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The Connection between Oil Revenue, Health Expenditure and Nigerian Economic Growth (1980-2020)

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ABSTRACT: This study attempts to examine the nature of the relationship between Oil Revenue, Health Expenditure and Nigerian Economic Growth. The nexus between these variables has come under scrutiny as mixed evidence have been found in the literature about their contribution to the Nigerian economic growth within the study period. The study made used of ARDL and Bound Co-integration test to analyze the short and long run relationships between the variables. The results show that the co-efficient of determination (R^2) indicates that about 99.8% of the variations in LRGDP is explained by the independent variables. Long-run dynamics of the relationship between real gross domestic product and the independent variables are LGHEX, LOILR, and MS. There is no significant relationship between LRGDP and LOILR, LGHEX, LMS and CPI which indicate that no long run relationship exists among the variables in the model. Short-run dynamic model estimated in this study shows that ECT (-1) value is negative and significant at 1% level of significance. The negative and significant value of the error correction term which is -0.070 (p = 0.0016) indicates that the model is stable at 1% significance level. The Study recommends among other things that the Federal Government should increase the pay pegged to the work hours of nurses and doctors in Nigeria, increase the availability of health workers and subsidize usage of healthcare facilities to enable more people to contribute to Nigeria's economic growth.

KEYWORDS: Oil Revenue, Health Expenditure, Economic Growth, Nigeria and ARDL

I. INTRODUCTION

Petroleum, limestone, columbine, iron ore, and other natural resources are found in Nigeria. Prior to the discovery of crude oil, Nigeria's national income was mostly derived on the export of basic commodities like cocoa, palm oil, rubber, and groundnuts (Ali, 2019). Then, farming provided a living for around 60% of the labour force. Thus, in the 1980s, there was a drift away from agrarian monoculture toward a reliance on the production and exportation of petroleum. The oil industry contributed 22% of Nigeria's GDP, 80% of the country's overall government revenue, and 90% of its export revenues. Also, the structure of the policy framework encouraged import substitution with little incentives for non-oil exports. (Ali, 2019)

Royal Dutch Shell-BP made the oil discovery in Nigeria in 1956, near Oloibiri, specifically in Bayelsa State of the Niger Delta (Onaolapo, Fasina & Adegbite, 2018). Soon after, offshore production started in the coastal community of Nigeria when Nigeria's first oil field began producing 5,100 bpd in 1958, and it became a producer of oil (Onaolapo, Fasina & Adegbite, 2018). Other foreign businesses were given access to exploration rights in onshore and offshore regions bordering the Niger Delta after 1960. One of the biggest industries in Africa is the oil and gas sector and it is in Nigeria. About 90% of foreign exchange earnings and 80% of federal revenue were derived from oil, which also helped to increase the GDP growth rate (World Bank, 2012). The petroleum sector has not only played a dominant and strategic role in the economic growth of Nigeria, but also fundamental in the development of the health sector.

Although the Nigerian oil industry was established at the turn of the century, it was not until the end of the country's civil war (1967–1970) that it really started to dominate the economy of the nation (Adegbie and Fakile, 2018). Nigeria, which has the second-largest oil reserves in Africa, has long been the continent's top oil producer behind Libya. Nigeria has the tenth-largest global oil reserves (Omoregie, 2019).

According to Moradi (2017), illegal oil bunkering in Nigeria is one of the ongoing issues that has had a significant impact on these countries' oil revenues. According to a recent analysis by the Nigerian Navy, crude oil theft costs the nation over $20 billion yearly, and in 2016 alone, oil thieves stole an average of 1,656,281 barrels every month, or 55,210 barrels per day (Khadijat & Taophic, 2018). On the other hand, a special report by the United States Institute of Peace, an independent, nonpartisan organization, in 2016 revealed that oil thieves operating in the coast of Cabinda carted away between 30,000 and 300,000 barrels of oil per day and that approximately US$100 billion was lost from the region's oil production.

According to a similar assessment from the UN's office for drugs and crime in 2009, up to 150,000 barrels of crude oil are stolen from the Niger Delta each day, costing the nation $6 billion a year (Khadijat & Taophic, 2018). Therefore, the three main objectives of this study are to determine the impact of oil revenue on Nigeria's health expenditure, the impact of oil revenue and health expenditure on the country's economic growth, and the causal relationship between oil revenue, health expenditure, and economic growth in Nigeria.

