Electricity Infrastructure and Economic Growth in Nigeria: Impact Analysis

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Abstract
This study analysed the impact of electricity infrastructure on economic growth in Nigeria using Ordinary Least Square as method of analysis. The study revealed a positive relationship between electricity infrastructure and economic growth in Nigeria. This shows that the poor state of electricity supply in Nigeria has imposed significant costs on the business sector. The bulk of these costs relate to the firms' acquisition of very expensive backup capacity to cushion them against the even larger losses arising from frequent and long power fluctuations. Small-scale operators are more heavily affected by the infrastructure failures as they are unable to finance the cost of backup power necessary to mitigate the impact of frequent outages. The study therefore recommended for institutional reforms of the power sector in Nigeria.

Keywords: Electricity, infrastructure, manufacturing output or manufacturing capacity utilization/manufacturing production index or industrial production index, total factor productivity and gross domestic product

1.1 Introduction

Nigeria is seen as one of the greatest developing nations in Africa with highly endowed natural resources including energy resources. However, increasing access to energy in Nigeria has proved not only a continuous challenge but also a pressing issue with the international community (Gbadebo & Chinedu, 2009). These scholars maintained that Nigerian economy like other world economies relies greatly on energy consumption.

World economies are heavily reliance on energy and Nigeria is not an exception. As Alam (2016) emphasized, energy is indispensable force driving all economic activities. In other words, the greater the energy consumption, the more the economic activity in the nation, as a result a greater economy emerges. The ability of a nation to fully develop and efficiently manage its available resources in order to achieve economic development is linked to energy efficiency. Modern technologies used in production, allocation and utilization of these resources are designed and tied strictly to the use of energy (Amadi, Amadi, & Anyim, 2013).

Among the major sectors that uses electricity is the manufacturing sector who engages in the production of real goods by transforming raw materials through production process (Yahaya, Salisu, & Uma, 2015). Manufacturing is therefore the life force for sustainable economic growth; is a catalyst to the transformation of an economy from a raw material base into a more active and productive economy (Okonjo-Iweala & Osafo-kwaako, 2015).

For an economy to achieve sustainable growth, it is imperative to have a sound electricity infrastructure. A vibrant and well-efficient manufacturing sector is a necessary impetus for rapid and favourable economic growth. In modern economy where industrialization is taking pace and mass production is needed for domestic consumption and exports, electricity is regarded as primary factor that facilitates the efficiency and productivity of other factors of production, particularly labour and capital.

Though classical economists considered energy as an intermediate input in production, facilitating factors of production. However, Alam (2016)argues that it serves as factor input in certain production circumstances. Beaudreau (2005) saw that the transformation of steam, fossil fuel and hydraulic power sources into a more usable form of energy such as electricity as a way forward for greater increase in speed, efficiency and consequently, productivity. Increase in the amount of electricity consumed by the manufacturing sector indicates increase in the speed of operation in manufacturing process which eventually leads to increase in output. In a similar vein, (Riker, 2011) concludes that improvement in the efficiency of electricity use significantly increases an industry's export. Thus, the relationship between electricity and production in machine-driven industry cannot be disentangled, if higher output is to be achieved.

The Nigerian power sector is marked by low generating capacity relative to installed capacity and much of the country's citizens do not have access to uninterrupted supplies of electricity. At present electricity generation ranges from between 2500 megawatts to about 5000 even with the inclusion of three gas-powered independent power projects in the Niger Delta region, while estimated national consumption is in excess of 10 000 megawatts (Adeyemi, 2015). Nigeria consumed 1,540,259,766,000 BTU (1.54 quadrillion BTU) of energy in 2017. This represents 0.26% of global energy consumption. Nigeria produced 5,952,847,305,000 BTU (5.95 quadrillion BTU) of energy, covering 386% of its annual energy consumption needs (Energy Information Administration, 2019).

Despite the recent unbundling of the power sub-sector in Nigeria, the situation has not changed for better. Previously, the state-owned Electricity Distribution Companies dominated the power sector. The government has separated the power holding company into eleven distribution firms, six generating companies, and a transmission company. Available statistics show that only 40 percent of the population has electricity, majority of who are concentrated in urban areas(Ameh, 2016).

