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Governance Institutions, Human Capacity Building and Sustainable Industrial Production: The Nigerian Situation

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Abstract
This study was undertaken to examine the impact of system of governance institutions and human capacity building on industrial growth of Nigeria. The study covers from 1986 to 2016. Time series data were sourced from World Bank, Central Bank of Nigeria, etc. The study is based on endogenous growth model and employed Granger causality and ECM technique for data analysis. The ADF tests showed that the variables were stationary. Granger causality tests indicated a unidirectional causal relationship between rule of law, regulatory quality, human capacity building and industrial growth in Nigeria. The ECM coefficient was statistically significant. Findings from analysis show that while some governance institutions indicators significantly and positively impact industrial growth, others do not and that human capacity building insignificantly impact industrial growth. The study concludes that system of governance and human capacity building structures and programmes are ineffective to kick start and drive the needed industrialisation processes. The study recommends that to boost and ensure industrialization in Nigeria, policy should focus to enhance, improve and made more attractive, effective and efficient system of governance and human capacity building structures and programmes.

Keywords: industrial production, institutions, governance, human capacity building, sustainable development

INTRODUCTION

Nigeria has a land mass of 923,769 sq km with 909,890 sq km of land and 13,879 sq km of water. Her vegetation covers, physical features and land terrain vary from flat open Savannah to thick forests. Population of the country is about 170 million people out of which over 93 million are economically active and over 68 million constitute the labour force (NBS, 2012; CBN, 2012). The country has an estimated 37.2 billion barrels of proven crude oil reserves, 182 trillion cubic feet of proven natural gas reserves, and 2 billion metric tonnes of coal reserve (UEIA, 2013; Sambo, Garba Zarma and Gaji, 2010), other natural and industrial raw material resources include gold, tin, iron ore, bauxite, lime stone, niobium, lead, zinc, kaolin, arable land, etc (CIA World Fact Book, 2012). For energy resources, she has an annual average daily sunshine of 6.25 hours, an average solar radiation of about 5.25 kw/m^2/day and receives about $4.851x10^{12}$ kw of energy per day from the sun (Solar Energy international, 2011; Odetunde, 2008). There is abundance of water from ocean, rivers, lakes, falls, tidal waves, wind, etc.

Despite the above array of natural and human resources wealth, the country's estimated poverty measure using the relative, absolute and U.S dollars-per-day was 71.5, 61.9 and 62.8 percent respectively of the population for the year 2011 (Central Bank of Nigeria, 2012) and is even worse today. This may have resulted from the poor industrialization profile of the country. Records show that, performance of the industrial sector is undesirable in Nigeria. For instance, between 1980 and 2016, the industrial sector comprising manufacturing, mining and utilities has continued to be structurally weak, exhibit declining capacity utilization, with mostly negative growth rates and contributing less to the country's economic growth (Adeoye, 2005, Chete, Adeoti, Adeyinka & Ogundele, 2013, Ubi & Effiom, 2013, Afangideh & Obiora, 2004 and Anwana, 2016a). Worst still, between 2016 and 2017, the country has experienced some forms of economic recession.

The scenario played out above seems to agree with the institutional school of thought that geographic factors on its own do not matter in determining economic performance. However, they contend that it is institutions that matter if a country is to industrialize and develop (North, 1981; Easterly & Levine, 2003; Acemoglu, Johnson & Robinson, 2001; Rodrik, Subramanian & Trebbis, 2004). Their views are that institutions: are fundamental causes of long run growth; set the pace for industrialisation; engender human development and sustainable economic development (Acemoglu, Johnson & Robinson, 2005; Helpman, 2004). As shown by Chong and Calderon (2000), there exist a bidirectional causal relationship between institutional qualities and industrial/economic growth. Also, Adebiyi and Babatope-Obasa (2004) argue that good institutions promote good conduct and business

stability while weak and inefficient institutions retard industrial/economic growth and development of a country.

Institutions are the rules of the game in a society, or more formally, the humanly devised constraints that shape human interactions (North, 1990). They structure incentives in human exchange, whether political, social or economic and influence our behaviour and therefore outcomes such as: efficient economic performance; industrial growth; pattern of consumption; reaction to new innovations; technology and government policies. Good institutions facilitate factor accumulations, innovations, efficient allocation of resources and therefore economic prosperity (Acemoglu, et al, 2005). However, inefficiencies in policies translate into inefficient institutions. Institutions determine the framework for policy determination and economic institutions determine both the limits of various redistributive policies and other rules and regulations that affect economic transactions and productivity of producers.

