Aderemi, Timothy Ayomitunde; Adebola, Oyegoke Adebusola; Olanipekun, Wahid Damilola et al.

Article

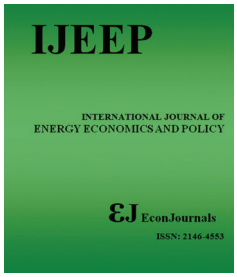
Human capital development, energy consumption and crude oil exports in Nigeria : implications for sustainable development

International Journal of Energy Economics and Policy

Provided in Cooperation with:
International Journal of Energy Economics and Policy (IJEEP)

Reference: Aderemi, Timothy Ayomitunde/Adebola, Oyegoke Adebusola et. al. (2021). Human capital development, energy consumption and crude oil exports in Nigeria : implications for sustainable development. In: International Journal of Energy Economics and Policy 11 (4), S. 443 - 449. https://www.econjournals.com/index.php/ijeep/article/download/8488/5963. doi:10.32479/ijeep.8488.

This Version is available at:
http://hdl.handle.net/11159/7794



International Journal of Energy Economics and Policy

ISSN: 2146-4553

available at http: www.econjournals.com

International Journal of Energy Economics and Policy, 2021, 11(4), 443-449.

Human Capital Development, Energy Consumption and Crude Oil Exports in Nigeria: Implications for Sustainable Development

Timothy Ayomitunde Aderemi[1]*, Oyegoke Adebusola Adebola[2], Wahid Damilola Olanipekun[3], Olaoye Olusegun Peter[4], Ayodeji Gbenga Bamidele[5], Azuh Dominic Ezinwa[6]

[1]Department of Economics, Accounting and Finance, Bells University of Technology, Ota, Nigeria and Centre for Economic Policy and Development Research (CEPDeR), Covenant University, Ota, Nigeria, [2]Department of Accountancy, Covenant University, Ota, Nigeria, [3]Research and Consultancy Centre, College of Management and Information Technology, American International University, West Africa, The Gambia, [4]Academic Planning Unit and Centre for Economic Policy and Development Research (CEPDeR), Covenant University, Ota, Nigeria, [5]Department of Business and Entrepreneurship, Kwara State University, Malete, Nigeria, [6]Department of Economics and Development Studies and Centre for Economic Policy and Development Research (CEPDeR), Covenant University, Ota, Nigeria. *Email: aderemi.timothy@gmail.com

Received: 07 January 2020 **Accepted:** 22 April 2021 **DOI:** https://doi.org/10.32479/ijeep.8488

ABSTRACT

This study's main objective is to examine the roles of human capital development, energy consumption and crude oil exports in driving sustainable development goal 8-sustainable economic growth in Nigeria. Annual data from 1990 to 2018 were sourced from World Data Atlas, International Energy Agency, WDI and the Central Bank of Nigeria Statistical Bulletin respectively to achieve the aims of the study. Autoregressive Distributed Lag technique of estimation was adopted for the data analysis. Consequently, the principal findings of this study could be presented as follows; there exists an insignificant positive relationship between electricity power consumption and real GDP growth rate. This implies that energy consumption in Nigeria has an inadequate capacity to drive a sustainable economic growth. Similarly, oil exports and the growth rate of the real GDP have a significant positive relationship with each other. This means that sustainability of economic growth is highly dependent on oil exports in Nigeria. Conversely, government expenditure on educational sector and the growth rate of real GDP have a significant negative relationship with each other. Likewise, expenditure of government on health sector has an insignificant negative relationship with the growth rate of the real GDP. This implies that human capital development in Nigeria lacks the capacity to guarantee a sustainable economic growth. As a result of the outcome of this research, the following were recommended for Nigerian policymakers and by extension developing countries, any time the goal of these policymakers are sustainable economic growth, the development of human capital through adequate funding of educational and health sectors should be embarked upon. In the same vein, the policymakers should provide uninterrupted electricity supply for enhancement of maximum outputs in the country.

