

Impact Of Natural Resource On Economic Growth In Nigeria: An Empirical Analysis From (1980-2021)

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Abstract

The work examined the impact of natural resources on economic growth in Nigeria. The scope of the work was for forty (40) years between 1981 and 2021. The main reason for this was to check the impact of natural resources on her economy following the Pre-SAP period, SAP period and the Post-SAP period after we had our independence. The objectives of the work were to check if natural resources impact on the growth of the Nigerian economy and what was the main division of natural resources within her economy. The study adopted the use of ADF (Augmented Dickey Fuller test), the co-integration test and causality test. The result of the causality test showed that there is causality between natural resources and economic growth in Nigeria. The ordinary least squares (OLS) test showed that a percent change in the independent variables which were crude petroleum, crop production and coal resources would affect the dependent variable which is GDP by 98%. Also the findings showed that crop production and coal has a positive impact on GDP while crude petroleum have a negative impact. The study recommended that proper checks should be made by the government on growth of this sector as it have great impact on the growth of the Nigerian economy. Investment should be made by the government to aid productivity of this sector and thereby triggering growth of the economy.

Keywords: Natural Resources, Renewable Resources, Non-Renewable Resources and Economic Growth

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I. Introduction

Natural resources reflects to those resources that are free gifts of nature. They are known to be in large deposit thereby aiding the resource deposit within her economy. Different countries are known to have diverse deposits on natural resources within her economy depending on the resources allocation within the country (Ibukun & Osinubi, 2020).

Globally, there are disparities of natural resources among nations and this determines what different nations are recognized with in the international market. Some of the disparities of these natural resources among nations in the international market are: Gold in Ghana, Crude oil in Kuwait, Diamond in Sierra-Lone, Oil and Diamond in Angola, Oil in Venezuela (Raggl, 2017).

In the international market, natural resources are broadly categorized into renewable and non-resources which are of pivotal relevance. When trading in the international market natural resources either renewable or non-renewable natural resources can be traded in its raw state or a refined form which depicts some level of value addition to the product (Brown & Stephen, 2017).

Some renewable resources that are highly demanded in the international market are grains etc. While the second category of resources are the non-renewable resources. Globally, the types and variations of non-renewable resources are much as compared to the former. Some examples of non-renewable resources demanded in the

international market are Gold, Diamond, Iron ore, Limestone, Bauxite, granite and copper to mention but a few (Dada et al, 2022).

Africa is known to be a home of most natural resources because it is blessed with different natural resources both in the categories of renewable and non-renewable natural resources. Africa have more than fifty-four (54) independent nations within her terrain and all are gifted with this valuables. When compared to other continents there are vast distributions of natural resources in this continents and this had been a major source of revenue earnings within the continents (Zalle, 2019).

Among the different nations in Africa, Nigeria is known to have large disparities of natural within the country. Different states within her economy is known to possess diverse unique natural resources as compared to other states. Some states in Nigeria and their natural depositions are: Ogun state with limestone, Lagos with bitumen, Kwara with Iron ore, Kogi with Dolomite, Abia with lead, Imo with zinc, Bayelsa with gypsum, Bauchi with Gold, Borno with bentonite and others (Raggl, 2017).

In Nigeria, the natural resources deposition within the country are categorized into two based on the earnings from the sector as oil resources and non-oil resources. Oil natural resources entails all the earnings from the oil sector including crude oil and all oil related products. While the non-oil natural resources involves all the earnings from the country aside oil revenues. In the CBN Bulletin, they are categorized as solid minerals earnings, agricultural earnings and others. When observing the Nigerian economy, the revenues accruing from the oil natural resources aspects are much as compared with other sectors (Brown & Stephen, 2017).

During the 20th century, more than ninety (90%) of the nation's earnings is from the revenue from the oil sector which is an important category of the natural resource division of the country. While eighty percent (80%) of the nation's exportation after the discovery of crude oil had been crude oil and the oil related products of the nation. This reflects that natural resources is very beneficial to the growth of the nation of Nigeria (Zalle, 2019).