Institutions also determine a country's structure, level and successes in capacity building while both institutions and capacity building impact industrial productivity. As shown in UNCEPA (2006) capacity building encompasses, among other factors, institutional and resources capabilities of a country with the goal of enhancing the ability to evaluate and address questions relating to institutional qualities and structures through increased knowledge, skills and understanding. Such skills and understanding will ultimately boost economic growth through enhanced productivity in industries and other sectors of the economy. Also, Tucker (2011) agree that the idea of building capacity of government and institutions is to enable developing countries handle problems associated with environmental, economic, industrial and social transformation and also allow for better governance at local, regional and national levels which will ultimately lead to sustainable development and democracy. As explained in Migdal (1988), weak States can be strengthened by the government if they can build capacity through establishing strong and sustainable institutions quality capable of reducing conflict and enhancing productivity. Thus, for a country to develop economically and industrially, good and strong institutional qualities and well developed programs for human capacity building should be in place. These should also be made to blend well for such a country to attain sustainable development.

One important institutional quality is governance and political system. According to Roberts (2004), governance refers to the conscious regimes aimed at enhancing the effectiveness of political authority. Functionally, it deals with making, legitimizing and enforcing rules; structurally, it comprises the state, the society and the rules or law; and normatively, it highlights the values associated with (good) governance. Governance is measured by: (i) index of government effectiveness: perception of quality of public and civil services and the degree of their independence from political pressures; quality of policy formulation and implementation; and credibility of government's commitment to their policies; (ii) Index for rule of law: perception of extent to which agents have confidence in and abide by the rules of society; and in particular the quality of contract enforcements, property rights, the police, and the courts, as well as the likelihood of crime and violence; (iii) the index of regulatory quality: perceptions of the ability of government to formulate and implement sound policies and regulations that permit and promote private sector development; etc (The Global Economy.com, 2017).

Reports by The Global Economy.com (2017), World Bank, and Transparency International (2016), indicates that institutional qualities for Nigeria over the years have been very weak and ineffective. For instance, between 1996 and 2015, out of strong points of 2.5, average government effectiveness index was -1.02 points, average rule of law index was -1.21 points, average regulatory quality index was -0.87 points, average voice and accountability index was -0.8 points, and average political right index was -1.79. From a maximum point of 100, between 1995 and 2016, average property right index for the country was 34.55 points, average freedom from corruption index was 23.44 points, average business freedom index was 53.76 points, and average investment freedom index was 46.82 points. Gbandi & Amissah (2014) also show that informal institutions which constitute more than 90 percent of Nigeria's businesses are poorly organised, keeps no records of business, and do not pay taxes. They contribute less than 10% to the GDP. Further, they are beset with dishonesty among operators, low managerial skills and lack of access to modern technology.

Statement of the Problem

As shown above, despite Nigeria's wealth, the country is bedecked in economic shambles and over the past years the country has been struggling to stay afloat economically. The country is recorded as having weak industrial and institutional profile (CBN, 2012; Afangideh & Obiora, 2004; Ubi & Effiom, 2013; Adeoti et al, 2013; Anwana, 2016a; Transparency International, 2016; The global Economy.com, 2017). Akoma (2011) and Anwana (2016b) suggest that Nigeria's industrial and economic problem is related to the nation's mode of production, power or electricity supply and consumption, industrial inactivity, poor and weak institutions. Also, Obadan (2004) cited in Nwankwo

and Okerie (2015) attributes the inability of Nigeria to attain sustainable development to poor and weak institutions in the form of lack and inadequate conditions of programs leading to overlapping functions; institutional rivalry and conflicts; political and policy instability; lack of accountability and transparency; poor policy formulation and implementations, etc. Equally, Nwankwo and Okorie (2015) asserts that capacity building programmes in Nigeria has not yielded desired results of higher industrial productivity, among others, due to institutional inadequacies and this is highly detrimental to the country's sustainable developments attainment.

Purpose of the Study

Based on the contention that institutions has a role to play in industrial productivity and that institutions and capacity building can influence each other leading to attainment or otherwise of sustainable industrial production and sustainable development, this study is undertaken generally to examine the impact of institutions and human capacity building on industrial production of Nigeria. Specifically, the study shall:

(i) Examine the impact of governance institutions on industrial productivity of Nigeria;
(ii) Examine the impact of human capacity building on industrial productivity of Nigeria.

Research Questions

The following research questions will guide this study:

(i) Has governance institution any significant impact on industrial production in Nigeria?
(ii) Has human capacity building any significant impact on industrial production in Nigeria?