Keywords: Human Capital, Energy Consumption, Oil Exports, Sustainable Development Goals
JEL Classifications: L94, F63, I15, I25

1. INTRODUCTION

The quest to create economic prosperity and protect environment in the world, especially in developing economies led to the introduction of the agenda 2030- the Sustainable Development Goals (SDGs) by the United Nations (United Nations, 2015). This has generated global commitment among developing countries towards building a sustainable economic growth. Meanwhile, the basic argument of the endogenous growth model revolves around human capital as an indispensable driving force behind economic growth and development (Galor and Weil, 2000; Mankiw et al., 1992; Lucas, 1988). The efficient usage of human capital which is domiciled in education and health in one hand, and electricity and ICTs in other hand has been identified as a catalyst for economic

productivity (Ejemeyovwi et al., 2018; Todaro and Smith, 2003). Investment in human beings is a critical issue in Nigeria. Despite the fact that Nigeria is extremely blessed with the abundance of both human and natural resources, the economy has not been able to come to the global limelight. In the recent times, the country`s human development index is ranked 161 out of 189 nations (UNDP, 2019). This shows that Nigeria is extremely lagging behind in building human capacity for a competitive economy. Similarly, Nigeria is regarded as the 13th least stable state globally based on the submission of the Fragile States Index (Messner, 2017).

Similarly, in the past four decades, source of power in Nigeria has undergone various metamorphosis ranging from the oil-fired, gas-fired, coal-fired station, and later graduated to hydroelectric power stations using gas-fired systems, in which hydroelectric power systems occupying the front burner (Ajumogobia and Okeke, 2015). Building a sustainable growth in any economy requires a stable power supply. Therefore, a country like Nigeria, which heavily relies on crude oil exports, energy utilization cannot be undermined. The major inputs in this sector in Nigeria are electricity and crude oil. It is important to stress that the power generated from energy sources such as electricity and crude oil are the bedrocks for the other services in deriving economic growth (Onakoya et al., 2013). This assertion is also reinforced with the submission, that economic development in majority of countries is propelled by the efficient utilization of energy system (Osabohien et al., 2019; Lu, 2017; Alege et al., 2017). In terms of energy supply, crude oil has been the principal source of commercial energy in Nigeria, which supplies over 70% of national commercial energy consumption, and at the same time generates over 80% of foreign earnings through exports in the past four decades (CBN, 2017; NBS, 2006). And such, production becomes a mirage without energy consumption.

Consequently, solving developmental issues requires a holistic approach. Though, studies have argued that both accessibility and consumption of quality electric power are fundamental variables that drive socio-economic development (Alaali et al., 2015; George and Oseni, 2012). On the other hand, as the global economy is continuously becoming integrated as a result of digital technologies, human capital development becomes an indispensable input for economic development in the long run (Ejemeyovwi et al., 2018; Barro and Sala-I-Martin, 1995; Romer, 1986; Lucas, 1988). In the recent times, the issues surrounding the sustainable development is very critical in Nigeria, and requires urgent empirical studies. In the past few decades, unemployment and poverty have been a continuous social monster in Nigeria (Olotu et al., 2015; Akwara et al., 2013). For instance, the unemployment rate in Nigeria rose from 10.57% in 2012 to 22.56% in 2018 (IMF, 2019). In the same vein, Nigeria occupies the 6th rank among the global crude oil exporters, the country is still world`s poverty headquarters in the recent time (Aderemi et al., 2020; Adebayo, 2018; World Poverty Clock, 2018).

It is worth noting that the past empirical studies have been silenced regarding the influence of both human capital development and energy consumption using electricity consumption and crude oil exports on the sustainable development goal 8- sustainable economic growth in Nigeria. Few of the recent studies which focused on the nexus between energy consumption, human capital development and other macroeconomic variables in Nigeria have failed to explore sustainable economic growth and oil exports as principal variables in their methodologies. See Orji et al., 2020; Afolayan et al., 2019; Matthew et al., 2018; Ejemeyovwi et al., 2018). Nigeria is heavily relied on crude oil exports as means of its survival and such, crude oil occupies a strategic portion of energy consumption in the country, which should not be undermined. As a departure from the existing bodies of knowledge, this study has been designed to examine the impact of human capital development and energy consumption on SDGs goal 8 – Sustainable Economic Growth in Nigeria in which past studies have not fully explored in the country.

The arrangement of this study is done as thus; foundation of the study was laid in the introduction. Meanwhile, the second section presents the past empirical studies about the subject matter of the study. Section three shows methodology, analysis of data, summary of results and the policy implications of the study.