Health expenditures cover all costs associated with providing health services, family planning, nutrition, and emergency help with a focus on health, but do not include costs associated with providing clean water and sanitation (Adedeji & Oboh, 2017). A vital part of health systems is health financing. According to Abdul-Rahamoh, Taiwo, and Adejare (2017), national health accounts offer a broad range of indicators based on data on expenditures gathered within an internationally acknowledged framework.

Public consumption, public investment, and transfer payments made up of income transfers (pension, social benefits) and capital transfers are all included in what is referred to as government expenditure (Aregbeshola & Khan, 2020).

II. LITERATURE REVIEW

In many developing countries, oil and gas extraction is a significant source of export revenue and, to a lesser extent, of employment. But the fiscal role that the oil and gas sector play in generating tax and other government money is the greatest significant advantage for a country from its development (Nour, 2016). The fiscal system must be carefully planned to guarantee the state, as the owner of the resource, receives a proportionate share of the economic rent produced by oil and gas exploitation. The ground is a significant asset that belongs to the government as resource owner. This resource, which is a deposit of crude oil or natural gas, can only be used once. The government must attract capital on terms that ensure it receives the best value for its resistance in the face of uncertainty regarding the worth of the resources to convert this asset into financial resources (Naomi & Sule, 2015).

The upstream, downstream, and services sectors make up the bulk of Nigeria's oil business (Success, Success & Ifurueze, 2016). Crude oil and gas exploration and production are what define the upstream industry. The upstream sector is the most significant economic sector, contributing more than 90% of the nation's exports and 80% of federal government revenue (Saheed, Abarshi & Ejide, 2014). Three distinct basins—the onshore Anambra, the offshore Benin/Dahomey, and the Niger delta—produce crude oil. The Niger Delta and Benin basins, which contain most reserves and are also the source of the current production, have been acknowledged as the richest basins. According to Perry, Ogunkola, Olivera, and Fowowe (2017), the joint venture, production-sharing contracts, service contracts, and marginal field concessions are the main types of oil and gas agreements in Nigeria's upstream sector. Transporting crude oil to refineries, refining the crude, and distributing and marketing refined petroleum products are the major characteristics of the downstream industry. There are four refineries in Nigeria, two of which are in Port Harcourt, one in Warri, and one in Kaduna. Since these refineries are not operating at full capacity, the nation must import refined petroleum products to satisfy domestic demand. The Department of Petroleum Resources (DPR) oversees these actions to prevent the importation of subpar goods. For Nigeria's growth and development as a nation, the oil and gas sector are crucial. About 90% of Nigeria's foreign exchange revenues and 83% of its GDP come from oil and gas (Success, Success and Ifurueze, 2012).

Recurrent expenditure, according to Ayunku and Etale (2015), includes all payments made for items other than capital assets, such as wages and salaries, employer contributions, interest payments, subsidies, and transfers. It also includes payments made for goods and services.

Recurrent spending on goods and services, according to Ayange, Udo, Abner, and Ndubuaku (2020), is spending that does not lead to the production or acquisition of fixed assets (new or second-hand). It mostly comprises of spending on wages, salaries, and other compensation, buying products and services, and using up fixed assets.

The nation's defense, infrastructure, health, and welfare are all supported by government spending. Governments also support emerging industries or sectors like agriculture and transportation that cannot grow their businesses through private sector investment. While unemployment benefits depend on the economic cycle, that is, whether the economy is in a recession or an upswing, transfer payments for pensions are a less flexible tool of fiscal policy (Apanisile & Okunlola, 2014). In contrast, income

transfers in the form of financial and fiscal incentives to private businesses encourage investment and employment. In this way, government spending makes it possible to redistribute income.

In developing economies, spending on health is strategically important for the oil and gas sector. The processes and causal pathways that underpin the complex link between health and income are crucial to developing policies that improve health, reduce poverty, and reduce inequality around the world. This is seen as challenging, uncertain, and only partially understood (Adekanola, 2018). Everyone is aware of the significance of health as a fundamental human right. Health, in the opinion of Adedeji and Oboh (2017), is a form of empowerment that gives human life value. Individual growth potential and financial security for people and their families will result from it. Since the 1960s, there has been significant worry about the rising percentage of government money going into health care spending in all developing economies. As a result, a lot of study has concentrated on figuring out what causes increases in health care cost. Government money has been noted as having the greatest influence (Adegbie & Fakile, 2018). A positive correlation between government revenue and health care spending may exist for a variety of reasons.