Significance of the Study

This study will contribute to the understanding of the relationship between governance institutions and industrial production of a country. It will also establish and enhance the understanding of the relationship between human capacity building and industrial production. The study will assist government institutions in developing countries to develop and implement policies relating to governance, institutions and human capacity building programmes that can enhance national capacity building and sustainable development and specifically sustainable industrial production. This study is relevant in that it will proffer suggestions for Nigeria as well as other developing countries on how to attain national sustainable development through enhanced governance institutions, human capacity building and industrial production.

Limitations of the Study

The study is limited in geographic scope to Nigeria since data for the study relate to Nigeria only. The period covered by this study coincides with periods Nigeria witnessed upturns in industrial production fortunes, changes in industrial policies. The period also witnessed the introduction of different governance institutions occasioned by political and social changes, as well as the introduction of different human capacity building programmes and investments and these make the study very relevant.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Theoretical Literature Review

According to Kherallah and Kristen (2001), institutions are sets of formal (laws, contracts, political system, organizations, markets, etc) and informal rules of conduct (norms, tradition, customs, value systems, religions, sociological trends, etc) that facilitate co-ordination or govern relationships between individuals and groups. On the other hand, capacity building encompasses a country's human, scientific, technological, organizational, institutional and resource capabilities. A fundamental goal of capacity building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environment potentials and limits and of needs perceived by the people of the country concerned (UNCEPA, 2006). For Azikwe (2008), capacity building is the ability enabling people to make use of their creative potentials, intellectuals' capacities and leadership abilities for personal as well as national growth and development. However, it should be noted that capacity building goes beyond training to include human resources development, organizational development as well as institutional and legal framework development.

There are growing theoretical literatures that give tribute to institutions as fundamental cause of industrialization, human and economic development. For instance, North (1990) argues that inability of societies to develop effective institutions lead to stagnation and underdevelopment. Agreeing to this, Helpman (2004) asserts that institutions are important for economic development.

The Institutionalists lay much emphasize on the importance of institutions, such as property rights, the rule of law, and inclusive political systems in leading to long-term growth (Acemoglu, et al, 2001; Easterly & Levine, 2003; Rodrik et al., 2004). The fundamental theory behind this view is that good and strong institutions are beneficial and conducive to investment in both physical and human capital, technology, innovations, and efficient resource allocations through markets. Thus, it enables faster productivity growth and a higher level of income (North, 1981). Adebiyi and Babatope-Obasa, (2004) agrees with this view and add that institutions have

both direct as well as indirect benefits on industrial and economic growth. They attract productive investments both within and without, promote good ethical values, good conduct and hence stability in the business environment. One of the assumptions behind this assertion being that the driving forces of long term economic performance remain the same throughout history regardless of a country's developmental stage.

However, this hypothesis does not go down well with some as they argue that: (i) the fundamental determinant of a nation's income level differs at different developmental stages (ii) institutions such as property rights and rule of law do not explain industrialisation but are instead explained by industrialization. They view that in agrarian societies, the productivity of land and labour depends on geographic factors while in industrialized societies, institution matters. So, agrarian countries who try to copy Western institutions to kick start industrialisation often fail to industrialize (Pormeranz, 2000; Luo & Wen, 2015).

Considering the Nigerian case, where geographic factors are prominently in abundance but have refused to industrialize, it is very tempting to agree with the institutionalists in their assertion that geographic endowment is not enough, but that institutions matter. This puzzle has therefore added to the impetus for this study on Nigeria where institutions will be evaluated to determine if it matters for the country's industrialization drive.

To backup capacity building, Pritchett, Woolcock, and Andrews (2013) developed the modernization theory which states that growth over time in the four areas of: economy - through enhanced productivity; polity - through accurate preference aggregation; society - through equal social rights and opportunities; and administration - through rational, professional and organizations lead to a state becoming developed. The underlying idea behind this theory is that development agencies are tasked with facilitating growth in these four areas in order to speed up the process of development or make the process more equitable.

Empirical Literature Review

The importance of institutions as determining factor in industrial development of an economy is gaining attention and hence provoking studies leaning on this. Such studies come in different strands and the results may not be uniform. However such studies add to give more insights to understanding the relationship between institutional factors and industrial and economic development. According to lmhanlahimhin (2000), industrialization is a process where a country depends largely on goods and services produced in its territory for food and sustenance of the manufacturing industries. This process leads to economic development via employment generation, increased output per head and standard of living, technological advancement, economic diversification and enhanced creative, cultural and social institutions (Coleman & Nixson, 1978).

