is gainsaying that NEPAD has enabled some measure of improvement in good governance in certain Africa Countries such as Botswana and Ghana. Fayissa and Nsiah(2010). They further argued for the heterogeneity of good governance amongst the sub-Saharan African countries, which has opened up a yearning gap for the current study to fill, while considering the specificity and peculiarities

of the Nigeria as a geographical space within the sub-Saharan Africa. The case for the heterogeneity of governance- economic growth nexus is further reinforced given empirical works by Keefer and Knack (1995), Campos and Nugent (1999), Kaufmann,Kraay, and Zoido-Lobaton(1999), Acemoglu, Johnson and Robinson(2004) identified problems associated with governance aggregation measures but concluded that good governance impacts economic growth positively. On the other hand, Sachs, McArthur, Schmidt- Traub, Kruk, Bahdur, Faye, & McCord (2004) has averred that the focus on governance as a catalyst to economic growth may be misguided given that if there are differences in development amongst African countries then it might not be duly ascertained that such differences are traceable to the differences therein of the quality of governance amongst these countries.

Given these contentious issues of country heterogeneity and the possibility that the feedback to governance might arise from economic growth and development that this study attempts to evaluate the causality of the governance- economic growth nexus in Nigeria from 1999 to 2018, which the country has enjoyed about 20 years of uninterrupted democratic governance. The paper would further investigations on this causal relationship, using the both aggregated and disaggregated governance index as it interacts with economic growth so as to provide answers to the problematic.

Review of Related Studies

A cursory look at related empirical literature has revealed that better governance creates economic growth. Works such as Samarasinghe (2018), Bchaka and Nsiah (2013), Cooray(2009), Acemoglu and Robinson(2008,2010 and 2012), Kaufmann and Kraay (2002), Barro (2000), Weil(2013) Adam and Mengistu (2008), Maridal (2014) Petrakis and Kostis (2013), North (1991), North and Thomas(1973), Evans and Rouch (1997), Feng (1997), Emara and Jhonson (2014), Ramadhan et al(2016), Tan and Abosedra (2014), Alsen and Veiga(2011), YounisLin, Sharahili, & Selvarathinam (2008), Haggard and Tiede (2011), Rogobon and Rodrick (2004) Butkiewicz and Yanikkaya (2004), Kaufmann, Kraay and Mastruzzi (2010), La Porta, Lopez-De-Silanes, Shleifer, & Vishny (1990), while using the various disaggregated governance indicators, which include Voice and accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption, as proxies for governance as provided by the World Bank revealed that the causality that runs from governance to economic growth is indeed positive and significant.

On the other hand, Ross (2016) while asserting that few studies tend to indicate the direction of the correlation between governance and economic growth, however, concluded that improving economic growth serves as the link to enhanced efficient governance. Sirowy and Inkeles(1990)arguments are aligned to this thinking as they posit via the conflict perspective theory that good governance can be established if only economic growth is improved.

Further studies in the Governance-Economic growth nexus have unfolded mix results or bidirectional relationship. These works include Huag and Yuan-Hong(2016), Dollar, Kleineberg, and Kraay (2016), Mauro(1995), Aidt, Dutta and Sena (2007), Aidt(2009), Glaeser, La Porta, Lopez-de-silanes, and Shleifer (2004), Gani(2011), Salhodjaev (2015).

These works have traced the cognitive capacity of a society in terms of its social-political awareness and the regime type as key elements in determining the direction of the causation. Yet in some other works such as Pere(2015), Treisman (2000) have found no significant relationship between the governance-economic growth nexus.

Theoretical Framework

This work intends to anchor its arguments on the endogenous growth theory as proposed by Romer (1986), Lucas (1988). This presupposes that economic growth is primarily a function of internal forces with indefinite investment in human capital, which transmits to the correlates of governance as alluded by the World Bank (2018). The implication is that the long run economic growth of an economy has its stimulants from policy measures within such an economy, which according to Howitt (2007), there must be continual and sustained transformation in such policies that should be never ending, if continued prosperity is to be enjoyed by such citizenry.

The strength of the endogenous growth theory in trying to lay a framework on how unmeasurable things can be channeled into empirical analysis is yet its weakness as portrayed by Krugman (2013) that empirical evidence checks is a hazardous task given that too much of the theory is immersed in assumptions about how to channel analysis about unmeasurable things affecting other unmeasurable things. The assumption that production function does not exhibit diminishing return to scale for both developing and developed economies is untenable, which has led to the collective failure of the theory to explain conditional convergence. It is expected that developed economies should attain a particular peak in growth then diminishing returns should set in, at which point the rate of growth of the poorer economies, which is assumed faster, should play catch up with the developed economies.