In this regard, adequate supply and distribution of electricity constitute a central development issue which cannot be over-emphasized. Apart from serving as the pillar of wealth creation in Nigeria, it is also the nucleus of operations and subsequently the 'engine of growth' for all sectors of the economy. In recognition of the consolidating linkage between the energy sector and the other sectors of the economy, electricity development and utilization therefore seen as fundamental to enhancement of socio-economic activities, consequently boosting the living standard of citizens (Agbo, 2017).

The World Bank Report (2015) rated Nigeria as the worst performer in the power sector out of 20 developing nations. The rating showed Nigeria as having the highest percentage system loss; lowest generation capacity factor and average collected revenue as well as lowest return on investment. It further noted that successive governments in Nigeria have been inclined towards political rather than economically motivated investment in the energy sector. Thus, they have failed to promote economic growth but have rather incurred excessive indebtedness. Undoubtedly, Nigeria's electricity supply crisis significantly undermined the effort to achieve sustained economic growth, competitiveness in regional and global markets, employment generation and poverty alleviation. Against this backdrop, the major research issue to be addressed by this research work is the key determinants of electricity supply in Nigeria.

2.0 Literature Review

The World Bank (2011) defined development as a sustainable increase in living standards that encompasses material consumption, education, health and environmental protection. Social scientists particularly economists and sociologists, have for centuries been preoccupied with the subject matter of development. The economists have traditionally considered an increase in per capita income to be a good indicator of development (Herrick & Kindleberger 2014; Kayode 2012; Obadina 2014; Adam 2016).They assumed that growth in per capita income induced by growing productivity is the engine of development.

Incidentally, some analysts like Iwayemi (2011), Adegoke (2011), and Peter(2014) have defined this period as a period of serious electricity crisis; a crucial or decisive movement; an undesirable turning point; a time of difficulty and distress; a state of confusion when things no longer happen in the normal or usual manner.Considering the position of the economists a critical question that arises is: what drives productivity? According to World Bank (2014) the answer lies in the industrial development and technological infrastructure.

According to Ali-Akpajiak and Pyke (2013), the distribution of electricity shows great disparities between rural and urban, and between residential and industrial areas in the urban centres. They went further to state that based on 2014 data, the states of Jigawa, kebbi, Sokoto, Katsina, Taraba, Yobe, Borno, Bauchi, Adamawa, Akwa Ibom

Cross River and Benue were classified as energy-poor states, while the energy-rich states were Edo, Kwara, Ogun and Oyo with electricity accessible to more than 60 per cent of the people. In Lagos, more than 90 per cent of the populace had access to electricity. Kaduna, Kano and Rivers were not covered in the exercise.

Indeed, Nigeria is running a generator economy with its adverse effect on cost of production. The country's electricity market is dominated on the supply side by a state owned monopoly – Electricity Distribution Companies formerly called the National Electric Power Authority (NEPA) which has been incapable of providing minimum acceptable international standards of electricity service that is reliable, accessible and available for the past decades (Ekpo, 2015; Udah, 2017).

The comparative analysis of consumption of electricity worldwide for instance, Libya with a population of only 6.37 million has generating capacity of 6,800 megawatts, approximately the same as Nigeria which has a population of about 170 million (Lohor & Ezeigbo (2017); Oloja & Orated (2017). Studies and experiences have shown that power generation in the country has been dismal and unable to compare with what is obtainable in smaller African countries.

Table 1

Comparative Analysis of Consumption of Electricity WORLDWIDE

Country	Population	Power Generation	Per-capita consumption
United states	250.00 million	813,000MW	3.20KW
Cuba	10.54 million	4,000MW	0.38KW
United Kingdom	57.50million	76,000MW	1.33KW
Ukraine	49.00 million	54,000MW	1.33KW
Iraq	23.60 million	10,000 million	0.42 KW
South Korea	47.00 million	52,000 MW	1.09 KW
South Africa	44.30 million	45,000MW	1.01KW
Libya	5.50 million	4,600MW	1.015KW
Egypt	67.90 million	18,000MW	0.265KW
Nigeria	170.00 million	6,000MW	0.03KW

Source: Agbo (2017)

2.2 Theoretical Framework

David Stern Model (2004) is a neoclassical model on the linkage between energy and growth. Stern asserted that there has been extensive debate concerning the trend in energy efficiency in developed economies, especially since the two oil price shocks of the 1970s. He argued that in the United States of America (U.S.A.) economy, energy the 1970s. He argued that in the United States of America (U.S.A.) economy, energy consumption hardly changed in the period 1973 to 1991, despite a significant increase in gross domestic product (GDP).