In a study of how institutional change relate with rapid industrial growth in Yugoslavia, Chittle (1975) provide the evidence that frequent and major institutional changes can enhance rapid economic growth. They argued that industrialisation in Yugoslavia was made possible through such changes. Omojimite (2012) studied the impact of institutional support and macroeconomic policy on the growth of agricultural industries in Nigeria from 1970 to 2008. They used data from Central Bank of Nigeria and Fully Modified Ordinary Least Squares method of analysis. The study showed that institutional reforms positively and significantly accounted for innovations in agricultural outputs for the period under consideration. Thus, they agree that institutions matter for development even in agricultural sector. Also, Akpo and Hassan (2015) undertook a study on how institutional quality matter in attracting foreign direct investment (FDI) in Nigeria. They adopted the autoregressive distributive lag cointegration technique to show that institutional quality is an essential factor in determining FDI in Nigeria and thus, improved institutional quality plays pivotal role in enticing FDI in developing countries.

Kaufmann, Kraay and Zoido-Lobaton (1999) studied the correlation between the six aggregate indicators of governance: voice and accountability; political stability and violence; effective government; weight regulation; rule of law and fight against corruption, and economic performance, measured in terms of per capita income, infant mortality and literacy rates. They found that each indicator is positively correlated with the logarithm of GDP per capita and literacy rate and negatively with the rate of infant mortality. This shows that governance system impacts and matter for growth.

Ubi and Udah (2014) worked on the platform that in Nigeria, improved economic performance has over the years been marred by social vices such as institutionalized corruption, which hinders the capacity of institutions to efficiently deliver services necessary to grow the economy. Their study used descriptive and quantitative methods to examine how corruption and institutional quality in Nigeria have impacted on economic performance. The study revealed that corruption and institutional quality (measured by contract intensive money) have statistically significant effect on economic performance in Nigeria. They opined that once the scourge of corruption is successfully tackled, institutional quality will be strengthened and the

much desired people centred economic growth will be achieved.

In studying the determining factors of industrialisation in Africa, Beji and Belhadj (2014) used dynamic panel model to describe the relationship between industrialization and different socio-economic, financial and institutional determinants of 35 African countries between 1970 and 2012. They found that governance, among other things have significant effects on industry and that financial and institutional factors are the main determinants of industrialization in the northern and eastern countries while socioeconomic factors matter more for the western and southern countries.

Ejuvbekpokpo (2012) investigated the impact of cost of governance on economic development in Nigeria. Data were taken from 1970 to 2010 and Ordinary Least Square technique of analysis was adopted. The study showed that cost of governance hampers economic development in the country by restricting public funds for projects that encourages industrial growth. This result runs contrary to those of Omojimite (2012) and others, though the latter considered one but an important sector of the economy. In line with the views expressed in Ejuvbekpokpo (2012), Luo and Wen (2015) assessed whether institutions do rule in driving economic development, using cross country-data and instrumental variables widely used in literatures. They revealed that institutions such as property rights and the rule of law do not explain industrialisation. Their view is that it is the presence or absence of industrialization that explains a country's quality of institutions and not the other way round.

Attah (2012) and Jamo (2013) equally carried out studies on the relevance of democratic and political institutions to industrial and economic growth and development in Nigeria. Their results confirm that those institutions do not impact positive industrial and economic growth and development for over two decades of sustained democratic rule. On the contrary and more likely, Pel (1999) from a study of 115 countries and Plungis (2014) in a study of 23 OECD countries argued that political institutions that are critical to economic and industrial development exist and function effectively under democratic rule.

According to Angeles (2011), institutions and more specifically private property rights, have come to be seen as a major determinant of long run economic development. In their study, they evaluated the case for property rights as an explanatory factor of the Industrial Revolution and derive some lessons for the analysis of developing countries today. Paying particular attention to the role of property rights in the accumulation of physical capital and the production of new ideas, the evidence that they reviewed from economic history literature does not support the institutional hypothesis.

In a study of the implication and challenges of human capacity and sustainable development in the 21st century Nigeria, Nwankwo and Okorie (2015) adopted qualitative methods with data sourced from published documents. They highlighted that human capacity building is the bedrock of any nation and that no nation can attain sustainable development without reference to the structures and policies that enhance human capital. However, the study notes that though Nigeria as a nation has established several programmes to enhance human capacity building, the desired results from these programmes have not been attained due to inadequate policy platforms that can guarantee sustainability among stakeholders, in other words, institutional incapacities in Nigeria is among the major factors hindering the attainment of the desired results from human development programmes.

