

IMPACT OF NATURAL RESOURCES ON ECONOMIC GROWTH IN NIGERIA: AN EMPIRICAL ANALYSIS FROM (1981-2021)

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Abstract

This 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 have an 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 the 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 have a positive impact on GDP while crude petroleum has a negative impact. The study recommended that proper checks should be made by the government on the growth of this sector as it has a great impact on the growth of the Nigerian economy. Investment should be made by the government to aid the productivity of this sector and thereby triggering the growth of the economy.

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

1. Introduction

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

Globally, there are disparities in natural resources among nations and this determines what different nations are recognized within 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, and 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 their raw state or in 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 is the-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 the 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 has more than fifty-four (54) independent nations within its terrain and all are gifted with these valuables. When compared to other continents there are vast distributions of natural resources in these 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 nature within the country. Different states within her economy are known to possess diverse unique natural resources as compared to other states. Some states in Nigeria and their natural depositions are the 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 is categorized into two based on the earnings from the sector as oil resources and non-oil resources. Oil natural resources entail all the earnings from the oil sector including crude oil and all oil-related products. While the non-oil natural resources involve all the earnings from the country aside from 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 are 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 are very beneficial to the growth of the nation of Nigeria (Zalle, 2019).

Irrespective of the diverse contributions of oil and natural resources to her economy it has initiated what is termed "Dutch Disease Syndrome". What ought to have been beneficial to

the Nigerian economy has imposed some level of setbacks on the nation at large. The discovery of oil has affected other sectors as the situation of diversification previously enjoyed within the nation has been sidelined with the challenge of a mono-cultured system within the nation. Other sectors have been greatly affected because there are fewer contributions made by the government to other sectors of the country (Raggl, 2017).

In reality, the earnings of the Nigerian economy would have been larger if all the discovered natural resources that are traded in the international market from the Nigerian economy are explored. The earnings her economy is enjoying are less than what the nation is blessed with and this has imposed some level of detrimental effects on the nation. This situation has posited that different research is 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 are to check the impact of natural resources on the Nigerian economy and to observe the trend of natural resources and economic growth in Nigeria within the study period which is between 1981 and 2021.

2. Literature Review

2.1 Theoretical Literature

There are diverse theories that are relevant in this work and that is what this section of the work would be focusing on. Some of the theories that are relevant to this work are the Wagner theory and the Keynesian theory which are explained below:

Wagner's theory is one of the recognized theories on government expenditure introduced by Wagner in the late 19th century. The theory gave proper insights into 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 increase 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).

The Keynesian 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 was of believed that the income of workers to increase the activities of a trade union must be effective. Unlike the Keynesian school of thought 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 an increase in productive activities within the state (Ahuja & Pandit, 2020).

2.2 Empirical Review

Different research has been conducted related to the impact of natural resources on economic growth in Nigeria. Some of such research: Adu (2012) studied the relationship between natural resource abundance and economic growth in Ghana. His emphasis was on the long-run relationship between resource abundance in the country and economic growth. He employed the use of econometric techniques like the unit root test and Philip-Hansen to test the relationship between the variables. The findings from the work rejected the occurrence of a 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 the relationship between natural resources, oil rents, and economic growth in most LDCs (Less Developed nations). It was conducted in 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) examined the relationship between natural resources abundance 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 monetary development was the dependent variable. Experimental regression analysis was conducted in his work and the result showed there is a negative relationship between natural resources and development within the period understudied.

Esily *et al* (2023) studied the natural gas, renewable-sourced electricity, and ICT trade on economic growth. The scope of the study for their work was between 1990 and 2020. The study was done on some countries in Africa and data were pooled from nations like Algeria, Nigeria, and Egypt while the data used were natural gas, renewable energy, trade on information, carbon-dioxide emission, and economic growth. The study adopted the use of correlation techniques, descriptive statistics and OLS techniques, and causality tests. The results revealed that there is causality between the independent variables and the dependent variable. They recommended that there is a need for a clean environment via the right policies from the government.

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 an impact on the economic growth of any nation. Also, resource abundance is crucial for the growth of any nation.

Muhammad *et al* (2021) studied the impact of foreign direct investment, natural resources, renewable energy consumption, and economic growth on environmental degradation. The scope of the study was between 1991 and 2018 on BRICs, developing and developed nations. The work adopted the use of a dynamic fixed effect model and GMM. The results revealed that the use of renewable energy helps to curb environmental degradation. It was recommended in the work that natural resources should be adopted so that the constant situation of environmental degradation can be reduced among developing, developed countries and BRICs.