Methodology

Data was sourced from World Bank Development Indicators (2018) of the Aggregate of Governance measure, which was further disaggregated into the six components of the Governance index. The disaggregated indexes are Voice and Accountability (VOIACC), Political Stability(POLSTAB), Government Effectiveness(GOVEFF), Regulatory Quality(REGQ), Rule of Law(ROL) and Control of Corruption(COC).

Table 1: Descriptive Statistics of Economic Growth and Governance Indicators from 1996 to 2018

	ECOGRO	COC	GOVEFF	POLSTAB	REGQ	ROL	VOIACC	OVERALL_G
Mean	5.14	-1.17	-1.02	-1.70	-0.91	-1.15	-0.72	-5.25
Median	5.92	-1.16	-0.99	-1.88	-0.89	-1.15	-0.70	-5.17
Maximum	15.33	-0.89	-0.89	-0.27	-0.66	-0.86	-0.23	-4.45
Minimum	-1.62	-1.47	-1.21	-2.21	-1.35	-1.43	-1.56	-6.13
Jarque-Bera	1.70	0.91	2.53	14.80	3.03	0.59	4.85	1.21
Probability	0.43	0.63	0.28	0.00	0.22	0.74	0.09	0.55
Observations	23	23	23	23	23	23	23	23

Source: Author's Compilation from e-views 10

A cursory look at Table 1 shows that economic growth (ECOGRO) has averaged about 5.14% during the period studied with maximum growth of 15.33% recorded in 2002 as depicted on fig2. This is an outlier; who reasons adduced to its happenstance given the rebasing of the country's GDP, where new sectors such as telecommunications, movie industry and retail were not previously reported or under reported. This led to the bourgeoning of economic growth figures. The Minimum economic growth figure of -1.62 is noticed in 2016, which is attributable to the recession period, which led to a slowing down of economic growth. It is worthy to note that the generally trend line forecasted for economic growth depicts a downward trend into the future, which is a worrisome scenario. Control of Corruption(COC) did maintained a negative average of -1.17units, which is extremely weak, when compared to the global benchmark of -2.5 units, which is averred to be poor. By year 2002 COC reached its peak of -0.89units given the period studied, while by year 2001, COC was at its least value of -1.47units. This period is understandable given that it was when the fight against corruption in the country was just beginning to gain momentum. The average values for GOVEFF, POLSTAB, REGQ, ROL and VOIACC have maintained values from -170 to -0.72 units over the period studied, while the Minimum values are seen to hover around -1.21 to -1.62 units for the same variables. The overall governance index, which is computed by the author by taking the mean of all the disaggregated governance indicators as provided over the time horizon of the study, reflects some high figures, which are diminishing or decreasing for all the variables, as it averages at -5.25units, while ranging from -6.13 to-4.45units for all the six disaggregated components of the governance index. The probability of the Jarque-Berastatistics, which measures the normality of the series reports that all the series are normally distributed except for POLSTAB whose probability reported otherwise.

Fig. 1: Chart Showing Governance Indicators for Nigeria

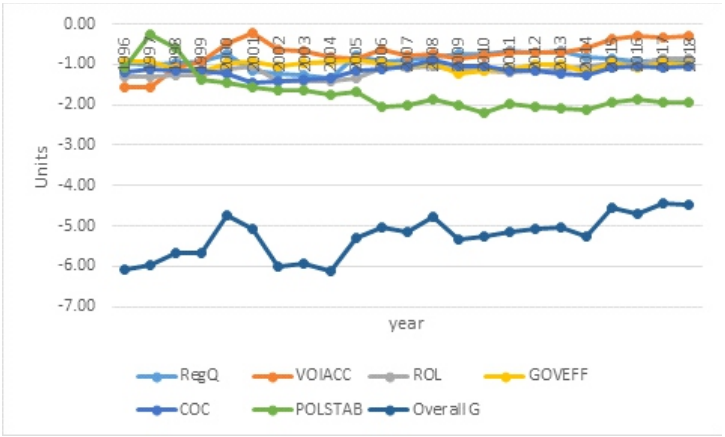
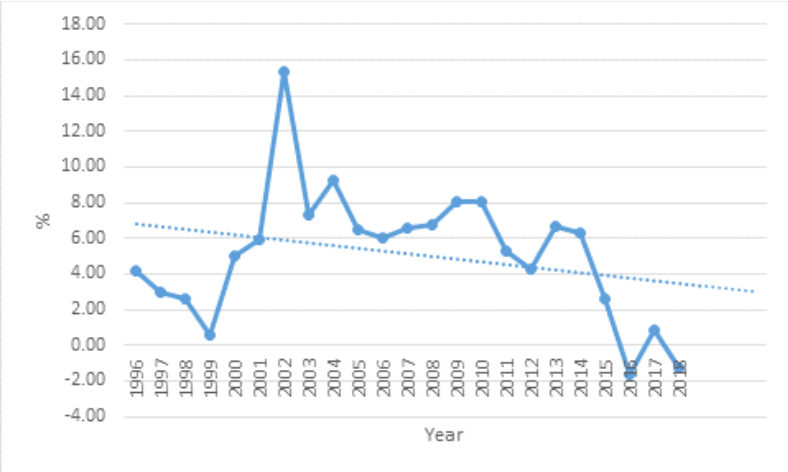