From the literature reviewed above, it can be seen that there is yet a common ground both theoretically and even empirically to the consequences of institutional effects on industrial and economic growth of a country. This therefore calls for more pragmatic researches in this area. Also for Nigeria, available studies indicate that there are few studies to proof empirically the impact of governance and political system factors as: rule of law, government effectiveness, regulatory quality, etc. alongside human capacity building on industrialization, hence this study is intended to fill this gap.

Theoretical Framework

Acemoglu et al (2005) asserts that economic institutions and institutions more broadly are endogenous because they are, at least in part, determined by society, or a segment of it. Further, that these institutions are determined as collective choices of the society, in large part for their economic consequences, also, that the distribution of political power is also endogenous. In relation to economic development, Acemoglu, Gallepo and Robinson (2014) show that institutions are endogenous and are developed in tandem with other potential determinants of long run economic performance. Sawar, Siddiqi and Butt (2013) define endogeneity to mean when consequences reproduce the original cause and that if institutions shape development but development affects institutions, then institutions are endogenous with regard to their consequences. Institutions determine the supply of factors, human capacities and the technologies that exploit them, so that these can only be the proximate cause, but institutions are still caused by something else, not only by the wealth they generate.

Easterly, Ritzan and Woolcock (2006) opines that policy and institutional qualities are to a large extent

endogenous because, poor institutional quality and failure to implement better policies are frequently indentified as the cause of growth collapses, endemic poverty, and civil conflict. Thus, such explanations are followed by calls to improve institutions and policies. But Angeles (2011) sum up that the problem of endogeneity in the empirical literature is always recognized but never fully solved (institutions cause development but development also causes institutions).

With this insight about the endogenous nature of institutions, it is therefore not out of place to say that endogenous growth theory can be used for studies on institutions. However, endogenous growth theory suggests varieties of factors as essential components of growth. These according to Varblane and Vahter (2005) include capital and knowledge accumulation, accumulation of human capital, social capability including human capital, infrastructure and institutional settings. Growth paths are also influenced by state interventions of one form or another and policy interventions (Kumo, 2011). Endogenous growth theory also gives institutions some vital roles in creating necessary conditions for growth in an economy that is driven by knowledge. These institutions constitute formal and informal rules which contribute either in shaping or limiting transactions, business practices, cultural attitudes, values, reputations and social constructs (Cortright, 2001). Also, beliefs about the value of new knowledge, risk taking, and the trust in social institutions influence the rate and type of economic growth in a society (North, 1990).

Based on the above, it is evidently clear that the new or endogenous growth model is a very useful and an appropriate model to apply in the study of the relationship between institutions, human capacity building and industrial/economic growth of a country such as Nigeria.

Methodology and Model Specification

This study is designed to allow for an econometric investigation of the relationship between institutional quality (measured by system of governance), human capacity building and industrial production in Nigeria. The study covers the period from 1986 to 2016. Annual time series data for the study were sourced from World Bank, Central Bank of Nigeria, National Bureau of Statistics, etc. There is a general tendency for time series data to contain a unit root, consequently, an attempt has been made to render the data stationary prior to specification and estimation. Moreover, as the residuals of non-stationary time series are correlated with their own lagged values, a standard assumption of ordinary least squares (OLS) theory, that disturbances are not correlated with each other, is violated. Hence, OLS estimates of such series are biased and inconsistent, and standard errors computed with such random walk variables are generally underestimated. Therefore, the study employs the pair wise Granger causality and error correction mechanism (ECM) technique to evaluate the empirical evidence of the relationship between institutional qualities, human capacity building and industrialization in Nigeria.

Based on the endogenous growth framework which formed the theoretical background for this research, the model specified for this work is in the form developed by Romer (1986) where production function is of the form: $Q_t = [A_t (K, L) L_t]^{1-\alpha} K_t^{\alpha}$ (1)
Where: A_t = Technology at time t; K = Aggregate Capital Stock; L = Aggregate Labour Stock; L_t = Labour at time t; K_t = Capital at time t.
This model is simplified as: $Q_t = AK_t^{\alpha}, L_t^{1-\alpha}$ (2)
Where: Q_t = Output at time t; A = Efficiency parameter; L_t = Labour stock; K_t = Capital at time t, α and α-1 = coefficient parameters.