Oaikhinan (2015) researched 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 concerning natural resources within the country. It was emphasized that the discovery of oil within the country has 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.

Tahir *et al* (2022) investigated the relationship between natural resources and economic growth in Brunei Darussalam. The study obtained annual data within the nation understudied between the period 1989 and 2020. The study adopted the use of co-integration techniques and it was revealed that the independent variables which were natural resources, government expenditure, and investment have both short-run and long-run effects on GDP. Zalle (2019) investigated the impact of natural resources on economic growth in Nigeria. The scope of the study was between 2000 and 2015 and samples were obtained from 29 African countries. The study adopted the use of the Autoregressive Distributed Lag (ARDL) model and the results showed that there was average dependence of about 19.53% on the variables. The results revealed that African nations must invest more in human capital to combat corruption for resources curse emphasis on the nation to be reduced.

3. Stylized Facts on Natural Resources and Economic Growth in Nigeria from 1981 to 2021

3.1 Trend in GDP in Nigeria

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

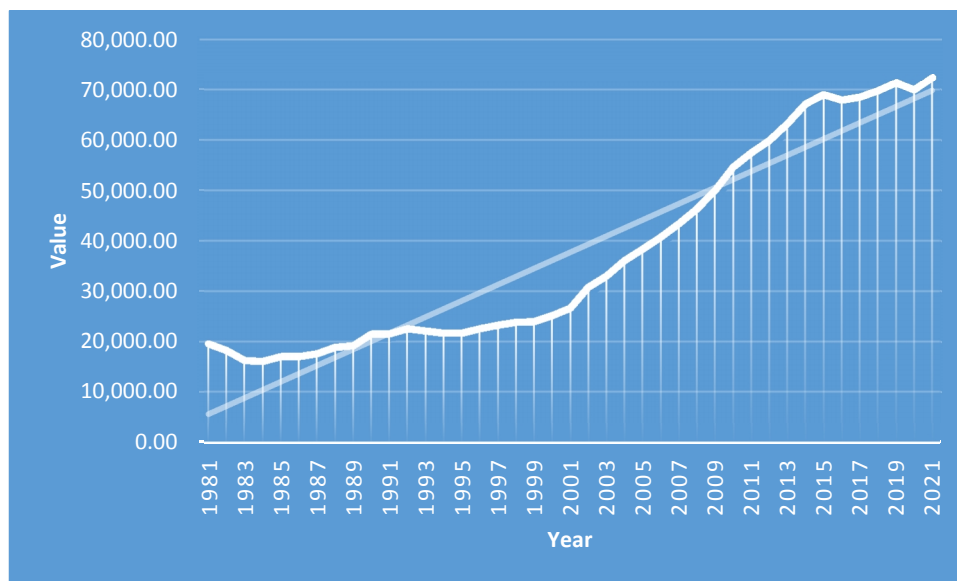


Figure 3.1: Trend in GDP
 Source: Author's representation, 2023

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

3.2 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.