Irrespective of the diverse contributions of oil natural resources to her economy it have initiated what is termed "Dutch Disease Syndrome". What ought to had been beneficial to the Nigerian economy have imposed some level of set-backs on the nation at large. The discovery of oil have affected other sectors as the situation of diversification previously enjoyed within the nation have been sidelined with the challenge of mono-cultured system within the nation. Other sectors have been greatly affected because there are less contributions made by the government on other sectors of the country (Raggl, 2017).

In reality the earnings of the Nigerian economy would had been larger if all the discovered natural resources that are traded in the international market from the Nigerian economy are really explored. The earnings her economy is enjoying is less of what the nation is blessed with and this have imposed some level of detrimental effects on the nation. This situation have posited that different researches are conducted to check the impacts of natural resources on economic growth within her economy (Dada et al, 2022).

The different objectives which this work would seek to achieve is to check the impact of natural resources on the Nigerian economy, to observe the trend of natural resources and economic growth in Nigeria within the study period which is between 1981 and 2021.

II. Literature Review

Theoretical Literature

There are diverse theories that are relevant in this work and that is what this section of the work would be focusing at. Some of the theories that are relevant are explained below:

Wagner's Theory

The Wagner's theory is one of the recognized theory on government expenditure introduced by Wagner in the late 19th century. The theory gave proper insights on the increasing activities of the western state taking Europe as the case study. The theory reflected that government expenditure within the state would encourage industrialization, productivity and growth within the economy. The theory explained that as government expenditure within the state increases total expenditure among the citizenry would increase which would later result in increase in the per capita income of the people (Wagner & Weber, 1977).

The Wagner theory of growth made more emphasis on the public sector especially government involvement in the productive activities of the economy. The theory explained that public involvement in productive activities is more relevant as compared to private involvement in the state. Some of the public expenditures of the government are defense, health, education, welfare services and others (Lamartina & Zaghini, 2011).

Keynesian theory

This theory was introduced by Lord Maynard Keynes in 1930 after the great depression of 1929. This theory of government expenditure posited by Keynes was known to be against the classical view of public

expenditure. It emphasized that public expenditure within the society needs to increase so that the earnings of the citizens might increase (Amitrano & Vasconcelos, 2019). The classicalist were of the opinion that for the income of workers to increase the activities of trade union must be effective. Unlike the Keynesian school of thought were of the opinion that market failure can only be effectively managed by the government. The Keynesian theory explains that equilibrium is possible to be ascertained in the short-run within an economy if adequate spending can be made on production. When more spending is made by the government on the economy there would be increase in the productive activities within the state (Ahuja & Pandit, 2020).

Empirical Review

There are different researches that have been conducted related to the impact of natural resources on economic growth in Nigeria. Some of such researches are: Adu (2012) studied on the relationship between natural resources abundance and economic growth in Ghana. His emphasis was on the long-run relationship between the resource abundance in the country and economic growth. He employed the use of econometric techniques like unit root test and Philip-Hansen to test the relationship between the variables. The findings from the work rejected the occurrence of resource curse on her economy. It was revealed that there is a positive relationship between resource abundance and economic growth within her economy.

Akanni (2007) studied on the relationship between natural resources, oil rents and economic growth in most LDCs (Less Developed nations). It was conducted on forty-seven countries (47) between the period 1970 and 2000. The work employed the use of regressive analysis and it was revealed that natural resources would help to promote economic growth if properly explored.

Bagheri (2014) that examined the relationship between natural resources abundances and monetary development in Iran. The scope of the work was for 46 years between 1965 and 2011 providing for more data to be observed. The data that were used in this work was natural resources as the independent variables and the monetary development was the dependent variables. Experimental regression analysis was conducted in his work and the result showed there is a negative relationship between natural resources and development with the period understudied.