In the context of this study, Q (Output) is represented by industrial output (INQ). But A, the efficiency parameter is a function of other variables such as institutional quality, technology, human capacity building, energy, etc. However, institutional quality in this context is measured by rule of law (RL), regulatory quality (RQ), government effectiveness (GE) and corruption (COR). Human capacity building (HUM) is measured by investment in education. Energy is measured by electricity supply (EL) and capital is measured by gross fixed capital formation (GFC). Thus:
INQ = f(RL, RQ, GE, COR, TEC, GFC, ELS, Hum) - - - - (3)
Where: INQ = Industrial production in millions of Naira;
RL = Rule of law (points);
RQ = Regulatory quality (points);
GE = Government effectiveness (points);
COR = Corruption (corruption perception index);
TEC = Technology (time variable, one year one data point);
GFC = Gross fixed capital formation (millions of Naira);
ELS = Electricity supply (megawatts);
Hum = Human capacity building (government expenditure on education in millions of Naira).

For the regression function to be in an estimation form, equation 3 is reformulated to include the stochastic error term as follows:
$INQ = \alpha_0 + \alpha_1 RL + \alpha_2 RQ + \alpha_3 GE + \alpha_4 COR + \alpha_5 TEC + \alpha_6 GFC + \alpha_7 EL + \alpha_8 Hum + \mu$ - (4) Where: μ = Stochastic error term; and other variables are as already defined. The parameters α_1 to α_7 are coefficients of industrial output with respect to the variables. Aprior expected parameter values are: $0 < \alpha_1$ to α_8.

RESULTS

The empirical tests carried out were: the pair-wise correlational statistics to test the level of correlation of the variables among themselves, the augmented Dickey-Fuller (ADF) and Phillips-Perron tests for individual unit root process to test for stationarity or nonstationarity of the series, Granger causality test to test the causal relationship between variables and the parsimonious error correction mechanism process was used to determine the speed of adjustment between short run and long run equilibrium.

Table 1: Correlation Matrix for Industrial Production Growth

	INQ	COR	TEC	GFC	RL	RQ	GE	ELS	HUM
INQ	1.000000								
COR	0.314336	1.000000							
TEC	0.798844	0.424694	1.000000						
GFC	0.248129	0.302951	0.718363	1.000000					
RL	-0.616324	-0.395004	-0.588485	-0.168836	1.000000				
RQ	-0.454065	-0.067895	-0.204398	0.249351	0.757795	1.000000			
GE	-0.488932	-0.458650	-0.735552	-0.440260	0.625086	0.273914	1.000000		
ELS	0.591411	0.356298	0.881048	0.892851	-0.322861	0.037147	-0.473951	1.000000	
HUM	0.737199	0.328377	0.853968	0.524509	-0.450937	-0.216323	-0.667943	0.722623	1.00000

Source: Field Survey (2017)

Table 1 shows the level of correlation of industrial production growth equation variables among themselves. The table indicates that technology (TEC), gross fixed capital formation (GFC), electricity supply (ELS) and human capacity building (HUM) were among the variables with positive relationship while the following variables had negative relationships: rule of law (RL), regulatory quality (RQ) and government effectiveness (GE), all representing governance system. These imply that changes in each of these variables positively or negatively impact on the other variables in the model. While the relationships between industrial production and: technology (TEC), human capacity building (HUM), electricity supply (ELS) and rule of law (RL) ranged between 79 percent and 59 percent, the range of relationship with government effectiveness (GE), regulatory quality (RQ), and gross capital formation (GF) were between 48 percent to 24 percent. This result guided us in checking against multicolinearity in the estimation of the model.

For this research work, both the Augment Dickey-Fuller (ADF) and Phillips-Perron tests (PP) were undertaken to determine the stationarity of the series regression for all the variables. The results of the ADF and PP tests are presented in tables 2 and 3 respectively.

Table 2: Augmented Dickey-Fuller Unit Root Test Results

Variable	ADF Level	ADF 1 diff	1% Level	5% Level	10% Level	Integration Order
INQ	-1.922146	-5.727511	-3.646342	-2.954021	-2.615817	I(1)
GFC	0.273715	-4.710741	-3.646342	-2.954021	-2.615817	I(1)
COR	-3.100394	-9.069249	-3.646342	-2.954021	-2.615817	I(1)
RL	-1.936818	-4.613981	-3.646342	-2.954021	-2.615817	I(1)
RQ	-2.640699	-6.099883	-3.646342	-2.954021	-2.615817	I(1)
GE	-2.353250	-6.560155	-3.646342	-2.954021	-2.615817	I(1)
ELS	2.620974	-3.749392	-3.646342	-2.954021	-2.615817	I(1)
HUM	-1.290810	-8.745279	-3.646342	-2.954021	-2.615817	I(1)