Theoretical Literature

Keynes was one of the most well-known economists who examined the link between public spending and economic growth due to his opposing perspective on the matter. Keynes views government spending as an exogenous force that may be used as a tool to advance economic progress. According to Keynesian theory, government spending can promote economic expansion. Therefore, through multiplier effects on aggregate demand, an increase in government consumption is likely to result in an increase in employment, profitability, and investment. Government spending increases aggregate demand as a result, which leads to higher output depending on expenditure multipliers.

The Solow Growth Theory

Solow's model was first propounded in 1956 by Robert Solow and T.W. Swan. They also go by the names Solow-Swan model and Solow model. In Solow's model, population growth and saving/investment rates play significant roles in determining economic growth. Higher rates of saving and investment result in greater capital accumulation per worker and, consequently, greater output per worker. On the other hand, rapid population growth is bad for the economy since it requires more savings to maintain the same capital-to-labour ratio in countries with rapid population expansion. Because of diminishing returns, an increase in capital per worker would not be matched by a comparable rise in output per worker in the absence of technical development and innovation. Chude and Chude (2013) pointed out that capital deepening would reduce the rate of return on capital.

Peacock and Wiseman's Theory of Expenditure

Peacock and Wiseman (1961) put up an alternate model of the factors that influence government spending, which contends that during times of adversity like war, starvation, and drought, individuals are more likely to be willing to pay higher taxes, leading to an increase in government expenditures. They found that when government spending rises momentarily during a crisis, people anticipate a quick return to normalcy once the crisis is over. However, government revenue is shifting upward, making it potentially impossible for the government to cut spending even after the crisis, to its original level. Barro (1987) in a study in the United Kingdom, provided an argument in support of Peacock and Wiseman (1961). However, Barro (1987) also finds that temporary increase in government military spending influences macroeconomic variables like interest rate as compared to a permanent increase.

Empirical Literature

A study on the impact of the petroleum profit tax (PPT) on the Nigerian economy from 1970 to 2010 was conducted by Fasina and Adegbite (2016). They used exchange rate, inflation, petroleum profit tax, and Gross Domestic Product (GDP), as factors for the study. The data were analyzed using multiple regression. The study discovered that natural resources had a favourable correlation with economic growth and development and that crude oil money had been immensely helpful to Nigeria's economy during the review period.

Serdar (2015) looked at the connection between Turkish government spending and economic expansion. A Feder-Ram Approach was used in the study as an estimating method. According to the results, there was a positive correlation between government health spending and economic growth during the study period. In other words, as government spending on health care improves, economic growth increases as well. In a related study, Bakare and Olubokun (2011) looked at economic growth and health care spending in Nigeria. The estimating method used in the study was ordinary least square. The study's findings showed a strong and favourable correlation between health care spending and economic growth in Nigeria throughout that time. Idowu Daniel (2014) looks at how Nigeria's economic growth as it is impacted by health. Co-integration and Granger Causality techniques were applied to the analysis of Nigerian quarterly time series data from 1995 to 2009. According to the study, per capita GDP is driven by health

indices, which have a positive long-term impact on GDP. It demonstrates that economic growth is influenced by health indices. Therefore, the effects of health are long-term occurrences. The study's main policy recommendation is that, especially if the population's health is currently in poor shape, increasing it can lead to rapid economic growth.

The impacts of crude oil prices on agricultural production in Nigeria between 1981 and 2010 were examined by Binuomote and Odeniyi (2018). Augmented-Dickey Fuller (ADF), unit root test, co-integration test, and Error Correction Model were the analytical techniques used in the study. In contrast to currency rate, labour, and capital, which are long-term factors of agricultural production, the study found that crude oil is a significant short-term determinant of agriculture. The outcomes further demonstrated that the error correction mechanism (ECM) revealed feedback of around 112.5% of the long-run domestic agriculture production disequilibrium from the previous year. Onaolapo, Odularu (2018) examined the connection between crude oil production and Nigeria's economic growth. The study, which used the Least Squares Regression approach, demonstrated how domestic crude oil consumption and exports have improved the Nigerian economy. Ogbonna and Ebimobowei (2018) investigated how oil money affected the Nigerian economy. The Pearson Correlation Coefficient, Ordinary Least Squares Method, and Descriptive Statistics were utilized to examine both primary and secondary data. The study's conclusions showed that petroleum revenue had a favourable impact on Nigeria's GDP and per capita income.