Gylfason and Zoega (2006) investigated the relationship between natural resources, investment and economic growth across different countries. His work focused on the relationship between natural resources and economic growth among (eighty-five) 85 nations between the period 1965 and 1988. He adopted the use of descriptive statistics and other techniques and it was revealed that there was an inverse relationship between natural resources and economic growth. It was emphasized that investment had impact on the economic growth of any nation. Also resources abundance is crucial for the growth of any nation.

Oaikhinan (2015) researched on the relationship between natural resources and economic growth in Nigeria. He employed both the use of descriptive statistics and other techniques in the work. It was revealed in the work that Nigeria is backward and not well improved as relating to natural resources within the country. It was emphasized that the discovery of oil within the country have made the country mono-cultured abandoning all other natural resources available to the country. It was revealed in the findings of the work that there was a negative relationship between natural resources and economic growth in the country.

III. Stylized Facts on Natural Resources and Economic Growth in Nigeria from 1981 to 2021 Trend in GDP in Nigeria

The illustration below shows the trend in GDP in Nigeria from 1981 to 2021.

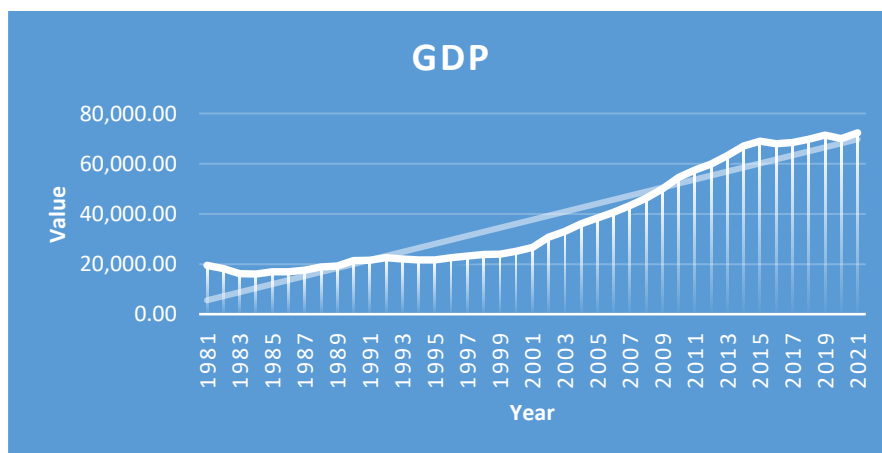


Figure 3.1: Trend in GDP
(Source: Authors Computation, 2023)

The illustration above reveals the trend of (Gross Domestic Products) GDP in Nigeria between the period 1981 and 2021. It is shown that the GDP of Nigeria have been fluctuating but in an upward sloping trend. From figure 3.1 above it is reflected that Nigeria had it least GDP in 1984 which was N16, 048.31(millions). While it had highest GDP recently in 2021 which was N72, 393.67. The country have constantly experienced increase in her GDP and this is beneficial to the populace.

Trend in Crop Production in Nigeria

The second illustration shows the trend in crop production in Nigeria between the period 1981 and 2021. The illustration below would be showing the trend of crop production in Nigeria with the flow on how it has been fluctuating within the period understudied.