2. REVIEW OF LITERATURE

Due to the strategic roles in which energy consumption plays in driving economic activities in any country, there has been a rise in the recent studies around the relationship between energy consumption and other macroeconomic variables in both developing and developed economies. For instance, in South Africa, Adeola and Aziakpono (2017) examined how electricity consumption propelled economic growth of the country with the application of the trivariate causality analysis. The study submitted that a bidirectional causality existed between the consumption of electricity and economic growth in the country. Orji et al., (2020) explored the Classical Linear Regression Model to investigate the nexus between information and communication technology (ICT), power supply and human capital development within the context of the Nigerian economy. It was discovered from the study that that ICT and power supply caused a positive impact on human capital development in Nigeria. In another related study, Matthew et al., (2018) utilized fully modified ordinary least squares to examine the linkage between human capital development, electricity power consumption and economic growth in Nigeria between 1981 and 2016. It was discovered from the study that human capital development and economic growth were insignificantly related in Nigeria. But the case of electricity consumption and economic growth showed otherwise. Osabohien et al. (2021) explored ARDL to analyze the impact of carbon emissions on life expectancy in Nigeria. The authors posited that inter alia and carbon emissions caused a significant negative effect to life expectancy in the country. Afolayan and Aderemi (2019) investigated environmental impact of energy consumption on human welfare from 1980 to 2016 in Nigeria, adopting Dynamic Ordinary Least Square (DOLS) and Granger causality techniques. The authors discovered a negative but insignificant impact of emissions of CO_2 on mortality rate in Nigeria. Meanwhile, the consumption of electric power and combustion of fossil fuel caused a significant rise in mortality rate in the country.

Similarly, Lin and Linh (2015) employed a technique of dynamic causal analysis in investigating how degradation of environment, consumption of energy, foreign direct investment (FDI) and economic growth were related with the case study of 12 densely

populated economies in Asia. It was argued from the study that a causal relationship existed between CO_2 emissions, FDI, economic growth and energy consumption those countries. In another study, Olaoye et al., (2020) applied Cointegration, DOLS and Granger Causality techniques to evaluate how consumption of energy facilitated foreign direct investment between 1990 and 2017 in Nigeria. The authors submitted that energy consumption discouraged the inflows of FDI in the country in a significant way. However, energy consumption significantly favored oil exports in the country. The results of Granger causality analysis showed that one-way feedback runs from energy consumption to exports of oil. While exploring the technique of ARDL alongside co-integration analysis, Dantama et al., (2012) assessed the nexus between economic growth and energy consumption in Nigeria. It was discovered from the study that there existed a long run convergence between electricity and petroleum consumption and economic growth. Conversely, the long run estimate indicated that consumption of coal and economic growth had an insignificant relationship with each other.

However, Afolayan et al. (2019) explored Johansen co-integration technique to examine the contribution of electricity consumption alongside human capital towards reduction of unemployment in Nigeria. The authors posited that consumption of electricity and unemployment had an inverse relationship. Xu et al., (2016) researched the linkage that exists between energy consumption and FDI Shanghai within the period of 1991 and 2013. The authors argued that in the short run, energy consumption catalyzed a significant inflows of FDI in the country. Whereas, an insignificant effect of energy consumption on FDI was recorded in the long run. In the same vein, energy consumption Granger caused FDI in the country. While investigating how crude oil supported economic growth in Nigeria between 2000 and 2009, Usman et al., (2015) utilized a simple linear regression to opine that crude oil has immensely propelled the Nigerian economic growth in both positive and significant way. In another perspective, Ogujiuba (2017) investigated human capital investment and economic growth nexus in Nigeria within a framework of Error Correction Model (ECM) and Granger causality. The author asserted that there was an absence of a causal relationship between human capital development and the growth of the Nigerian economy. Doytch and Narayan (2016) employed the Blundell–Bond dynamic panel estimator while assessing the contribution of FDI towards renewable and non-renewable energy consumption from 1985 to 2012 across seventy-four countries. The authors submitted that the employment of green energy was connected with FDI inflows and FDI inflows retarded the employment of non-renewable energy in both developing and advanced countries.