Fig. 2: Chart Showing Economic Growth for Nigeria



Model Specification

The general model for the study, which is anchored on the Romer (1988) theoretical perspective of the endogenous growth theory, simplified as the AK model, that employs the simple Cobb- Douglass production function, we have

$$Y = Ak^{\alpha}L^{1-\alpha} \qquad \text{Eqn. 1}$$

Where Y is output or economic growth; Capital (K) and Labour(L), which are inputs in the production apparatus are proxied as the governance indicators; α is the measure of the quality and quantum of the endogenous correlates factored into the economy, which in this case are the disaggregated and aggregated indicators of governance for the Nigerian economy from 1996 to 2018. The variables specified in the model are adequately described and measured and sources described accordingly as reflected on Appendix 1.

The objective of the study is to seek the causality of the overall governance index and its six disaggregated components with economic growth in Nigeria from 1996 to 2018. The interaction of these variables when structured into equation 1 will outline seven (7) bivariate models, which if disaggregated becomes fourteen (14) models to be tested for causality. The Toda-Yammato(T-Y) approach for testing causality for multivariate analysis, usually when they are mixed order of integration i.e. I(0) and I(1) will be adopted to ensure that the results are efficient and consistent. The generic format for the bivariate specification of the variables of interest for the study as they are interacted with the T-Y model becomes

$$r_t = \alpha^{r} + \sum_{i=1}^{k} \varphi_i^{r} r_{t-i} + \sum_{j=k+1}^{k+d\max} \lambda_j^{r} r_{t-j} + \sum_{i=1}^{k} \delta_i^{r} p_{t-i} + \sum_{j=k+1}^{k+d\max} \phi_j^{r} p_{t-j} + \varepsilon_t^{r} \qquad \text{Eqn. 2}$$

$$p_t = \alpha^{p} + \sum_{i=1}^{k} \varphi_i^{p} r_{t-i} + \sum_{j=k+1}^{k+d\max} \lambda_j^{p} r_{t-j} + \sum_{i=1}^{k} \delta_i^{p} p_{t-i} + \sum_{j=k+1}^{k+d\max} \phi_j^{p} p_{t-j} + \varepsilon_t^{p} \qquad \text{Eqn. 3}$$

Where r_t and p_t are the bivariate variables to be tested for causality at time t; k= optimal lag length; d max = maximum order of integration; α, φ, λ, δ, $\emptyset$ are the coefficients of the estimates, ε is the error term.

To determine the causality results, the work undertakes the unit root test to determine the dmax. This was done using the ADF and KPSS test for stationarity. The results are presented on table 2.

Table 2: ADF and KPSS Unit Root Test
Unit Root Test

Variables	ADF		5% Critical Statistics	KPSS			5% Critical Statistics	Max Order of integration
	Levels	First difference		Levels	First difference	Second Difference		
ECOGRO	-2.4935	-5.0161*	-3.0404	0.4402*	0.1583		0.463	I(1)
COC	-1.6521	-4.1359*	-3.0124	0.2231*	-0.0778		0.463	I(1)
GOVEFF	-3.3798*	-6.3469	-3.0049	0.1830*	0.4022		0.463	I(0)
POLSTAB	1.6667	-6.0768*	-3.0124	0.5218	0.4247*		0.463	I(1)
REGQ	-2.2947	-5.7687*	-3.5806	0.2708*	0.0845		0.463	1(1)
ROL	-1.3529	-4.3845*	-2.9762	0.5657	0.0773*		0.463	1(1)
VOIACC	-2.4935	-5.0162*	-3.0404	0.4402*	0.1583		0.463	I(1)
OVERALLG	-2.1096	-5.5531*	-3.0404	0.6341	0.6509	0.3484*	0.463	I(2)

Source: Author's Compilation from e-views 10

The unit root results show that all the variables of interest have a maximum order of integration at First difference except for GOVEFF and OVERALLG, which depict an order of integration at levels and second difference respectively. Thereafter the Lag selection criteria was carried out with the Akaike Information Criterion used as the bench mark for decision. The decision reached was that all the variables of interest when interacted within the VAR framework indicated a lag order selected of one (1). Thereafter the T-Y causality test was done to arrive at the results presented in table 3