According to Stern, these facts were indisputable and the breaks in the trend have been the subject of argument. He referred to neoclassical perspective of the production function to examine the factors that could reduce or strengthen the linkage between energy use and economic activity over time and depicted that there has been a decoupling of economic output and resources, which implies that the limits to growth are no longer as restricting as in the past.

A general production function of Stern can be represented as IN Equation [1]:

[1] (Qi ,..., Qm) = f(A, Xi , .. Xn ,Ek , ... Ep,)

Where the Qi are various outputs (such as manufactured goods and services), the Xi are various inputs (such as capital, labor, etc.), the E_k are different energy inputs (such as coal, oil, etc.), and A is the state of technology as defined by the total factor productivity indicator.

In simple term, Stern model can be translated to become the output (GDP) if a function of capital, labour, holding energy inputs and technological change constant). The relationship between energy and an aggregate of output such as gross domestic product can then be affected by substitution between energy and other inputs, technological change (a change in A), shifts in the composition of the energy input, and shifts in the composition of output. Also, shifts in the mix of the other inputs— for example, to a more capital-intensive economy from a more labor-intensive economy—can affect the relationship between energy and output. It is also possible for the input variables to affect total factor productivity, though in models that invoke exogenous technological change, this is assumed not to occur (Stern, 2004).

2.3 Empirical Review

Aigbokhan (2012) submits that studies have found that as an economy grows, its infrastructural capacity grows. That is infrastructure capacity grows step by step with economic output. The World Development Report (2014) shows that "a percent increase in the stock of infrastructure is associated with a1 percent increase in the gross domestic product across all countries". And as countries develop, infrastructure must adapt to support changing pattern of demand as the shares of power, roads and telecommunications in the total stock of infrastructure increase. As the economy develop an increasing proportion of the country would need to be opened up by the construction of roads, there would be increased demand for power supply for industrial and domestic consumption and telecommunications facilities. The empirical evidence shows that infrastructural stocks expand with output growth that infrastructure coverage and performance increase with income level consumption hardly changed in the period 1973 to 1991, despite a significant increase in gross domestic product (GDP).

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Ghosh (2012) examines economic growth and electricity consumption in India between 1970 and 2007. He finds a unidirectional causality from economic growth to electricity consumption. Also, Jumbe (2014) examines the relationship between electricity consumption and GDP for Malawi for the period between 1970 and 2009 and finds a bidirectional causal relationship. He also examines the relationship between non agriculture GDP and electricity consumption. The result shows a unidirectional causal relationship from GDP to energy consumption.

Altinay and Karagol (2015) investigate the causal relationship between electricity consumption and real GDP in Turkey during the period of 1980–2010. Both of the series were found to be a stationary process around a structural break by the Zivot and Andrews test. They employed two different methodologies to test the Granger non-causality: the Dolado- Lutkepohl test using the VARs in levels, and the standard Granger causality test using the de-trended data. Both tests yielded a strong evidence for unidirectional causality running from the electricity consumption to the real GDP.

Wang, Tian, and Jin (2015) examine the causal relationship between electricity consumption and economic growth for China during 1990-2013. Their results indicate that real GDP and electricity consumption for China are co-integrated and there is unidirectional Granger causality running from electricity consumption to real GDP but not vice versa.

Chen, Kuo, and Chen (2016) estimate the relationship between GDP and electricity consumption in 10 newly industrializing and developing Asian countries using both time series data sets for each countries and panel data procedures. The empirical results from the time series data set indicate that the directions of causality in the 10 Asian countries are mixed. When the panel data procedure is applied to the data series, the results show a unidirectional short-run causality running from economic growth to electricity consumption and a bi-directional long-run causality between electricity consumption and economic growth.