Gopar, Dalyop, and Yusuf (2017) conducted a longitudinal study to examine the effects of Nigeria's petroleum earnings tax on economic growth. The study looked at the relationship between Nigeria's economic growth from 1999 to 2015 and the tax on petroleum revenues. The Central Bank of Nigeria Statistical Bulletin, 2015 edition, the Annual Report and Accounts of the CBN, for 2014, and journal articles were used to gather pertinent information on real gross domestic product, petroleum profits tax, companies' income tax, and value added tax. The regression line was estimated using ordinary least squares (OLS), the stationarity of the variables was tested using the Correlogram Q-Statistics, and long-term relationships between the variables were established using the Johansen Cointegration test, and the nature and direction of the causal relationship between the petroleum profits tax and economic growth in Nigeria during the relevant years were determined using the Granger causality test. The report suggested, among other things, that the government should diversify the economy and enhance the business climate to promote trade and business, which can increase the tax base at its disposal.

The impact of the petroleum profit tax on the profitability of Nigeria's publicly traded oil and gas businesses was examined by Gbegi, Adebisi, and Bodunde (2017). Ten (10) chosen oil and gas companies' financial statements for the years 2011 to 2015 were used to gather secondary data. To determine the impact of PPT rate on the profitability of oil and gas enterprises, panel data was used along with both descriptive statistics and multiple regression techniques. Oil and gas companies' profitability was found to be significantly impacted by the petroleum profit tax. According to the report, the profitability of the oil and gas businesses is negatively impacted by the taxes paid by those industries. In their recommendation, government should reduce tax rate to enable oil and gas firms strives, especially during this economic recession.

In Nigeria, the relationship between the petroleum profit tax, the personal income tax, and economic growth was examined by Lyndon and Paymaster (2016). The CBN Statistical Bulletin was used to gather data for the study from 2005 to 2014. The Ordinary Least Squares (OLS) method was used in the investigation. The analysis's findings demonstrated a strong positive association between personal income tax and economic growth for both the petroleum profit tax and other taxes. Based on the findings, the study recommended that government should strengthen the tax administration system to broaden the tax income and embark on tax education to ensure voluntary tax compliance.

Ogbonna and Bimobowei (2018) used the co-integration test and Granger Causality test as a method to study the Petroleum Profit Tax and Economic Growth of Nigeria from 1970 to 2010. The results of the co-integration test showed that economic growth and the petroleum profit tax have a long-term link. The granger causality test also demonstrated that the petroleum profit tax has a causal effect on Nigeria's economic expansion. Additionally, it was discovered that Nigeria's economic growth for the studied year was significantly influenced by the petroleum profits tax.

Whether corporate tax evasion practices improve shareholder interests, was explored by Desai and Dharmapala (2019). The OLS estimates indicated that the average effect of tax avoidance on firm value is not significantly different from zero but is positive for well governed firms as predicted by an agency perspective on corporate tax avoidance. The IV estimates yield larger overall effects and reinforce the basic result that higher quality firm governance leads to a larger effect of tax avoidance on firm value. Taken together, the results suggest that the simple view of corporate tax avoidance as a transfer of resources from the state to shareholders is incomplete given the agency problems characterizing shareholder-manager relations.

III. METHODOLOGY

This research work made used of annual time series secondary data on oil revenue, domestic sales of oil, export of crude oil and Gas and total government expenditure on health in Nigeria. The data cover the periods between 1980 to 2020 due to lack of data

availability. The data are sources from different database which include; the Central Bank of Nigeria (CBN) statistical bulletin and annual reports and World Bank Database.

Model Specification

$$\Delta \ln GHEX_t = \alpha_0 + \sum_{i=o}^{p} \gamma \Delta \ln GHEX_{t-i} + \alpha_1 \Delta \ln OILR_t + \alpha_2 \Delta \ln CPI_t + \alpha_3 \Delta \ln RGDP_t$$
$$+ \sum_{i=o}^{p} \alpha_1 \Delta \ln OILR_{t-i} + \sum_{i=o}^{p} \alpha_2 \Delta \ln CPI_{t-i} + \sum_{i=o}^{p} \alpha_3 \Delta \ln RGDP_{t-i} + \rho ECM_{t-1} + \varepsilon_t$$

The long run effect of oil revenue on health expenditure, the model is expressed as;

$$GHEX_t = f(OILR_t, CPI_t, RGDP_t, \varepsilon_t)$$
$$\ln GHEX_t = \alpha_0 + \alpha_1 \ln OILR_t + \alpha_2 \ln CPI_t + \alpha_3 \ln RGDP_t + \varepsilon_t$$

Where Δ is the first-difference operator and $\alpha_0, \alpha_1, \alpha_2, \alpha_3$ are the coefficients.