3. DATA AND MATERIAL

3.1. Theoretical Framework

This work is anchored on the endogenous growth theory put forward by Romer in 1986. This theory was developed in reaction to the shortcomings of the neoclassical (exogenous) growth model which was championed by Solow. The basic argument of endogenous model is that human capital is an indispensable input in the production function. Therefore, the sustainable growth is facilitated by endogenizing technical progress. In the recent version of the model, economic growth was driven by innovation which was domiciled in investment in human and technical improvement (Mankiw et al., 1992; Ncube, 1999; Lucas, 1988). It is important to stress that the major assumptions upon which the theory rotate are as follows; increasing returns to scale due to positive externalities. Human capital (knowledge, skills and training possessed by individuals) and the production of new technologies are crucial variables for growth in the long run. In the same vein, private investment in research and development is the most viable origin of progressive technologies. And knowledge or technical advances are posited to be non-rival good.

3.2. Model Specification

Utilizing energy economics approach to empirically address the relevance of endogenous human capital theory in Nigeria provides a justification for the indispensable roles of energy such as electricity and crude oil as inputs in production process that could ensure economic development (Alaali et al., 2015; Stern, 2011; Lee and Chang, 2008). It is worth of note that investments in education and health were keenly argued by the endogenous theorists as sufficient inputs needed to build human capital that could adequately propel the productive capacity of a nation (Romer, 1986; Lucas, 1988; Barro and Sala-I-Martin, 1995).

Consequently, input-output analysis like this study requires the utilization of the Cobb Douglas production function which could be stated in a modified version as thus;

$$ECG = ECN^{\alpha 1}.GCAP^{\alpha 2}.\ EDU^{\alpha 3}.\ HET^{\alpha 4}.\ OEXP^{\alpha 5} \quad (1)$$

If the log of independent variables is taken in the above equation, it results in linearization of the equation as follows;

$$ECGt = \alpha_1 logECNt + \alpha_2 logGCAPt + \alpha_3 logEDUt + \alpha_4 logHETt + \alpha_5 logOEXPt + U \quad (2)$$

3.3. Sources of Data

Electric power consumption data were extracted from World Data Atlas and International Energy Agency, IEA respectively. In the same vein, other macroeconomic data were sourced from WDI and the Statistical Bulletin of the Central Bank of Nigeria.

3.4. Estimation Technique

The pre-estimation of data gave us an insight about the appropriate estimation technique to utilize in this study. It was discovered that the relevant variables of interest were a mixture of I(0) and I(1), in such a situation, an Autoregressive Distributed Lag model had been argued in the literature to be the most relevant technique of the data analysis (Pesaran et al., 2001; Pesaran and Pesaran, 1997). Therefore, it is instructive to state that the short run ARDL model could be specified as follows;

$$\Delta ECG_t = \beta_1 + \sum_{i=1}^{p} \beta_2 \Delta ECG_{t-1} + \sum_{i=0}^{p} \beta_3 \Delta LnGCAP_{t-1} + \sum_{i=0}^{p} \beta_4 \Delta LnEDU_{t-1} + \sum_{i=0}^{p} \beta_5 \Delta HET_{t-1} + \sum_{i=0}^{p} \beta_6 \Delta OEXP_{t-1} + U \quad (3)$$

Meanwhile, ECG is used to proxy growth rate of real GDP. This measures sustainable economic growth, which is one of the key goals of sustainable development. And this is measured in percentage. ECN represents electric power consumption in Nigeria, which is used to proxy energy consumption in the country. This is measured in kilowatt-hour (kWh) per capita. GCAP is used to denote gross fixed capital formation. EDU is used to denote the expenditure of government on educational sector. HET captures government expenditure on health sector, OEXP is crude oil exports, t is the period of analysis which spans between 1990 and 2018 and U is error term. It is expected that β_2 β_3 β_4, β_5 and $\beta_6 > 0$.

4. RESULTS AND DISCUSSION

The descriptive statistic of the various variables of interest were shown in the Table 1. The importance of this distribution lies in the fact that econometric analysis is largely dependent on the assumption of the normal distribution of the dataset. ECG which is used to proxy the growth rate of real GDP in Nigeria from 1990 to 2018 possessed maximum and minimum values of 33.7% and −1.6% respectively. Its mean value is 5.2% and standard deviation of 6.5%. The mean value is less than the standard deviation of the variable. This implies that growth rate dispersed widely from its mean value. Similarly, the variable has a positive skweness with the Kurtosis value that is very far from 3. This means that the data for this variable did not agree with the symmetrical distribution assumption.