Jaunky (2016) examines the income elasticity of electric power consumption power (YEEPC) in 16 African countries in a panel dimension over the period 1981 - 2012. The study finds the existence of a bi-directional causality and all tests support a long run relationship between the two variables. The long run elasticity are found to be below unity.

Akinlo (2009) investigates the causality relationship between energy consumption and economic growth for Nigeria during the period 1980-2006. The results of the study show that real gross domestic product and electricity consumption are cointegrated and there is only unidirectional Granger causality running from electricity consumption real GDP.

Costantini and Martini (2009) analyze the causal relationship between the economy and energy by adopting a Vector Error Correction Model for non-stationary and co-integrated panel data, with a large sample of developed and developing countries and four distinct energy sectors. The results show that alternative country samples hardly affect the causality relations, particularly in a multivariate multi- sector framework.

Lean and Smyth (2010) examine the casual relationship between aggregate output, electricity consumption and exports for Malaysia and find evidence of bi-directional causality between aggregate output and electricity consumption.

Francis *et.al.* (2016) find a long run relationship between electricity consumption and economic growth in Barbados. Chandran*et.al.* (2010) examine the relationship between electricity consumption and growth in Malaysia, including price. They find evidence of long run relationship between the variables.

Bekhet and Othman (2017) employ the vector error correction model to examine the causal relationship between electricity consumption (EC), consumer price index (CPI), gross domestic product (GDP) and foreign direct investment (FDI) in Malaysia for the 1971 to 2009 period. All variables were found to be co-integrated indicating the existence of long run relationship among them. , the study finds significant long run causality from electricity consumption to FDI, GDP growth and inflation.

Sami and Makun (2011) examine the relationship between exports, electricity consumption and real income in Brazil for the period 1971-2007. Employing bounds testing procedure, the study finds evidence of co-integration when real income is considered the dependent variable. In the long run, exports and electricity consumption have statistically significant and positive impact on economic growth. His regression results using ordinary least square (OLS) method with annual data covering the period 1980-1997 shows that the model has a good fit with adjusting R^2 of 0.98-0-99 and the six infrastructural components are all positively correlated with GDP, with varying levels of significance the author also found that human capital components of infrastructure appear to have impact on growth.

Ogbuagu, Ubi and Effiom (2010) attempted an analysis of the factors affecting electricity supply in Nigeria using ordinary least squares without any econometric tests of the time series properties of the data. It is widely acknowledged that such analysis leads to spurious and nonsensical results. This research work therefore seeks not only to contribute to the discussion on poor electricity supply in Nigeria but also to identify and analyze the determinants of electricity supply using contemporary parametric econometric techniques.

In Yahaya, Salisu, and Uma, (2015) it was found that there exists long run relationship between electricity and manufacturing output in Nigeria. The study identifies electricity supply as a significant factor in the growth of the manufacturing sector in Nigeria.

Nwankwo and Njogo (2013) concluded in their study that electricity generation and industrial production can promote economic development since both variables showed some positive impact on economic development while electricity variable too can impact positively on the industrial sector through adequate flow. This will definitely improve the performance of the industrial sector.

Ogunjobi (2015) studied the effects of electricity consumption on industrial growth in Nigeria. It was found that there exist co-integration relationship between electricity consumption and industrial growth in Nigeria. The study further established positive relationship between industrial growth and labour employment, electricity generation, electricity consumption and foreign exchange rate in the long-run while it had a negative relationship with capital input.

Enang (2010) studied the relationship between economic development, electricity supply and industrialization in Nigeria over the period of 1970 to 2008, and reveals the existence of long run relationship between the variables. Similar significance of electricity supply on growth was established by the same author, (Enang, 2011).

In a related study by Ekpo, Chuku, and Effiong (2011), using ARDL bound testing over the period of 1970 to 2008 on real GDP per capita, population, electricity consumption and industrial output; it was found that all the variables are significant in influencing GDP per capita.