RGDP = Real Gross Domestic Product
GHEX=Total government health expenditure
OILR=Oil Revenue
CPI=Consumer Price Index
ε *= Error Term*

$$\Delta \ln RGDP_t = \beta_0 + \sum_{i=o}^{p} \gamma \Delta \ln RGDP_{t-i} + \beta_1 \Delta \ln OILR_t + \beta_2 \Delta \ln GHEX_t + \beta_3 \Delta \ln CPI_t + \beta_4 \Delta \ln MS_t$$
$$+ \sum_{i=o}^{p} \beta_1 \Delta \ln OILR_{t-i} + \sum_{i=o}^{p} \beta_2 \Delta \ln GHEX_{t-i} + \sum_{i=o}^{p} \beta_3 \Delta \ln CPI_{t-i} + \sum_{i=o}^{p} \beta_4 \Delta \ln MS_{t-i} + \rho ECM_{t-1} + \varepsilon_t$$

The long run effect of oil revenue and health expenditure on economic growth, the model is expressed as;

$$RGDP_t = f(OILR_t, GHEX_t CPI_t, MS_t, \varepsilon_t)$$
$$\ln RGDP_t = \beta_0 + \alpha_1 \ln OILR_t + \beta_2 \ln GHEX_t + \beta_3 \ln CPI_t + \beta_4 \ln MS_t + \varepsilon_t$$

Where Δ is the first-difference operator and $\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4$ are the coefficients.

RGDP = Real Gross Domestic Product
GHEX=Total government health expenditure
OILR=Oil Revenue
CPI=Consumer Price Index
MS= Broad Money Supply
ε *= Error Term*

IV. RESULT INTERPRETATION AND DISCUSSION OF FINDINGS

Descriptive Analysis

The average real gross domestic product (RGDP) is ₦36,843.40b with median RGDP of ₦25,914.08b indicating that RGDP is positively skewed. The standard deviation of 19785.11 shows a widespread across the average value, a minimum value of 16048.31 and a maximum value of 71387.83. Also, the average oil revenue (OILR) ₦2,487.90b and median OILR of ₦1,411.26b indicates that OILR is positively skewed. From the result, the standard deviation 2712.807 shows a widely spread series with a minimum value of 7.253000 and maximum value of 8878.97. Similarly, the total government health expenditure (GHEX) on average is ₦82.33534b indicating a positive skewness given the median value of ₦20.58052b. As indicated by the value of the standard deviation (115.8820), there is evidence of wide variability from the average value with a minimum value of 0.041315 and a maximum value of 423.3298.

The average consumer price index (CPI) in Nigeria of 17.39032 percent with median CPI of 11.94646 percent indicates that CPI is positively skewed. A standard deviation of 18.42718 percent indicating a small spread across the average CPI with a minimum and maximum value of 0 and 76.75887, respectively. Finally, the average money supply (MS) of ₦459.9046b and median of ₦30.52860 shows that money supply is positively skewed, minimum MS of 0 and maximum MS of 4027.902 with standard deviation of 898.039 indicating relative spread across the average value of MS. Conclusively, RGDP, OILR, GHEX, CPI and MS are positively skewed with RGDP having a widespread.

Table 1. Summary Statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
RGDP	36843.40	25914.08	71387.83	16048.31	19785.11
OILR	2487.900	1411.264	8878.97	7.253000	2712.807
GHEX	82.33534	20.58052	423.3298	0.041315	115.8820
CPI	17.39032	11.94646	76.75887	0.000000	18.42718
MS	459.9046	30.52860	4027.902	0.000000	898.0391

Source: Author's Computation 2023

Analysis of Correlation among the Variables

Multicollinearity may not be a severe problem if the magnitude of the correlation coefficient is low. Thus, testing for correlation among the variables in the model helps to avoid the problems of multicollinearity. However, a high correlation coefficient of 0.8 above is a pointer that there is a severe problem of multicollinearity in the model. Table 2 shows that the highest correlation coefficient and their associated probability. From the result, total health expenditure (LGHEX), oil revenue (LOILR) and money supply (LMS) have significant correlation with economic growth (LRGDP) in Nigeria. Furthermore, oil revenue (LOILR) and money supply (LMS) have significant correlation on Nigeria's total health expenditure (LGHEX). In all, there is no correlation coefficient that exceeds 0.5. This implies that the correlation between any two variables in the model is low or moderate.