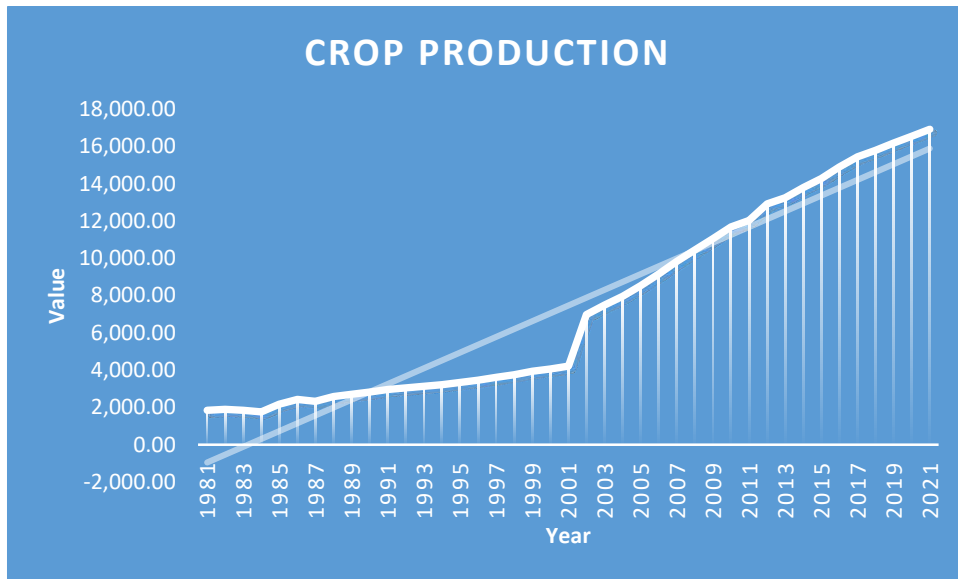


Figure 3.2: Trend in Crop Production
(Source: Authors Computation, 2023)

Figure 3.2 shows the trend in crop production in Nigeria between the period 1981 and 2021. The graph above shows that the value of crop production in Nigeria have been fluctuating but the trend have been upward sloping. From 1981 it value was N1, 854.76 which was the least value of crop production within her economy. As at 2021, the value of crop production within the Nigeria economy N16, 920.52which was valued as the highest inflow from the crop production aspect of country every made over the last 40 years.

Trend in Crude Petroleum in Nigeria

The third illustration shows the trend in crude petroleum in Nigeria between the period 1981 and 2021.

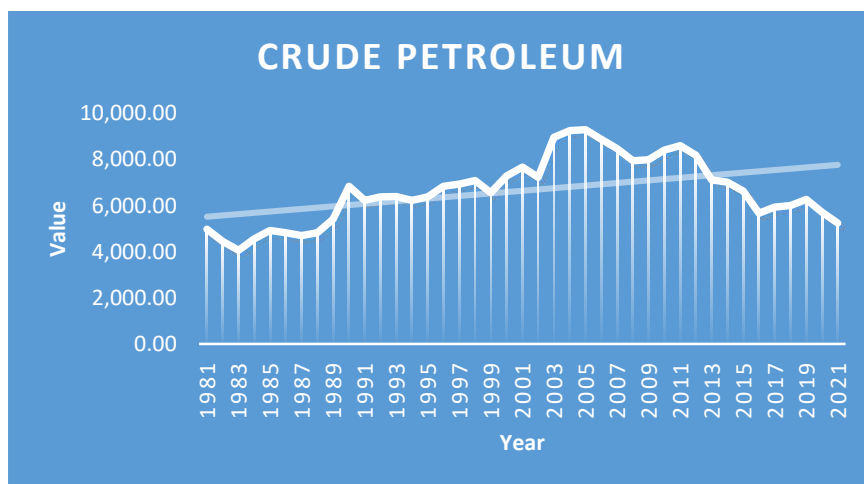


Figure 3.3: Trend in Crude Petroleum
(Source: Authors Computation, 2023)

There are different natural resources that are found in Nigeria one of the most recognized resources is crude petroleum. The country is known to be the second largest producer of crude petroleum in Africa and the sixth largest producer in the world. This refers that the outputs from this natural resources is on a commercial scale and much valued within the country. The figure 3.3 above shows the value of crude petroleum within the country between 1981 and 2021 and it is revealed that iprovides the country with the highest level of revenue. From the illustration we can understand that the inflow of crude petroleum have been fluctuating in a wave like manner. As at 1981 the crude petroleum explored and traded from the country in the international market was valued at N4, 977.42 but later dropped down in 1983 to N4, 052.98. After it outputs in crude petroleum have been increasing till 1990 when it had it first peak value at N6, 831.77 and later it had another peak value in 2005 which was N9, 294.05. Ever since then the value of petroleum outputs within the Nigerian economy have been declining that presently the inflow from this natural resources is N5, 239.05. From the trend above the trend-line shows that the value from the trade of crude petroleum from Nigeria have been upward sloping. It is required that the contribution from the government and other related agencies have been on the high side but proper check need to be made to ensure that the outputs from the natural resources is on the high side rather than constantly fluctuating.