Source: Field Survey (2017); Note: * stationary at 5% level, ** stationary at 10% level

Table 3: Phillips-Perron Unit Root Test Results

Variable	PP Level	PP 1diff	1% Level	5% Level	10% Level	Integration Order
INQ	-1.909172	-5.720438	-3.592462	-2.931404	-2.603944	I(1)
GFC	0.361240	-4.693001	-3.592462	-2.931404	-2.603944	I(1)
COR	-3.206668	-20.01086	-3.592462	-2.931404	-2.603944	I(1)
RL	-2.001895	-4.706751	-3.592462	-2.931404	-2.603944	I(1)
RQ	-2.615147	-11.06285	-3.592462	-2.931404	-2.603944	I(1)
GE	-2.292807	-6.939876	-3.592462	-2.931404	-2.603944	I(1)
ELS	4.362641	-3.749392	-3.592462	-2.931404	-2.603944	I(1)
HUM	-1.391157	-7.367577	-3.592462	-2.931404	-2.603944	I(1)

Source: Field Survey (2017)

Results of the tests using the ADF technique shows that: INQ; GFC; COR; RL; RQ; GE; ELS; and HUM were all stationary at first difference I(1) at 1 percent significant level respectively. Hence, all the variables

were found to be stationary. Equally, the results of the unit root test using the PP tests as shown in table 3 also indicate that all the variables were stationary and statistically significant.

Table 4: Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
GFC does not Granger Cause INQ	28	0.08119	0.9223
INQ does not Granger Cause GFC		1.64456	0.2150
RL does not Granger Cause INQ	28	3.30185	0.0449
INQ does not Granger Cause RL		0.17066	0.8442
COR does not Granger Cause INQ	28	0.15652	0.8560
INQ does not Granger Cause COR		0.83941	0.4448
RQ does not Granger Cause INQ	28	4.70418	0.0194
INQ does not Granger Cause RQ		1.06140	0.3623
GE does not Granger Cause INQ	28	2.46179	0.1074
INQ does not Granger Cause GE		1.63270	0.2172
ELS does not Granger Cause INQ	26	1.88682	0.1764
INQ does not Granger Cause ELS		0.14015	0.8700
HUM does not Granger Cause INQ	28	2.04959	0.1517
INQ does not Granger Cause HUM		6.30522	0.0066

Source: Field Survey (2017)

The results shown in table 4 indicate that there is a unidirectional Granger causality between rule of law and industrial production growth, i.e. rule of law Granger causes industrial production growth. This implies that ineffective rule of law causes low industrial growth in Nigeria. The result also indicates a unidirectional Granger causality between regulatory quality and industrial growth in the country, the direction of causality moving from regulatory quality to industrial growth. Finally, the results show a unidirectional Granger causality between industrial growth and human capacity building development. These results which show unidirectional Granger causalities between the main variables of the study justify the adoption of single equation estimation model as adequate for the study.

The ECM in this study follows the general-to-specific method where the overparametized ECM are estimated at first and then followed by the parsimonious ECM derived from the former. We estimated an ordinary least square regression on first difference of the dependent variable (i.e. INQ) against its regressors. The results of the parsimonious ECM models are shown in table 5

Table 5: Parsimonious Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	135868.0	13609.64	9.983222	0.0000
D(TEC)	3373.795	637.7579	5.290086	0.0001
D(COR)	152.5356	111.7179	1.365363	0.1923
D(RL)	34606.20	14833.73	2.332940	0.0340
D(RQ)(-1)	-57357.20	8738.948	-6.563399	0.0000
D(GE)(-1)	80903.67	15946.56	5.073424	0.0001
D(ELS)	-12.93641	4.302552	-3.006683	0.0089
D(HUM)(-1)	0.087205	0.045729	1.906998	0.0759
ECM(-2)	-0.376785	0.118989	-2.720564	0.0359
R-squared	0.948358	Mean dependent var		126603.2
Adjusted R-squared	0.917372	S.D. dependent var		18776.81
S.E. of regression	5397.404	Akaike info criterion		20.31440
Sum squared resid	4.37E+08	Schwarz criterion		20.80195
Log likelihood	-243.9300	Hannan-Quinn criter.		20.44962
F-statistic	30.60657	Durbin-Watson stat		1.963363
Prob(F-statistic)	0.000000			

Source: Field Survey (2017)

The speed of adjustment coefficient for industrial growth was 0.377 indicating an adjustment speed of 37.7 percent. The ECM is correctly signed and is statistically significant at less than one percent level of significance. The significance of the coefficient of ECM signifies that the variables are cointegrated. The value of Durbin-Watson statistics of 1.96 shows that there is no serial autocorrelation between variables, hence the result is good for econometric analysis. The F-statistics which is a measure of the overall significance of the regressors in the model is statistically significant. The adjusted R^2 shows that 92 percent of the total variation in industrial growth

is determined by changes in the explanatory variables. This is a good fit for the model.