Table 2: Correlation Matrix

Correlation Probability	LRGDP	LGHEX	LOILR	LMS	CPI
LRGDP	1.000000				

LGHEX	0.929458	1.000000			
	0.0000	-----			
LOILR	0.885077	0.966329	1.000000		
	0.0000	**0.0000**	-----		
LMS	-0.600123	-0.353214	-0.247381	1.000000	
	0.0000	**0.0254**	**0.1238**	-----	
CPI	-0.207504	-0.134388	-0.116431	0.214204	1.000000
	0.1989	**0.4084**	**0.4743**	**0.1844**	-----

Oil revenue and health expenditure on economic growth in Nigeria

Lag selection

The optimum lag selection is at lag 2 because it has the lowest log likelihood, Akaike information criteria, schwarz information and Hannan-Quinn information criteria.

Table 3: Lag Length Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1098.980	NA	349.0892	25.72046	25.92023	25.80086
1	-572.0367	955.8503	0.005217	14.60550	16.20368*	15.24870*
2	-517.9258	89.34586*	0.004733*	14.48665*	17.48323	15.69263

Source: Author's Computation 2023

Table 4:.Bound Cointegration Test

Critical value	F- Statistics	Lower Bound Value	Upper Bound Value
10%	2.81	2.45	3.52
5%		2.86	4.01
2.5%		3.25	4.49
1%		3.74	5.06

Source: Author's Computation, 2023

ARDL Analysis of effect of oil revenue and health expenditure on economic growth in Nigeria

From the table, the co-efficient of determination (R^2) indicates that about 99.8% of the variations in LRGDP is explained by the independent variables. The adjusted R^2 further confirms that 99.7% of the variations in LRGDP will still be explained by the explanatory variables. Also, the Durbin Watson statistics of 2.27 suggests the absence of serial correlation. The F-statistics is highly significant at all levels of significance (0.0000).

Table 5: ARDL Estimate

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LRGDP (-1)	1.179227	0.136090	8.665074	0.0000
LRGDP (-2)	-0.240167	0.124999	-1.921356	0.0657
LOILR	0.014752	0.013835	1.066236	0.2961
LOILR (-1)	0.021432	0.015480	1.384474	0.1780
LGHEX	-0.020404	0.009591	-2.127420	0.0430
LMS	-0.001733	0.003103	-0.558672	0.5812
CPI	-0.000584	0.000368	-1.587055	0.1246
CPI (-1)	-9.54E-05	0.000463	-0.206288	0.8382
CPI (-2)	0.000702	0.000451	1.556731	0.1316
CPI (-3)	-0.001247	0.000384	-3.244668	0.0032
C	0.508124	0.414227	1.226679	0.2309

R-squared	0.997780	Mean dependent var	10.42493
Adjusted R-squared	0.996926	S.D. dependent var	0.516991
S.E. of regression	0.028665	Akaike info criterion	-4.024486
Sum squared resid	0.021364	Schwarz criterion	-3.545565
Log likelihood	85.45299	Hannan-Quinn criter.	-3.855644
F-statistic	1168.399	Durbin-Watson stat	2.275744
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source: Author's Computation, 2023

ARDL Analysis of the long run effect of oil revenue and health expenditure on economic growth

Table 6 shows the long-run dynamics of the relationship between real gross domestic product and the independent variables are LGHEX, LOILR, CPI and MS. There is no significant relationship between LRGDP and LOILR, LGHEX, LMS and CPI which indicate that no long run relationship exists among the variables in the model.

Table 6: Cointegration and long run

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOILR	0.576459	0.360678	1.598264	0.1216
LGHEX	-0.295211	0.279110	-1.057685	0.2996
LMS	-0.021302	0.036892	-0.577402	0.5685
CPI	-0.017904	0.012289	-1.456902	0.1567
C	8.344312	1.226985	6.800666	0.0000

Source: Author's Computation, 2023

ARDL Analysis of the short run effect of oil revenue and health expenditure on economic growth

The short-run dynamic model estimated in this study shows that ECT (-1) value is negative and significant at 1% level of significance. The negative and significant value of the error correction term which is -0.070 (p = 0.0016) indicates that the model is stable at 1% significance level. In Table 8 there is a negative significant relationship between LRGDP and CPI and between LRGDP and LGHEX indicating that there is a short-term relationship between LRGDP, CPI and LGHEX. This implies that a one percent decrease in CPI will cause LRGDP to increase by 0.12 percent. Also, the positive significant relationship between LRGDP and LGHEX implies that one percent increase in LGHEX will cause an increase LRGDP by 2 percent.