Trend in CoalMining in Nigeria

The third illustration shows the trend in value accrued from coal mining in Nigeria between the period 1981 and 2021.

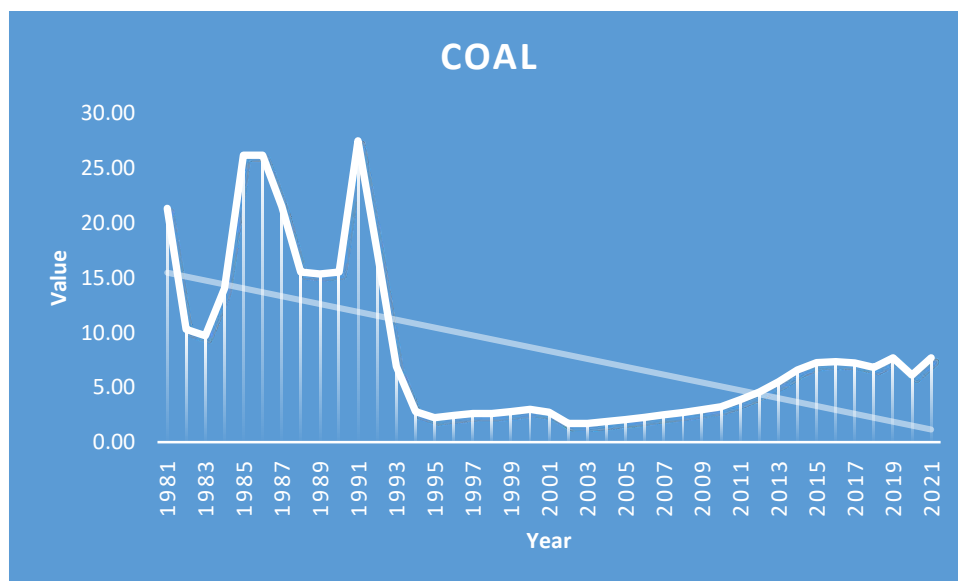


Figure 3.4: Trend in Coal Mining
(Source: Authors Computation, 2023)

Figure 3.4 shows the trend of the value of coal mining in Nigeria to the international market between the year 1981 and 2021. The trend-line in the diagram shows that the value of the coal explored in the country have been downward sloping. Between the year 1981 and 1992 the trend of coal explored in the country have been fluctuating but from the end of 1982 it started declining drastically that it only began picking up from 2011. It was from 2011 that the earnings from this resources started increasing till recent date but the inflow cannot be compared with what was made in the 80s. This is detrimental to her economy because what ought to have provided the country with huge revenue have been less explored and the earnings from this activity have been poorly maintained. The diagram showed that the earnings from coal mining had four peak period which were in 1981, 1985, 1986 and 1991 with values of N21.33, N26.19, N26.19 and N27.50 respectively. After the peak of 1991 the country started experiencing decline in the value of coal earnings in the country.

Trend in Crude Petroleum, Coal Mining, Crop production and GDP in Nigeria

The illustration below depicts the trend of Crude Petroleum, Coal Mining, Crop production and GDP in Nigeria between the year 1981 and 2021. It provides a combined illustration of the values of Crude Petroleum, Coal Mining, Crop production and GDP in Nigeria.