From the results, the factors that positively and significantly impact industrial production are: technology (TEC); rule of law RL); and government effectiveness (GE). Human capacity building (HUM) and corruption (COR) do impact industrial production positively but not significantly. On the other hand, regulatory quality (RQ) and electricity supply (ELS) were shown to have negative but significant impacts on industrial production growth.

DISCUSSION OF RESULTS

The results from the analysis in this study indicate that institutional qualities of rule of law and government effectiveness positively and significantly impact industrial growth in Nigeria. These results agrees with the institutionalists theory that institutions matter for industrial and economic growth as highlighted in the literatures (Acemoglu, et al, 2001; Easterly & Levine, 2003; Rodrik, et al, 2004). This also confirms empirical studies such as those by Omojimite (2012); Beji and Belhadj (2014); Ubi and Udah (2014); Akpo and Hassan (2015); etc.

On the other hand, regulatory quality which has to do with sound policy formulation and implementation to drive and promote private sector development was shown from the results to impact industrial growth significantly but negatively. This indicates that: government policies so far formulated do not favour industrialization drive in the country; or that they are poorly implemented such that they discourage industrialization and private sector development. It could be that our policies follow the pattern described by Pormeranz (2000); and Luo and Wen (2015) as Western institutions which are not conducive to kick start industrialization in countries such as Nigeria. In agreement with Ubi and Udah (2014), the result equally show that corruption impacts industrial growth. This may be a reason for the poor and weak implementation of policies that should drive industrialization. However, evidence from Chittle (1975) indicates that Yugoslavia was able to industrialize through major institutional changes. As such, if good economic and industrial policies are made and fully implemented, in addition to genuine efforts at improving the already poor and weak governance and political system in the country, things will definitely turn around and industrialization will be attained.

Human capacity building was shown from the results to insignificantly impact industrial growth. This result agrees with Nwankwo and Okorie (2015) and affirms that the country is not investing much in the kind of education suitable to drive industrial growth. Our educational system and programmes are likely not tilted towards equipping the citizens with the needed skills, knowledge and ability to power industrialization. Further, electricity supply, the source of energy that should drive industrialization was shown to significantly but negatively impact industrial growth. This result is however corroborative of Anwana (2016b); Jonah and John (2013); and Mbunwe (2014) that electricity supply does not enhance industrial growth in Nigeria.

CONCLUSION

This study was undertaken to evaluate the impact of institutional qualities, in particular, system of governance and human capacity building on industrialisation drive in Nigeria. The findings from analysis shows that while some institutional factors significantly and positively impact industrial growth, others do not. From theory however, it is expected that good institutional qualities should drive industrialisation while weak and poor ones retard industrialisation. However, from the results from this study and considering the poor and weak governance indices for Nigeria as shown by World Bank Governance Indicators (see The Global Economy.com, 2017), and the poor state of industrialisation in the country, it is concluded that institutional qualities, more specifically the system of governance in Nigeria is not strong enough to kick start and drive the needed industrialisation processes in the country. Since these indices are very weak and poor, industrial growth is thus retarded. The results from this study further indicate that the needed human capacity building requirements to boost industrialization are inadequate and hence this stalls industrialisation drive. This may have lent credence to foreigners' dominance of the few available industries in the country. Also, it is concluded that the power sector is not actually producing and distributing enough power that can significantly enhance industrialization in Nigeria. With these weak and poor states of institutions, human capacity building structures and programmes, Nigeria is unable to develop industrially and thus is hindered from building the needed national capacity that can enhance sustainable development for the country.

RECOMMENDATIONS

This study recommends that to boost and ensure increased and enhanced industrial productivity in Nigeria, government policy should focus on:

i) Enhancing the rule of law indices which are at present very weak and poor;
ii) Effective and efficient quality of public and civil services;
iii) Improving the quality of industrial and economic policy formulation and implementations;
iv) Credibility of government's commitment to policies they formulated;
v) Effective and efficient regulations and regulatory agencies that will permit and promote private sector development;

vi) Overhauling the educational system with preference given to skill and technical education, innovation and research and development;
vii) Fighting corruption more holistically and all sectors should be covered;
viii) More power generation, transmission and distribution.

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