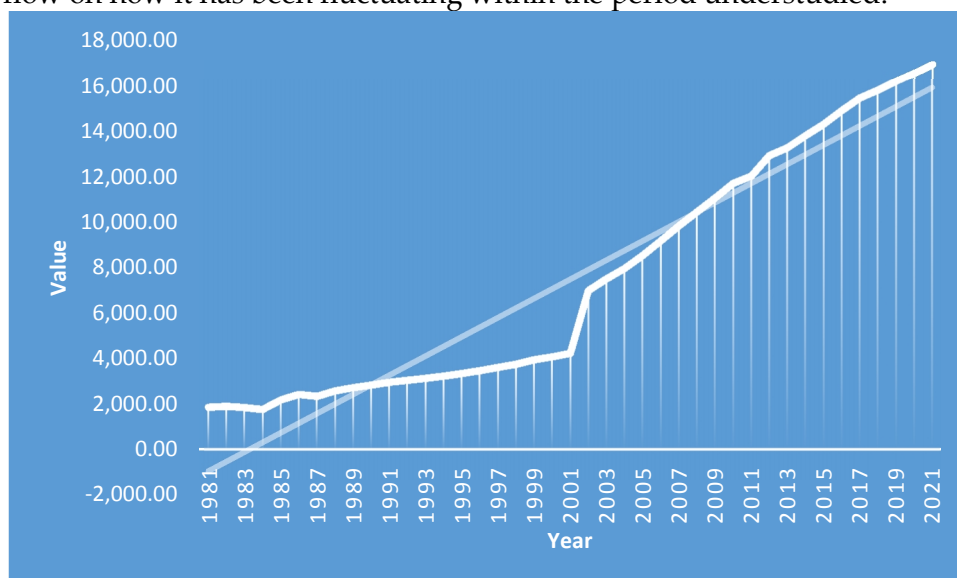


Figure 3.2: Trend in Crop Production
 Source: Author's representation, 2023

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 has been fluctuating but the trend has been upward-sloping. From 1981 its value was N1, 854.76 which was the least value of crop production within her economy. As of 2021, the value of crop production within the Nigerian economy is N16,920.52 which was valued as the highest inflow from the crop production aspect of the country ever made over the last 40 years.

3.3 Trend in Crude Petroleum in Nigeria

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

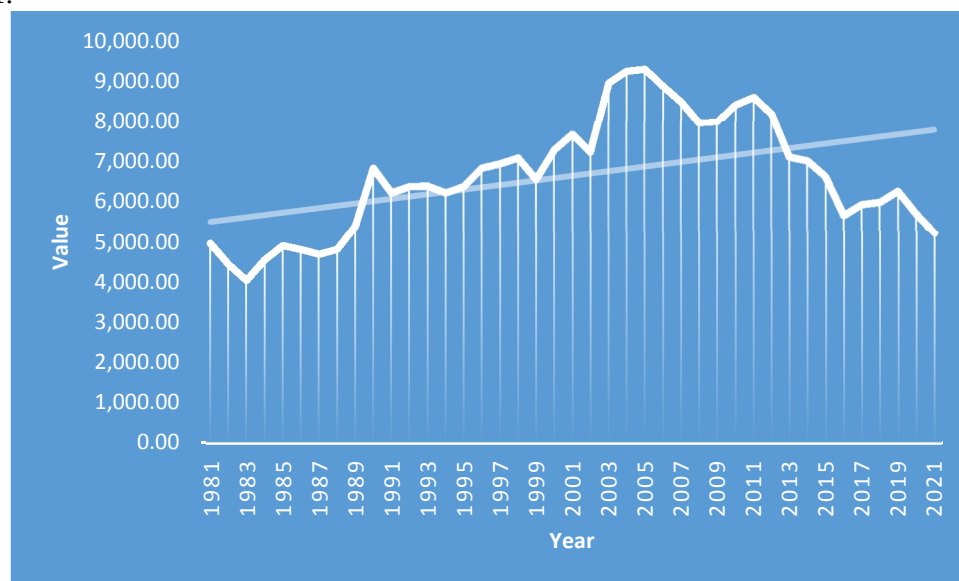


Figure 3.3: Trend in Crude Petroleum

Source: Author's representation, 2023

Different natural resources 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 these natural resources are on a commercial scale and much valued within the country. Figure 3.3 above shows the value of crude petroleum within the country between 1981 and 2021 and it is revealed that it provides the country with the highest level of revenue. From the illustration, we can understand that the inflow of crude petroleum has been fluctuating in a wave-like manner. As of 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 its outputs in crude petroleum have been increasing till 1990 when it had its 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 has been declining presently the inflow from this natural resource is N5, 239.05. From the trend above the trend line shows that the value from the trade of crude petroleum from Nigeria has 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 these natural resources are on the high side rather than constantly fluctuating.