Table 7: Cointegration and short run

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOILR)	0.016377	0.014481	1.130892	0.2680
D(LGHEX)	0.020741	0.010056	-2.062585	0.0489
D(LMS)	-0.001497	0.003251	-0.460361	0.6489
D(CPI)	-0.001264	0.000403	3.138298	0.0041
CointEq (-1)	-0.070259	0.042721	-1.644588	0.0016

Cointeq = LRGDP - (0.5765*LOILR -0.2952*LGHEX -0.0213*LMS -0.0179 *CPI + 8.3443)

Source: Author's Computation, underlying data from CBN bulletin

V. CONCLUSION AND RECOMMENDATIONS

This study examines the connection between oil revenue, Government health expenditure and Nigerian economic growth over the period (1980-2020). The findings show that a short-run positive relationship exists between health expenditure and economic growth while a short-run negative relationship exists between inflation rate and economic growth. Also, no relationship exists between oil revenue and economic growth in Nigeria. This indicates that when health expenditure increases, economic growth is stimulated in Nigeria in the short run. The short run results which further show that there is a negative and significant relationship between inflation rate and economic growth means that increase in the rate of inflation has negative effect on economic growth in the short run.

Based on the findings there is a need for an increase in government spending on health. The Government of Nigeria should redesign health policy tailored towards expenditure allocation to health and fully utilize the statutory 15% budgetary allocation to the health sector to cover for lapses in the Nigerian health sector. In addition, there is a shortage of qualified health practitioners in Nigeria. Therefore, the Federal Government should increase the pay pegged to the work hours of nurses and doctors in Nigeria, increase the availability of health workers and subsidize usage of healthcare facilities to enable more people to contribute to Nigeria's economic growth.

REFERENCES

1) Abdul-Rahamoh, F.H., Taiwo & Adejare, A.T.(2017). Analysis of the effect pf petroleum tax on Nigeria economy. *Asia Journal of Humanities and Social Sciences*, 1(1),1-12
2) Adedeji, H. & Oboh, I. (2017). Effects of tax revenue on economic growth of Nigeria, *International Journal of Business and Social Science*. 5(2), 302-309.
3) Adekanola, O. (2018). Taxation as a Means of Economic Revitalization: Limitations and Prospects in a Developing Economy", Lagos, The Nigerian Institute of Chartered Accountants of Nigeria- *The Nigerian Accountant*, 40 (4), 12 – 19.
4) Ali, I. S. (2019). Oil Revenue and Economic Development: Case of the Libyan economy (1970-
5) Ayunku, N. & Etale, U. (2015). Government expenditure and economic growth in Nigeria: A disaggregated analysis, *Business and Economic Journal*, 4(3): 237-330.
6) Azaiki, S. & Shagari, S. (2017). *Oil, Gas and Life in Nigeria*, Ibadan: Y-Books, a division of Associated Books Makers of Nigeria.
7) Bakare, A. A., & Olubokun, S. (2011). Health care expenditure and economic growth in Nigeria: An empirical study. *Journal of emerging trends in economics and management sciences*, *2*(2), 83-87.