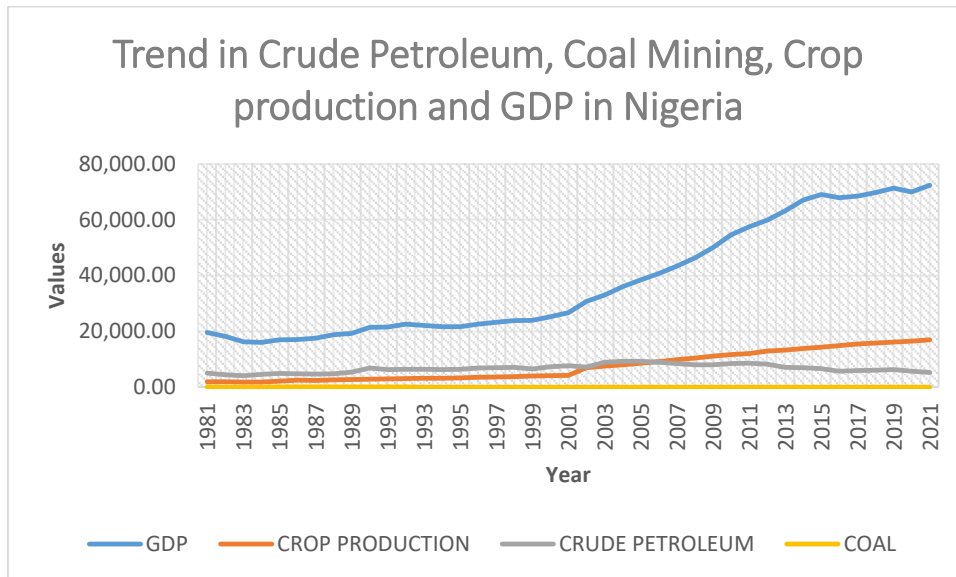


Figure 3.5: Trend in Crude Petroleum, Coal Mining, Crop production and GDP in Nigeria (Source: Authors Computation, 2023)

The illustration above shows the combined graphs for the values of Crude Petroleum, Coal Mining, Crop production and GDP in Nigeria between the period 1981 and 2021. From the diagram since GDP is the summation of revenues that comes into the Nigerian economy it has the highest graph plotted. We can depict from the illustration above that both GDP, crude petroleum, and crop production have been upward sloping though in a fluctuating manner but was different from the earnings from coal mining that had been downward sloping for many years. GDP, crop production and crude petroleum have their highest earnings in 2021 with the values N72, 393.67, N16, 920.52 and N5, 239.05 respectively. Unlike coal mining which had contributed its highest revenue of N27.50 in 1991 to the Nigerian economy.

IV. Methodology

This part of the study would be explaining the methodology adopted in the work.. It is properly detailed below:

Model specifications

The study would be developing the contribution made by Brown & Stephen (2017) in their work natural resources abundance and economic growth in Nigeria. They adopted the Cobb-Douglas function in his study. Based on Brown & Stephen (2017) work the model is specified as follows

$$GDP = \beta_0 + \beta_1 CL + \beta_2 NG + \beta_3 PR + \beta_4 LS + \varepsilon \dots \dots \dots \text{Eq1}$$

Where:

GDP = Gross Domestic product

CL = Coal

NG = Natural Gas

PR = Petroleum and

LS = Limestone

This work would be improving on the model introduced by Brown & Stephen (2017) and it would be shown in the next subsection.

Estimation Techniques

The estimation techniques in this work is the improvement of the previous model introduced by Brown & Stephen (2017). In this work agricultural resources is introduced to represent crop production and other natural resources like crude petroleum and coal resources. The model is shown below:

$$GDP = \beta_0 + \beta_1 COP + \beta_2 CRP + \beta_3 COM + \varepsilon \dots \dots \dots \text{Eq2}$$

Where:

GDP = Gross Domestic Product

COP = Crop Production

CRP = Crude Petroleum and

COM = Coal mined

Data source

The different data used in this work both independent and dependent variables are gotten from CBN Bulletin. The independent variables are crop production, crude petroleum and coal resources. While the dependent variable is GDP (Gross Domestic Product). It is properly shown in the table below:

Table 4.3: Table for variables used

S/N	VARIABLES	SOURCES	SCOPE
1	GDP	CBN Bulletin	1981-2021
2	Crop Production	CBN Bulletin	1981-2021
3	Crude Petroleum	CBN Bulletin	1981-2021
4	Coal Mined	CBN Bulletin	1981-2021

(Source: Authors Computation, 2023)

OLS Test

Sub-section 4.3.1 shows the results of the Ordinary Least Square and interpretation is made as follow.