Table 3: T-Y Causility Results

Causality	Chi-Sq	Df	Prob	Decision
ECOGRO→COC	0.0009	1	0.9766	No Causation
COC→ECOGRO	5.1421	1	0.0234	Uni directional
ECOGRO→ GOVEFF	0.01859	1	0.8915	No Causation
GOVEFF→ ECOGRO	0.3655	1	0.5455	No Causation
ECOGRO→ POLSTAB	0.5206	1	0.4256	No Causation
POLSTAB→ ECOGRO	0.6347	1	0.4256	No Causation
ECOGRO→REGQ	0.1023	1	0.7491	No Causation
REGQ→ECOGRO	0.8514	1	0.3562	No Causation
ECOGRO→ROL	2.2694	1	0.1319	No Causation
ROL→ECOGRO	0.2582	1	0.6113	No Causation
ECOGRO→VOIACC	1.1022	1	0.2938	No Causation
VOIACC→ECOGRO	1.1015	1	0.3138	No Causation
ECOGRO→OVERALLG	5.6903	1	0.0171	Unidirectional
OVERALLG→ECOGRO	0.1491	1	0.6994	No Causation

Source: Author's compilation from e-views 10

A cursory view of table 3 has shown that there is a one-way causal relationship flowing from Control of corruption to economic growth. In essence corruption tends to impact significantly on economic growth. This is in tandem with views of Ross (2016), Aidt(2009), Tanzi (1998), Mauro(1995) that suffice to say , few studies do actually indicate the direction of the correlation between economic growth and corruption, more so that corruption is seen to have a two-headed pronged of been bad and the same time exhibiting some positivism on economic growth.

The results also revealed that indeed within the frame of time used for this work, economic growth is an indicator or a prism that precipitates good governance, when the correlates of good governance (which are Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) are aggregated. The thinking of Sirowy and Inkeles (1990) aligned to this disposition, especially when channeled through the conflict perspective theory, which establishes that good governance can be berth if and only if economic growth is improved.

The remaining disaggregated correlates of governance index, as reported on table 3 show no causation between any of them and economic growth. This is not in tandem with works by Alesina, Ozler, Roubini, & Swagel, (1992), Feng(1997) that regular or unstable political regime may lead to uncertainty, which send wrong signals to investors and as such decreasing economic growth; for Mo(2001), in the discourse on voice and accountability posit that it plays a significant role on the control of corruption, regulatory quality and the Rule of Law; for Weil(2013), Haggard and Tiede(2011), Rogobon and Rodrik (2004), Butkiewicz and Yanikkaya (2004) whose voices resonate to the maintenance of law and order, judicial independence as well as the control of corruption will ensure a guide against government failure, which is highly correlated with economic growth.

Conclusion

The study sought to find out the causality that exist between economic growth and the disaggregated components of governance drawing experiences from Nigeria within the time frame of 1996 to 2018. The work using T-Y causality test was able to itemized that indeed given the overall governance index, a unidirectional causality exists from economic growth to the aggregated governance index, while for the disaggregated components there was no causation amongst any of the variables to economic growth, except for control of corruption flowing in a unidirectional manner to economic growth. In this manner, it is suggestive that the interactions amongst these components is quite strong in Nigeria, more so that it is the growth of the economy that will serve as a signal towards improving these correlates of governance. But it is worrisome that given the tide and forecast of economic growth as revealed by this study, which has shown decreasing tendencies, it is therefore, advocated that relevant strategies should be put in place that can enhanced the reduction of poverty, increase welfare, which will stimulate economic growth. As a result, it will stem the tide of poor performance of these governance correlates on all cylinders.

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Appendix 1: Variables Description and Measurement

No	Variable	Description	Measurement	Source
1	Economic growth: the rate of change of real GDP	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value added by all res ident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	Percent	World Bank.
2	: Government Effectiveness Index	The index of Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.	Points; (-2.5 weak; 2.5 strong)	The World Bank
3	Control of corruption	The index for Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests.	Points; (-2.5 weak; 2.5 strong)	The World Bank
4	Rule of law index	The index for Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	Points; (-2.5 weak; 2.5 strong)	The World Bank
5.	Political Stability index	The index of Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. The index is an average of several other indexes from the Economist Intelligence Unit, the World Economic Forum, and the Political Risk Services, among others.	Points; (-2.5 weak; 2.5 strong)	The World Bank
6.	Regulatory quality	The index of Regulatory Quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	Measure: points; index (-2.5 weak; 2.5 strong)	Source: The World Bank
7	Voice and accountability	Definition: The index for Voice and Accountability captures perceptions of the extent to which the citizens are able to pa rticipate in selecting their government, as well as freedom of expression, freedom of association, and a free media.	index (-2.5 weak; 2.5 strong) Measure: points;	Source: The World Bank