3.4 Trend in Coal Mining in Nigeria

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

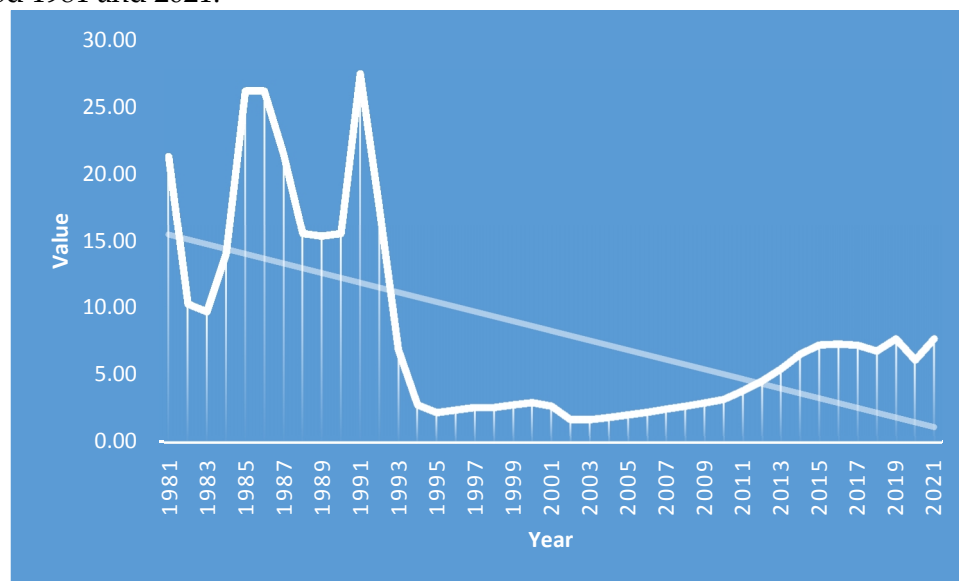


Figure 3.4: Trend in Coal Mining
Source: Author's representation, 2023

Figure 3.4 shows the trend of the value of coal mining in Nigeria to the international market between the years 1981 and 2021. The trend line in the diagram shows that the value of the coal explored in the country has been downward sloping. Between the years 1981 and 1992, the trend of coal explored in the country has been fluctuating but from the end of 1982, it started declining drastically it only began picking up in 2011. It was in 2011 that the earnings from these 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 has 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 periods 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 a decline in the value of coal earnings in the country.

3.5 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 years 1981 and 2021. It provides a combined illustration of the values of Crude Petroleum, Coal Mining, Crop production, and GDP in Nigeria.

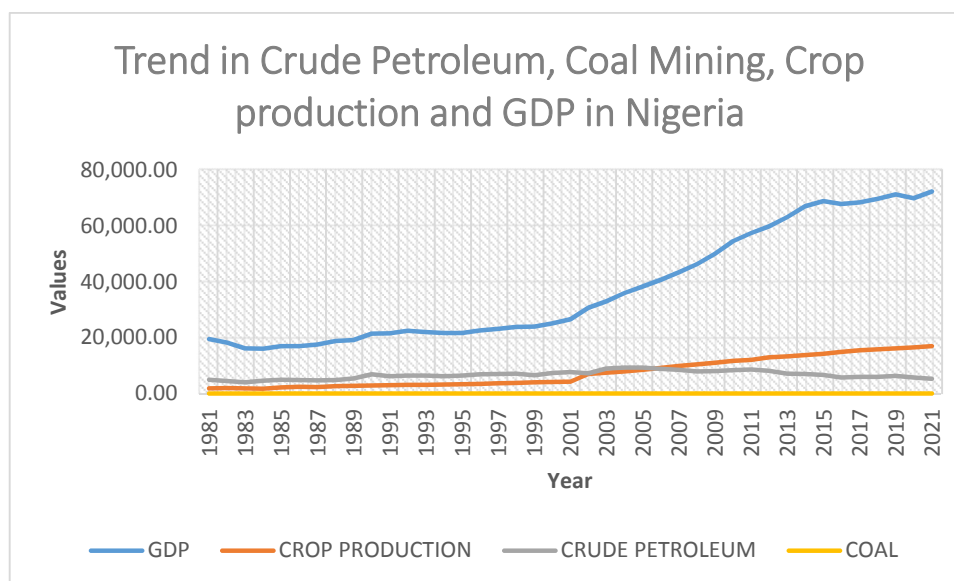


Figure 3.5: Trend in Crude Petroleum, Coal Mining, Crop production, and GDP in Nigeria
 Source: Author's representation, 2023

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.

4. Methodology

This part of the study would be explaining the methodology that would be adopted in the work and the test that would be relevant to the work. It is properly detailed below:

4.1 Model specifications

The study would be developing the contribution made by Brown & Stephen (2017) in their work on natural resource abundance and economic growth in Nigeria. They adopted the known Cobb-Douglas function in his study. Based on Brown & Stephen's (2017) work their model was structured

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

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.

4.2 Estimation Techniques

The estimation technique in this work is the improvement of the previous model introduced by Brown & Stephen (2017). In this work, we would be introducing agricultural resources which are represented by 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

4.3 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). The variables used in this work which were GDP, Crop Production, Crude Petroleum, and Coal Mined were all gotten from CBN Bulletin between the period 1981 and 2021.