However, other variables of interest such as electricity power consumption, gross fixed capital formation, government expenditures on education and health and oil exports, all in log form agreed with the symmetrical distribution assumption. This is because the distribution their data dispersed moderately from the mean value. In the same vein, the data possessed a positive skeweness with kurtosis value greater very close to 3. Since the majority of the data employed for the analysis of the relationship between the variables of interest agreed with symmetrical distribution assumption. Hence, the data could be further used for econometric analysis.

One of the pre-estimation check that cannot be undermined in empirical study that involves time series data is test for the stationarity properties of such data. This test becomes highly imperative because time series data could result in spurious or nonsense regression if its usual unit root problem is not resolved. Against this backdrop, it is important for this study to utilize the technique of the standard Dickey and Fuller (ADF) test by Dickey and Fuller (1981) and Phillips and Perron (PP) test by Phillips and Perron (1988) in estimating the stationarity properties of the series. Consequently, as shown in Table 2, it is only growth rate that is stationary at level while other variables are stationary after first differencing. This indicates that the study utilized data that contain both I(0) and I(1) in this regard.

Examining the long run relationship between human capital development, energy consumption, oil exports and sustainable growth becomes very important while utilizing ARDL model. This is done within the framework of ARDL Bounds test. And as shown in the Table 3, there was no long run relationship existing these variables in Nigeria because the value of F-Statistic is less than the upper Critical Value Bounds at all levels of significance. Therefore, this study embarked upon the estimation of short run model.

Regression estimates of the ARDL model of the short run relationship between human capital development, sustainable economic growth, energy consumption and oil exports in Nigeria were presented in Table 4. Meanwhile, variables such as lagged value of growth rate of the real GDP, both government expenditures on education and health sectors did not follow the aprori expectation. Looking at the result of the R-Square which is 0.69, it shows that 69% of the variation in the dependent variable was explained by the set of explanatory variables. Consequently, growth rate of the real GDP in the previous period has a negative and significant relationship with its value in the current period. Gross fixed capital formation has a positive relationship with the growth rate of real GDP, though the relationship is significant at 10% level of significance. And such, a unit change in gross fixed capital formation brings about 0.33% increment in the growth rate of the real GDP. Electricity power consumption and growth rate of the real GDP has a positive but insignificant relationship with each other. This implies that energy consumption in Nigeria has an inadequate capacity to ensure a sustainable economic growth in the country. This finding is in tandem with the submissions of Matthew et al., (2018), Dantama et al., (2012) and Odularu and Okonkwo (2009) in related studies in Nigeria despite the adoption of different technique of estimation.

In the same vein, oil exports have a positive relationship with the growth rate of the real GDP, the relationship is significant at 10%

Table 1: Descriptive statistics of variables

Descriptive statistics	ECG	LogECN	LogGCAP	LogEDU	LogHET	LogOEXP
Mean	5.217857	4.507481	3.262271	4.550421	3.451071	7.757026
Median	4.350000	4.586281	3.275948	4.961152	3.998619	7.888767
Maximum	33.70000	5.054525	3.972554	6.807382	5.041531	9.569636
Minimum	−1.600000	3.237109	2.651127	0.289789	0.399916	4.669084
Std. Deviation	6.521989	0.499669	0.438191	1.949267	1.497924	1.566498
Skewness	0.070353	0.585916	0.071567	0.588159	0.688038	0.618490
Kurtosis	14.19066	4.879102	1.590305	2.262278	2.152018	2.184793
Jargue-Bera	1.900958	1.585680	2.342348	2.249281	3.048100	2.560464
Probability	0.000000	0.000360	0.310003	0.324769	0.217828	0.277973
Sum	146.1000	126.2095	91.34358	127.4118	96.62999	217.1967
Sum. Sq. deviation	1148.481	6.741059	5.184312	102.5904	60.58199	66.25574
Observation	28	28	28	28	28	28

Source: Authors'