Dependent Variable: GDP				
Method: Least Squares				
Date: 05/12/23 Time: 15:30				
Sample: 1981 2021				
Included observations: 41				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CROP_PRODUCTION	3.906611	0.075330	51.86025	0.0000
CRUDE_PETROLEUM	-0.467090	0.333979	-1.398561	0.1703
COAL	40.03401	65.97750	0.606783	0.5477
C	11294.12	2671.373	4.227835	0.0001
R-squared	0.988408	Mean dependent var		37710.48
Adjusted R-squared	0.987468	S.D. dependent var		20309.83
S.E. of regression	2273.593	Akaike info criterion		18.38858
Sum squared resid	1.91E+08	Schwarz criterion		18.55576
Log likelihood	-372.9658	Hannan-Quinn criter.		18.44945
F-statistic	1051.629	Durbin-Watson stat		0.605222
Prob(F-statistic)	0.000000			

(Source: Authors Computation, 2023) using E-View12

The result of the Ordinary least Square “OLS” test shows that there is a positive relationship between coal resources and agricultural-resources represented by crop production and GDP. While crude petroleum has a negative relationship with GDP a proxy for economic growth in Nigeria.

The Unit Root Test

After conducting the OLS test it is important to conduct the unit root test and the results are shown in the table below:

VARIABLES	ADF VALUES	CRITICAL VALUES (5%)	STATIONARITY
GDP	3.2883	2.9389	I (1)
CROP PRODUCTION	5.1541	2.9389	I (1)
CRUDE PETROLEUM	5.7020	2.9389	I(1)
COAL MINED	5.6483	2.9389	I(1)

(Source: Authors Computation, 2023) using E-View.

The results for the unit root show that all the variables are significant at first difference. GDP, crop production, crude petroleum and coal have statistical values of 3.2883, 5.1541, 5.7020 and 5.6483 respectively which is greater the critical value of 2.9389. Thus this is motivated to conduct t ARDL and Bound test to check the relationship between the variables. If it is either a short-run or a long-run relationship.

The ARDL Test

After conducting the OLS test and unit root test we would be testing for co-integration among the variables using the ARDL “Auto-Regressive Distributed Lag Test”. The result for the ARDL test is shown below:

Dependent Variable: GDP				
Method: ARDL				
Date: 05/12/23 Time: 18:18				
Sample (adjusted): 1984 2021				
Included observations: 38 after adjustments				
Maximum dependent lags: 4 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (4 lags, automatic): CROP_PRODUCTION				
CRUDE_PETROLEUM COAL				
Fixed regressors: C				
Number of models evaluated: 500				
Selected Model: ARDL (1, 2, 3, 0)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP (-1)	0.848368	0.078008	10.87533	0.0000
CROP_PRODUCTION	1.475440	0.360736	4.090087	0.0003
CROP_PRODUCTION (-1)	-1.796082	0.583977	-3.075604	0.0047
CROP_PRODUCTION (-2)	0.968727	0.449911	2.153154	0.0401
CRUDE_PETROLEUM	1.364079	0.373714	3.650059	0.0011
CRUDE_PETROLEUM (-1)	-1.275285	0.446560	-2.855798	0.0080
CRUDE_PETROLEUM (-2)	0.270640	0.393938	0.687011	0.4977
CRUDE_PETROLEUM (-3)	0.651824	0.300828	2.166765	0.0389
COAL	103.6126	31.31946	3.308249	0.0026
C	-5535.998	1748.262	-3.166572	0.0037

(Source: Authors Computation, 2023) using E-views 12

The result of the ARDL test is significant since the probability of the constant “C” is less than 5% making the result acceptable.