4.4 Interpretation of Results

This aspect of the work would be showing the different results from the work after the different techniques employed are shown. The interpretation of the results is shown below:

4.4.1 OLS Test

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

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: Author's Computation, 2023) using Eviews 9

The result of the Ordinary Least Square "OLS" test shows that there is a positive relationship between coal resources and agro-resources represented by crop production and GDP while crude petroleum has a negative relationship with GDP which is the proxy for economic growth in Nigeria.

4.4.2 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: Author's Computation, 2023) using Eviews 9

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 than the critical value of 2.9389. Thus we would be conducting the ARDL and Bound test to check the relationship between the variables; if it is either a short-run or a long-run relationship.

4.4.3 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 of 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 the 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: Author's Computation, 2023) using Eviews 9

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

4.4.4 The Bound Test

The result below shows the bound test which is used 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: Author's Computation, 2023) using Eviews 9

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 values at I0 and I1 bound both at 5% and 10%.

4.4.5 The Granger Causality Test

The next technique that would be employed in this work would be causality and the results are shown and explained below:

Null Hypothesis:	Obs	F-Statistic	Prob.
CROP_PRODUCTION does not Granger Cause GDP	39	4.54432	0.0178
GDP does not Granger Cause CROP_PRODUCTION		1.38410	0.2643
CRUDE_PETROLEUM does not Granger Cause GDP	39	2.75290	0.0780
GDP does not Granger Cause CRUDE_PETROLEUM		2.93229	0.0669
COAL does not Granger Cause GDP	39	2.40143	0.1058
GDP does not Granger Cause COAL		0.25820	0.7739
CRUDE_PETROLEUM does not Granger Cause CROP_PRODUCTION	39	2.63778	0.0861
CROP_PRODUCTION does not Granger Cause CRUDE_PETROLEUM		7.74813	0.0017
COAL does not Granger Cause CROP_PRODUCTION	39	1.86615	0.1702
CROP_PRODUCTION does not Granger Cause COAL		0.42845	0.6550
COAL does not Granger Cause CRUDE_PETROLEUM	39	0.72129	0.4934
CRUDE_PETROLEUM does not Granger Cause COAL		6.78344	0.0033

(Source: Author's Computation, 2023) using Eviews 9

The result of the Granger causality test shows that there is a causal relationship among the variables either among the dependent variable or the independent variables.

5. 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%. Their results show that while there is a long-run relationship between the independent and dependent variable crude petroleum has 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 in other resources so that the Dutch Disease syndrome does linger. Implementation of the right policies for the exploration of natural resources is crucial for the growth of the economy.

References

- Adu, G. (2012). *Studies on economic growth and inflation* (Vol. 2012, No. 2012: 14).
- Ahuja, D., & Pandit, D. (2020). Public expenditure and economic growth: Evidence from the developing countries. *FIIB Business Review*, 9(3), 228-236.
- Akanni, O. P. (2007). Oil wealth and economic growth in oil-exporting African countries.
- Amitrano, C. R., & Vasconcelos, L. (2019). Income distribution, inflation, and economic growth: A post-keynesian approach. *Panoeconomicus*, 66(3), 277-306.
- 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.
- 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.
- 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.
- Esily, R. R., Chi, Y., Ibrahim, D. M., Houssam, N., & Chen, Y. (2023). Modeling natural gas, renewables-sourced electricity, and ICT trade on economic growth and environment: evidence from top natural gas producers in Africa. *Environmental Science and Pollution Research*, 1-17.
- Gylfason, T. and Zoega, G. (2006). Natural Resource and Economic Growth. The Role of Investment. *World Economy* 29(8), 1091-1115.
- 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.
- Lamartina, S., & Zaghini, A. (2011). Increasing public expenditure: Wagner's law in OECD countries. *German Economic Review*, 12(2), 149-164.
- Muhammad, B., Khan, M. K., Khan, M. I., & Khan, S. (2021). Impact of foreign direct investment, natural resources, renewable energy consumption, and economic growth on environmental degradation: evidence from BRICS, developing, developed and global countries. *Environmental Science and Pollution Research*, 28, 21789-21798.
- Oaikhinan, P. (2015). National Mirror Newspaper.
- Raggl, A. K. (2017). Natural resources, institutions, and economic growth: the case of Nigeria. *World Bank Policy Research Working Paper*, (8153).
- Tahir, M., Burki, U., & Hayat, A. (2022). Natural resources and economic growth: evidence from Brunei Darussalam. *International Journal of Emerging Markets*, (ahead-of-print).
- Wagner, R. E., & Weber, W. E. (1977). Wagner's law, fiscal institutions, and the growth of government. *National Tax Journal*, 30(1), 59-68.
- Zallé, O. (2019). Natural resources and economic growth in Africa: The role of institutional quality and human capital. *Resources Policy*, 62, 616-624.