Table 2: Unit root test

Variables	ADF test				Remark
	Level	Probability	1st Diff	Probability	
ECG	−2.971853***	0.0021	-	-	I(0)
LogECN	−2.976263***	0.7476	−2.981038***	0.0004	I(1)
LogGCAP	−2.971853***	0.4541	−2.976263***	0.0033	I(1)
LogEDU	−2.998064***	0.0514	−2.976263***	0.0000	I(1)
LogHET	−2.976263***	0.1387	−3.699871***	0.0000	I(1)
LogOEXP	−2.971853***	0.2226	−2.976263***	0.0003	I(1)
Variables	**PP test**				
	Level	Probability	1st Diff	Probability	
ECG	−2.971853***	0.0019	-	-	I(0)
LogECN	−2.976263***	0.6432	−2.976263***	0.0004	I(1)
LogGCAP	−2.971853***	0.4423	−2.976263***	0.0043	I(1)
LogEDU	−2.971853***	0.4277	−2.976263***	0.0000	I(1)
LogHET	−2.971853***	0.3049	−2.976263***	0.0000	I(1)
LogOEXP	−2.971853***	0.2226	−2.976263***	0.0003	I(1)

Source: Authors'

Table 3: ARDL bounds test

Sample: 1992 2018
Included observations: 26
Null hypothesis: No long-run relationships exist

Test statistic	Value	K
F-statistic	3.504168	5
Critical	Value Bounds	
Significance	I0 Bound	I1 Bound
5%	2.62	3.79

Source: Authors'

Table 4: Short-run relationship between sustainable economic growth, energy consumption and oil exports

Short run	Coefficient	T-statistics	Prob. value
D(ECG(−1)	−0.477846***	2.263169	0.0448
D(LogECN)	6.076747	1.423604	0.1823
D(LogGCAP)	33.98703**	1.894816	0.0847
D(LogEDU)	−7.325124***	2.352332	0.0383
D(logOEXP)	6.367070**	1.815102	0.0968
D(logHET)	−1.903102	0.520278	0.6132
R-Squared	0.695455		

Source: Authors'. *Significant at 1% ***Significant at 5% **Significant at 10%

level of significant. A unit change in oil exports in Nigeria brings about 0.06% rise in the growth rate of the real GDP in the country. This implies that economic growth sustainability of Nigeria is highly dependent on oil exports in the short run. This finding is supported by the argument of Usman et al., (2015) in a similar work. Whereas, the findings of Idowu (2016), and Baghebo and Atima (2013) contradict the finding in this study.

However, government expenditure on education sector has a significant negative relationship with the growth rate of the real GDP. A unit change in government expenditure on education sector brings about 0.07% reduction in the growth rate of the real GDP. Similarly, expenditure of government on health sector has a negative but insignificant relationship with the growth rate of the real GDP. The implication of these results is that human capital development in Nigeria lacks the capacity to ensure a sustainable economic growth in the short run. The reason for these results might have been as a result of persistent low government expenditures on education and health sectors in the past decades in Nigeria. The finding in this study corroborates the assertion of Ogujiuba (2017) in a related study.

5. CONCLUSION AND RECOMMENDATION

This study has examined the roles of human capital development, energy consumption and crude oil exports in driving one of the key goals of sustainable development-sustainable economic growth in Nigeria. To achieve this, the authors utilized annual data from 1990 to 2018 with adoption of ARDL as a technique of estimation.

Consequently, the findings of this research work could presented as follows; growth rate of the real GDP in the previous period has a negative and significant relationship with its value in the current period. This means that past economic growth rate has a negative implication for future economic growth rate in Nigeria. Gross fixed capital formation has a significant positive relationship with the growth rate of real GDP. But, electricity power consumption and growth rate of the real GDP has an insignificant positive relationship with each other. The implication of this is that energy consumption in Nigeria has an inadequate capacity to drive a sustainable economic growth in the country. Similarly, oil exports have a significant positive relationship with the growth rate of the real GDP. This means that economic growth sustainability of Nigeria is highly dependent on oil exports in the short run. Conversely, government expenditure on education sector has a significant negative relationship with the growth rate of the real GDP. Also, expenditure of government on health sector has a negative but insignificant relationship with the growth rate of the real GDP. This implies that human capital development in Nigeria lack the capacity to ensure a sustainable economic growth in the short run. This might have been an aftermath effect of the low funding of educational and health sectors by the Nigerian government as against the stipulation of both the United Nations and the Abuja declaration of 2001, advocating for adequate funding of educational and health sectors in developing countries respectively. In view of the above, this study makes the following recommendations for

the policymakers in Nigeria and by extension developing countries, any time the goal of these policymakers are sustainable economic growth the development of human capital through adequate funding of educational and health sectors should be embarked upon. In the same vein, the policymakers should provide uninterrupted electricity supply for enhancement of maximum outputs in the country.