However, in an attempt to explore the area of the impact of electricity, numerous literatures only reveal the relationship between economic growth and electricity supply, with little empirical attention on the effect of electricity on the various sectors of the economy. This could lead to fallacy of decomposition because economic growth is a function of the performance of different sectors which certainly differ in their need for electricity. In response to this perceived gap, this study explores the relationship between electricity supply and manufacturing sector's output in Nigeria.

2.4 Infrastructure-Growth Relationship

Perkins et al.'s study (2013) attempted to address these particular challenges. This study used the Autoregressive Distributed Lag Model (ARDL) technique to focus specifically on the question of causality, while taking into account the time trends in the data. They find that the direction of forcing varied across different infrastructure measures as aggregate public sector investment and public sector fixed capita stock drive GDP· Roads (total road length, paved road length, number of passenger vehicles) drive GDP· GDP drives ports' freight handling levels and airports' passenger levels; The direction of forcing is ambiguous for measures of railway, power generation and telecommunication infrastructure.

The data directly address the issue of causality and explicitly consider both direct and indirect channels of effect. They find that aggregate infrastructure investment and infrastructure stock drive GDP, as do measures of road infrastructure. Telecommunication, port and airport infrastructure and some railway infrastructure, however, are driven by GDP. The direction of the relationship is ambiguous for electricity generation and some other railway infrastructure.

These results are broadly consistent with those obtained by Perkins et al. (2015) and so are not presented in a separate table. In calculating the magnitude of the relationship between output and infrastructure, they adopt a multivariate co-integration model that examines the long-term interaction between several variables, allowing for the possibility of ambiguous causal relationships. In this model they include GDP, fixed capital stock, public sector fixed capital stock (a financial measure of infrastructure), total road length and electricity generation capacity. They find that there is a relationship between infrastructure stock and GDP but that this relationship is indirect, with rising infrastructure stock encouraging investment in fixed capital and thereby boosting GDP.

A study by Kularatne (2016) looks at both economic and social infrastructure. He also uses both the ARDL approach to test the direction of causality and a Vector Error Correction Mechanism (VECM) model to examine the relationship between his two measures of infrastructure, private investment and Gross Value Added (GVA). By including the private investment variable, he allowed for the possibility that the infrastructure-growth relationship is direct or indirect, via private investment.

3.0 Methodology

Secondary data used for the study was obtained from various sources like Central Bank of Nigeria Annual Report and Statement of Accounts (various years), Nigerian Economic Society Journals and the Nigeria Communication Commission (website). Based on the theoretical framework and the objective of the study, a neoclassical growth model in Davis Stem (2004) was specified and adapted with little modification. It assumes a standard augmented neoclassical production function which begins from a premise that economic growth is determined by other factors. But the distinctive feature of the model in this study was that Electricity generation, manufacturing contribution and labour force from the production function. The choice of this model is premised on its flexibility and general acceptability.

On the dependent variables, the model can be specified as in Equation [1]:

[1] $GDP - f(ELECTGEN, MANCONT, LF)$

Equation [1] can be re-specified as in Equation [2] and Equation [3] respectively::

[2] $GDP - \beta_0 + \beta_1 ELECTGEN + \beta_2 MANCONT + \beta_3 LF + \mu$

[3] $LogGDP - \beta_0 + \beta_1 LOGELECTGEN - \beta_2 LOGMANCONT + \beta_3 LOGLF + \mu$

Where: GDP is Gross Domestic product; MANCONT represents Manufacturing contribution; ELECTGEN stands for Electricity Generation, and LF means Labour force.

It is expected that all the inputs namely (Electricity generation, labour force and manufacturing contribution) Electricity infrastructure have a positive relationship with GDP in Nigeria. The choice of the independent variables affects national output, hence poverty reduction. When the parameters of the regression equation are estimated, various tests are then employed to determine if the model is satisfactory. If the model is deemed satisfactory, the estimated regression equation can be used to predict the value of the dependent variable given values for the independent variables.

After the estimation of the parameters of economic relationships by using the method of ordinary least squares, next is to establish criteria for judging the goodness of the parameters estimated, therefore the criteria will be used. The OLS was chosen because of the behaviour of our data. All variables are stationary at level in which OLS estimator is more appropriate for the study. This is an examination of the signs and sizes (magnitude) of the estimated parameters. Their conformity with theoretical economic expectations is very important for value judgment. This means that the size and signs of parameter estimate are thus evaluated and expected to meet the standard economic expectation.