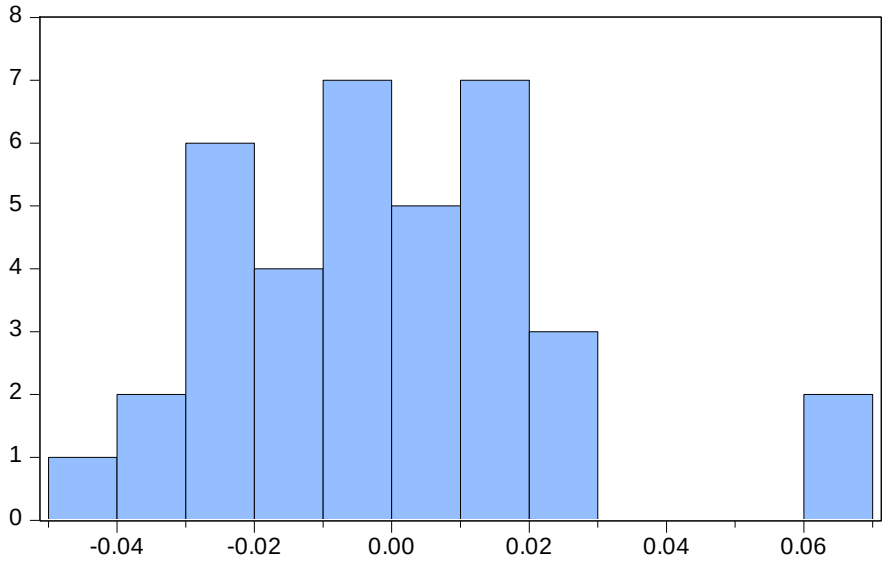
8) Binuomote S. O. & Odeniyi. K. A. (2018). Effect of Crude Oil Price on Agricultural Productivity in Nigeria (1981-2015). *International Journal of Applied Agricultural and Apicultural Research*, 9(1&2), 131-139.
9) Gbegi, D. O., Adebisi, J. F. & Bodunde, T. (2017). The effect of petroleum profit tax on the profitability of listed oil and gas companies in Nigeria, *American International Journal of Social Science*, 6 (2), 28 – 33.
10) Gopar, J. K., Dalyop, L. M. & Yusuf, B. D. (2017). Impact of Petroleum Profits Tax on Economic Growth in Nigeria: A Longitudinal Study, *Tax Academy Research Journal (TARJ),* 1 (1), 139 – 150.
11) Khadijat, A. Y. & Taophic, O. B. (2018). Effect of petroleum profit tax and companies income tax on economic growth in Nigeria, *Journal of Public Administration, Finance and Law*, 9 (17), 23 – 29.
12) Moradi, M. A. (2017). Oil Resource Abundance, Economic Growth and Income Distribution in Iran. Ecomod. Ottawa, Canada
13) Naomi, O. D & Sule, A. (2015). The Potential of Company Income Tax on the Search for Sustainable Alternative Finance in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 6(7), 199-206.
14) Nour, S. S. O. M. (2016). Assessment of the Impact of Oil: Opportunities and Challenges for Economic Development in Sudan. *African Review of Economics and Finance*, 2 (9): 122-148.
15) Odularu, O. G. (2018). Crude Oil & the Nigerian Economic Performance. *Oil and Gas Business Journal*, 12 (18), 22 – 32.
16) Ogbanna, G.N. & Bimobowei A.E. (2018). Impact of Tax Reforms and Economic Growth of Nigeria; A time series Analysis, *current Research journal of social sciences*. 4 (1), 62 – 68.
17) Onaolapo A. A., Fasina, H. T. & Adegbite, T. A. (2018). The analysis of the effect of petroleum profit tax on Nigerian economy, *Asian Journal of Humanities and Social Sciences (AJHSS)*, 1 (1), 11 – 15.
18) Perry, G., Ogunkola O., Olivera, M., & Fowowe, B. (2017). *Oil and Institution 'tale of two cities'*; Nigeria and Colombia. Global Development Working Paper Series, New Delhi
19) Saheed, Z. S., Abarshi, J. A. & Ejide, I. S. (2014). Impact of Petroleum Tax on Economic Growth in Nigeria. *International Journal of Education and Research,* 2(11), 111-143.
20) Serdar, K. U. R. T. (2015). Government health expenditures and economic growth: a Feder-Ram approach for the case of Turkey. *International Journal of economics and financial Issues*, *5*(2), 441-447.
21) Success, M. J., Success, E. B. & Ifurueze, M. S. K. (2016). Impact of Petroleum Profit Tax on Economic Development of Nigeria. *British Journal of Economics, Finance and Management Sciences*, 5(2): 60-71

APPENDICES

Diagnostic Test effect of oil revenue and health expenditure on economic growth

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.841481	Prob. F (2,24)	0.4434
Obs*R-squared	2.424549	Prob. Chi-Square (2)	0.2975



Series: Residuals
Sample 1984 2020
Observations 37

Mean	2.29e-15
Median	-0.000662
Maximum	0.064421
Minimum	-0.047528
Std. Dev.	0.024361
Skewness	0.571792
Kurtosis	3.542360
Jarque-Bera	2.469653
Probability	0.290885

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.900529	Prob. F(10,26)	0.4011
Obs*R-squared	19.51077	Prob. Chi-Square(10)	0.3042
Scaled explained SS	12.24686	Prob. Chi-Square(10)	0.2689

	Trend and Intercept Model		
Variable	Level	1st Difference	Remark
Log of RGDP (RGDP)	-1.054009 (0.7234)	-3.773117 (0.0067) ***	I (1)
Log of Government Health Expenditure (GHEX)	0.443246 (0.0004)	-5.498778 (0.0000) ***	I (0)
Log of Oil Revenue (OILR)	-1.569861 (0.4881)	-6.153950 (0.0000) ***	I (1)
Consumer price index (CPI)	-2.902196 (0.0542)	-4.843713 (0.0004) ***	I (1)
Log of money supply (MS)	-1.202730 (0.6636)	-6.169657 (0.0000) ***	I (1)