6. ACKNOWLEDGMENTS

The authors of this paper would like to acknowledge the support of the Covenant University Centre for Research, Innovation, and Development (CUCRID) in the course of this study, the financial supports are highly recognized. In the same vein, the authors declare no conflict of interest with anyone.

REFERENCES

Adebayo, B. (2018), Nigeria Overtakes India in Extreme Poverty Ranking. Available from: https://www.edition.cnn.com/2018/06/26/africa/nigeria-overtakesindiaextreme-poverty-intl/index.html. [Last accessed on 2018 Dec 21].

Adeola, O., Aziakpono, M. (2017), The relative contribution of alternative capital flows to South Africa: An empirical investigation. Journal of Economic and Financial Sciences, 8(4), 12-28.

Aderemi, T.A., Amusa, B.O., Elufisian, O.O., Abalaba, B.P. (2020), Does capital flight move Nigeria to the world's poverty headquarters? An implication for sustainable development. Journal of Academic Research in Economics, 12(1), 31-44.

Afolayan, O.T., Aderemi, T.A. (2019), Environmental quality and health effects in Nigeria: Implications for sustainable economic development. SSRG International Journal of Economics and Management Studies, 6(11), 44-55.

Afolayan, O.T., Okodua, H., Matthew, O., Osabohien, R. (2019), Reducing unemployment malaise in Nigeria: The role of electricity consumption and human capital development. International Journal of Energy Economics and Policy, 9(4), 63-73.

Ajumogobia, H.O., Okeke, C.N. (2015), Nigerian Energy Sector, Legal and Regulatory Overview, Lagos.

Akwara, A.F., Akwara, N.F., Enwuchola, J., Adekunle, M., Udaw, J.E. (2013), Unemployment and poverty: Implications for national security and good governance in Nigeria. International Journal of Public Administration and Management Research, 2(1), 1-11.

Alaali, F., Roberts, J., Taylor, K. (2015), The Effects of energy consumption and human capital on economic growth: An exploration of oil exporting and developed countries. In: Sheffield Economic Research Paper Series No. 2015015. United Kingdom: The University of Sheffield.

Alege, P.O., Oye, Q.E., Adu, O.O., Amu, B., Owolabi, T. (2017), Carbon emissions and the business cycle in Nigeria. International Journal of Energy Economics and Policy, 7(5), 1-8.

Baghebo, M., Atima, T.O. (2013), The impact of petroleum on economic growth in Nigeria. Global Business and Economics Research Journal, 2(5), 102-115.

Barro, R., Sala-I-Martin, X. (1995), Economic Growth. New York: McGraw-Hill.

CBN. (2017), Statistical Bulletin. Nigeria: Central Bank of Nigeria.

Dantama, Y.U., Umar, Y., Abdullahi, Y.Z., Nasiru, I. (2012), Energy consumption-economic growth nexus in Nigeria: An empirical assessment based on ARDL bound test approach. European Scientific Journal, 8(12), 141-157.

Dickey, D.A., Fuller, W.A. (1981), Likelihood ratio tests for autoregressive time series with a unit root, Econometrica, 49, 1057-1072.

Doytch, N., Narayan, S. (2016), Does FDI influence renewable energy consumption? An analysis of sectoral FDI impact on renewable and non-renewable industrial energy consumption. Energy Economics, 54, 291-301.

Ejemeyovwi, J.O., Osabuohien, E.S., Osabohien, R. (2018), ICT investments, human capital development and institutions in ECOWAS. International Journal of Economics and Business Research, 15(4), 463-474.

Galor, O., Weil, D.N. (2000), Population, technology and growth: From Malthusian regime to the demographic transition. American Economic Review, 90(4), 806-828.

George, E.O., Oseni, J.E. (2012), The relationship between electricity power and unemployment rates in Nigeria. Australian Journal of Business and Management Research, 2(2), 10-19.

Idowu, R. (2016), Analysis of the Effects of Oil and Non-Oil Export on Economic Growth in Nigeria.

IMF. (2019), World Economic Outlook. Washington, DC: International Monetary Fund.

Lee, C.C., Chang, C.P. (2008), Energy consumption and economic growth in Asian economies: A more comprehensive analysis using panel data. Resource and Energy Economics, 30(1), 50-65.

Linh, D.H., Lin, S. (2015), Dynamic Causal Relationships among CO_2 Emissions, Energy Consumption, Economic Growth and FDI in the most Populous Asian Countries, Advances in Management and Applied Economics, 5(1), 69-88.