Table 1

A priori Expectation

A priori expectation table. Variables	Expected sign
ELECTGEN	Positive(+)
LF	Positive(+)
MANCONT	Positive(+)

4.0 Results and Discussion

In this section, the result of the ordinary least square (OLS) regression is presented. The analysis of the result involves subjecting the parameters estimate to theoretical statistical and econometric test to determine their robustness.

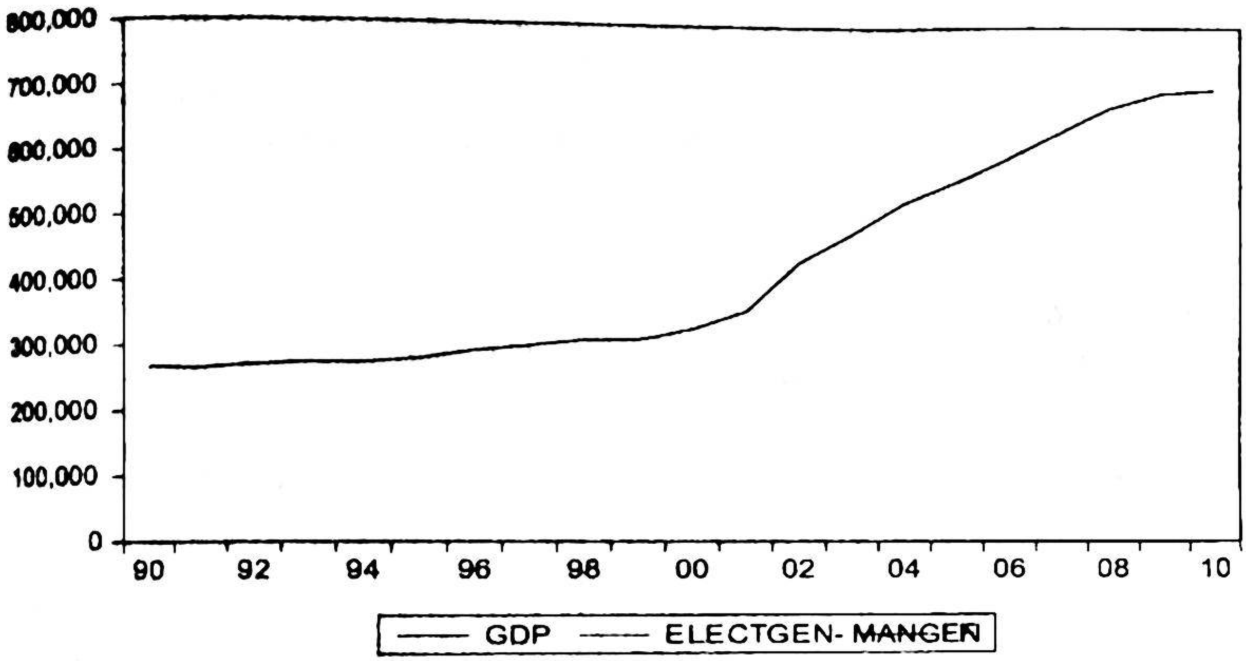

Table 2:
Unit Root Test

Variables	ADF-statistic	Critical values	Order of integration
GDP	*2.909475*	1% – -3.670170 5% = -2.963972 10% = -2.621007	*Stationary at level*
ELECTGEN	*4.979487*	1% = -3.711457 5% = -2.981038 10% – -2.629906	*Stationary at level*
MANCONT	*2.823062*	1% = -3.679322 5% = -2.967767 10% = -2.622989	*Stationary at level*
LF	*-5.215879*	1% – -3.670170 5% = -2.963972 10% = -2.621007	*Stationary at level*

Source: *Author's computation, (2019)*

From the Table 3, the co-efficient of Electricity generation (ELECTGEN) is positive. This implies that Electricity generation has a positive and significant relationship with GDP in Nigeria. This means that an increase in infrastructural development proxies by electricity generation brings about increase in economic growth in Nigeria. This is in line with the economic theory because increase in the electricity generation has both economic and social benefit that translates into economic growth. Increase in electricity generation brings about reduction in costs for businesses and therefore increased profits which can be ploughed back into business and thereby encourage economic growth. This will in turn reduce the rate of hardship in the country. It also brings about increased access to health and education which bring about improved productivity and efficiency which makes an economy to grow.