The Bound Test

The result below shows the bound test which is use to signify if there is a short-run or long-run relationship among the variables

ARDL Bounds Test				
Date: 05/12/23 Time: 18:22				
Sample: 1984 2021				
Included observations: 38				
Null Hypothesis: No long-run relationships exist				
Test Statistic	Value	k		
F-statistic	6.755489	3		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.72	3.77		
5%	3.23	4.35		
2.5%	3.69	4.89		

1%	4.29	5.61		

(Source: Authors Computation, 2023) using E-views 12

The results for the bound test show that there is a long-run equilibrium relationship between the variable. We can observe that the f-statistics value of 6.75 is greater than the critical value at 5%

V. Conclusion

This study focused on the relationship between natural resources and economic growth in Nigeria. The scope of the study was between 1981 and 2021 and the data used in the work were gotten from the CBN Bulletin. The study employed different techniques like the OLS (Ordinary Least Square) test, the unit root test, the ARDL (Auto-Regressive Distributed Lag) test, the Bound test and the granger causality test. The result of the granger causality test shows that there is a causal relationship among the variables. While from the OLS the results show that a one percent change in the independent variable would affect the dependent variable by 98%. There results show that while there is a long-run relationship between the independent and dependent variable crude petroleum have a negative relationship with GDP while crop production and coal resources have a positive relationship with GDP which is the proxy for economic growth in Nigeria. It is recommended that the government diversify the economy so that much investment can be provided on other resources so that the Dutch Disease syndrome does linger. Implementation of right policies for the exploration of natural resources is crucial for the growth of the economy.

References

- [1]. Adu, G. (2012). Studies On Economic Growth And Inflation (Vol. 2012, No. 2012: 14).
- [2]. Ahuja, D., & Pandit, D. (2020). Public Expenditure And Economic Growth: Evidence From The Developing Countries. *Fiib Business Review*, 9(3), 228-236.
- [3]. Akanni, O. P. (2007). Oil Wealth And Economic Growth In Oil Exporting African Countries.
- [4]. Amitrano, C. R., & Vasconcelos, L. (2019). Income Distribution, Inflation And Economic Growth: A Post-Keynesian Approach. *Panoeconomicus*, 66(3), 277-306.
- [5]. Bagheri N.N. (2014). The Effect Of Natural Resources Abundance On Economic Growth: A Case Study Of Iran And Natural Resource Curse (Unpublished M.A Degree Thesis), Dept. Of Economics, University Of Ottawa.
- [6]. Brown, E. D., & Stephen, K. (2017). Natural Resource Abundance And Economic Growth In Nigeria (1980–2015). *Global Journal Of Agricultural Research*, 5(3), 1-11.
- [7]. Dada, J. T., Adeiza, A., Noor, A. I., & Marina, A. (2022). Investigating The Link Between Economic Growth, Financial Development, Urbanization, Natural Resources, Human Capital, Trade Openness And Ecological Footprint: Evidence From Nigeria. *Journal Of Bioeconomics*, 1-27.
- [8]. Gylfason, T. And Zoega, G. (2006). Natural Resource And Economic Growth. The Role Of Investment. *World Economy* 29(8), 1091-1115.
- [9]. Ibukun, C. O., & Osinubi, T. T. (2020). Environmental Quality, Economic Growth, And Health Expenditure: Empirical Evidence From A Panel Of African Countries. *African Journal Of Economic Review*, 8(2), 119-140.
- [10]. Lamartina, S., & Zaghini, A. (2011). Increasing Public Expenditure: Wagner's Law In Oecd Countries. *German Economic Review*, 12(2), 149-164.
- [11]. Oaikhinan, P. (2015). *National Mirror Newspaper*.
- [12]. Raggi, A. K. (2017). Natural Resources, Institutions, And Economic Growth: The Case Of Nigeria. *World Bank Policy Research Working Paper*, (8153).
- [13]. Wagner, R. E., & Weber, W. E. (1977). Wagner's Law, Fiscal Institutions, And The Growth Of Government. *National Tax Journal*, 30(1), 59-68.
- [14]. Zallé, O. (2019). Natural Resources And Economic Growth In Africa: The Role Of Institutional Quality And Human Capital. *Resources Policy*, 62, 616-624.