Lu, W.C. (2017), Greenhouse gas emissions, energy consumptions and economic growth: A panel co-integration analysis for 16 Asian countries. International Journal of Environmental Research and Public Health, 14(11), 1436.

Lucas, S.R. (1988), The mechanics of economic development. Journal of Monetary Economics, 22(1), 30-42.

Mankiw, N., Romer, P., Weil, D. (1992), A contribution to the empirics of economic growth. A Quarterly Journal of Economics, 107, 407-437.

Matthew, O.A., Ede, C.U., Osabohien, R., Ejemeyovwi, J., Fasina, F.F., Akinpelumi, D. (2018), Electricity consumption and human capital development in Nigeria: Exploring the implications for economic growth. International Journal of Energy Economics and Policy, 8(6), 8-15.

Messner, J.J. (2017), 2017 Fragile States Index, Fund for Peace.

National Bureau of Statistics. (2006). Published by National Bureau of Statistics, Nigeria.

Ncube, M. (1999), Is human capital important for economic growth in Zimbabwe? African Journal of Economic Policy, 7(3), 1-14.

Odularu, G.O., Chinedu, O. (2009), Does energy consumption contribute to economic performance? Empirical evidence from Nigeria. Journal of Economics and International Finance, 1(2), 44-58.

Ogujiuba, K. (2017), The impact of human capital formation on economic growth in Nigeria. Journal of Economics, 2(1), 24-40.

Olaoye, O.P., Aderemi, T.A., Nwagwu, C.J., Yvonne, J.O., Azuh, D.E. (2020), Energy Consumption and foreign direct investment inflows in Nigeria: An empirical perspective. International Journal of Energy Economics and Policy, 10(2), 1-6.

Olotu, A., Salami, R., Akeremale, I. (2015), Poverty and rate of unemployment in Nigeria. IJM, 2(1), 1-4.

Onakoya, A.B., Onakoya, A.O., Jimi-Salami, O.A., Odedairo, B.O. (2013), Energy consumption and Nigerian economic growth: An empirical analysis. European Scientific Journal, 9(4), 25-40.

Orji, A., Ogbuabor, J.E., Anthony-Orji, O.I., Okoro, C., Osondu, D. (2020), Analysis of ICT, power supply and human capital development in Nigeria as an emerging market economy Studia Universitatis-Vasile Goldis Arad. Economics Series, 30(4), 55-68.

Osabohien, R., Aderemi, T.A., Akindele, D.B., Jolayemi, L.B. (2021),

Carbon Emissions and life expectancy in Nigeria. International Journal of Energy Economics and Policy, 11(1), 497-501.
Osabohien, R., Matthew, O., Aderounmu, B., Olawande, T. (2019), Greenhouse gas emissions and crop production in West Africa: Examining the mitigating potential of social protection. International Journal of Energy Economics and Policy, 9(1), 57-66.
Pesaran, H.M., Shin, Y., Smith, R.P. (2001), Bounds testing approaches to the analysis of level relationship. Journal of Applied Econometrics, 16, 289-326.
Pesaran, M., Pesaran, B. (1997), Microfit 4.0 (Windows Version), New York: Oxford University Press Inc.
Phillips, P.C., Perron, P. (1988), Testing for a unit root in time series regression. Biometrika, 75, 335-346.
Romer, P.M. (1986), Increasing returns and long-run growth. Journal of Political Economy, 94(5), 1002-1037.
Stern, D.I. (2011), The role of energy in economic growth. Ecological Economics Reviews, 1219(1), 26-51.
Todaro, M.P., Smith, S. (2003), Human Capital: Education and Health in Economic Development. India: Pearson Education Limited.
UNDP. (2019), Human Development Report. New York: UNDP.
United Nations. (2015), Millennium Development Goals Report, United Nations.
Usman, A., Madu, I., Abdullahi, F. (2015), Evidence of petroleum resources on Nigerian economic development (2000-2009). Business and Economics Journal, 6(2), 1-4.
World Poverty Clock. (2018), Available from: https://www.worldpoverty.io/headline.
Xu, J., Zhou, M., Li, H. (2016), ARDL based research on the nexus among FDI, environmental regulation and energy consumption in Shanghai (China). Natural Hazards, 81(1), 551-564.