Table 3:
Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	32.68355	6.142730	5.320688	0.0001
LOGELECTGEN	0.120715	0.022201	5.437271	0.0000
MANCONT	2.524361	1.264311	1.263723	0.0000
LOGLF	-3.150293	9.950008	-3.517006	0.0001

R-squared	0.681372	Mean dependent var	421354.7
Adjusted R-squared	0.649129	S.D. dependent var	162948.6
S.E. of regression	2.041269	Akaike info criterion	22.85534
Sum squared resid	7.08E+09	Schwarz criterion	23.05430
Log likelihood	-235.9811	F-statistic	27.08244
Durbin-Watson stat	1.731532	Prob(F-statistic)	0.000000

Source: *E-views Results Output, 2019*

$$LOGGDP = 32.68355 + 0.120715ELECTGEN + 2.524361MANCONT - 3.150293LF$$
$$t = \quad (5.320688)(5.437276)(1.263732)(-3.517006)$$

Furthermore, the manufacturing contribution (MANCONT) also shows a positive and significant relationship with economic growth in Nigeria. This means that the higher the manufacturing contribution, the more the money is invested in productive activities such as infrastructural development which in turns increases the rate of economic growth in the country. The coefficient of labour force (LF) is negative which suggests that increase in labour force is detrimental to economic growth and hence increases the rate of poverty.

From the value of adjusted R^2 i.e. 0.649129, it can be seen that three variables namely, electricity generation (ELECTGEN) manufacturing contribution (MANCONT) and labour force (LF), over 60 percent of the systematic variation in the variables during the 1980-2017 period. Hence, a close examination of the estimated equation confirms that in general are satisfactory and from the value of the R^2, which stood at 0.649169, it shows that only an infinitesimal variation of 35.1 is left unexplained, hence captured by the error -term. The absolute value of the estimated t- statistic for labour force is statistically significant. That is, it has a significant negative influence on economic growth in Nigeria.

The F-ratio, which is test of the existence of a significant relationship between the explanatory variables taken together and the dependent variable, shows that the whole regression equation is statistically significant. the F-ratio value of 27.08244 is highly significant, easily passing the significance test at the 1% level. Thus, the hypothesis of a significant linear relation between the GDP in Nigeria and the independent variables (electricity generation, manufacturing contribution and labour force) is in fact validated. That is, there is no doubt that a significant linear correlation exists between the GDP and the above mentioned variables.

The error of prediction is minimized at the ratio of the standard of estimation (SE) to the mean of the dependent variable. This implies that the estimated GDP has a smaller resident variable, smaller variance of the error of prediction and therefore of a good predictive ability and this further shed light on the overall goodness of fit of the estimated equation. The Durbin-Watson statistics of 1.731532 is indicating the absence of autocorrelation. This means that the variables selected are not related as postulated by the Ordinary Least Square method that the variables must be independent of one another. This is an indication that the result can be relied upon.

5.0 Conclusion and Recommendations

From the study, it has been established that electricity infrastructure is an important aspect of the economic growth of a nation which will help adequately in alleviating poverty. Infrastructure development can be used to influence economic activities and also achieve economic objectives of the governments. Therefore, it is important that sound policy measures should be put in place to improve infrastructure on the country, this will greatly influence the economic activities and growth of the nation.

It is therefore recommended that there is need for increased investment in power sector. This can be achieved through full liberalization of the sector as that will further increase the number of private participation. Thus reducing costs incurred by business men thereby increasing electricity generation and growth. Moreover, the government should ensure greater regulation of power sector in other to ensure greater competitions among operators, thus will reduce the cost of doing business. Finally, there is no doubt that increase in labour force can be an engine for development. It should be emphasized that efforts should be made towards quality and not quantity of labour force required for sustainable growth in the sector. This will help a long way in effective power supply.

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