Data

	GDP	CROP_PRODUCTI ON	CRUDE_PETROLEU M	COAL
1981	19549.5629013500 3	1854.764438145006	4977.416701644246	21.32568390837151
1982	18219.2683101891 7	1897.078851055603	4453.093632644905	10.28870714877573
1983	16228.8070974326	1842.704310632405	4052.97767901869	9.727504940660692
1984	16048.3077548966 1	1759.115150976094	4559.196208838933	14.030055202876
1985	16997.5182675707 1	2180.907714067702	4918.27249673693	26.18943637870186
1986	17007.7746750116 8	2427.100661911165	4825.497515244412	26.18943637870186
1987	17552.1034711813 6	2329.99584211142	4704.423428605457	21.51275131107653
1988	18839.5500605357 8	2581.595054012257	4828.682260585983	15.5265944245161
1989	19201.1646042821 6	2710.674806712869	5407.009456851912	15.33952702181109
1990	21462.7337224255 7	2828.589584468842	6831.767684420902	15.5265944245161
1991	21539.6138304878 2	2955.875913035038	6224.452065627731	27.49890819763696
1992	22537.0957766348 7	3044.552159236105	6381.259613755922	17.39726845156624
1993	22078.0721365684 3	3132.843728956165	6394.602562571442	6.921493900085494
1994	21676.8514173152 2	3226.82955026127	6229.458633001666	2.8060110405752
1995	21660.4870728757 9	3336.541361976343	6375.970582217108	2.24480883246016
1996	22568.8667259409 7	3462.995957610635	6832.836739873835	2.431876235165173
1997	23231.1231255569 7	3611.905263073995	6933.580952552158	2.618943637870187
1998	23829.7584260223 4	3752.769631753517	7083.9875736287	2.618943637870187
1999	23967.5914196227 1	3949.415209177317	6552.688505606546	2.8060110405752
2000	25169.5387902689 4	4067.897644659312	7281.943860713054	2.993078443280214
2001	26658.6212924603 6	4222.477407763278	7662.979863659122	2.729950668046787
2002	30745.1920571774	6977.878784495848	7225.678211785549	1.706219167529242

2003	33004.7963398978 1	7493.024198116348	8952.615174887989	1.706219167529242
2004	36057.7377757671 5	7956.655070374798	9248.051625623226	1.876841084282166
2005	38378.7960609141 5	8524.146879661078	9294.051434409076	2.064525192710383
2006	40703.6813830967 4	9162.650259742839	8874.699937522212	2.270977711981421
2007	43385.8770815598 1	9826.76908787918	8471.948320343439	2.497972945362297
2008	46320.0149440126 6	10437.99412841721	7947.718348250625	2.717322693234128
2009	50042.3606485094 1	11046.15558856236	7983.627959025299	2.957853635359966
2010	54612.2641765779 6	11683.89637	8402.676400187536	3.218230839820036
2011	57511.0417650380 8	12017.19200093509	8598.636620990215	3.874693462169545
2012	59929.8930440608	12919.54204917105	8173.255825301851	4.576632821156156
2013	63218.7217300189	13247.80179981803	7105.283395381925	5.496763991160013
2014	67152.7858352847 4	13793.45000954185	7011.814765470598	6.587695400142268
2015	69023.9299433854 8	14274.93673531075	6629.963748899674	7.272054751415872
2016	67931.2359268810 9	14894.44782178078	5672.207007787892	7.344651023015671
2017	68490.9803364586 9	15437.04970184323	5938.047686387141	7.238004397204009
2018	69799.9419483359 6	15786.43768382001	5995.875070948249	6.8172271975269
2019	71387.8266741663 6	16181.99297522039	6270.859165594114	7.713632077399634
2020	70014.3718479425	16544.5205637211	5713.195884783844	6.132691215681922
2021	72393.6734436773 8	16920.52388066617	5239.054380273879	7.71169697295401