Beyond the Oil Boom: Assessing the Impact of Oil Dependency on Nigeria's Long-term Economic Growth

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Abstract- ***This research analyzed the effects of oil dependency on Nigeria's long-term economic growth between 2012 and 2022. Time series data on variables such as oil rents dependency, fuel import dependency, fuel export dependency, monetary policy rate, and annual growth of gross domestic product were utilized. The research utilized the Autoregressive Distributed Lagged model to analyze the short- and long-term relationships between oil dependency and economic growth in Nigeria. The findings suggest that dependency on oil rents exhibited a positive and significant impact in the long term, dependency on fuel imports indicates a positive and insignificant correlation while fuel export dependency demonstrated a negative and significant effect in the long term. Based on the findings, it is recommended to invest in the development of sectors such as agriculture, manufacturing, and services to decrease reliance on oil. Furthermore, effective management of oil revenues and investment in infrastructure and human capital are critical for achieving sustainable economic growth. Enhance transportation and logistics infrastructure to support domestic production and distribution of energy resources, thereby minimizing reliance on imports. Additionally, value addition is necessary. Rather than investing in raw fuel, one should invest in refining capacity to enhance the value of exported products.***

Indexed Terms- ***Oil dependency, Dutch Disease, Resource-Based Growth, Economic growth, Nigeria***

I. INTRODUCTION

Nigeria ranks among the foremost oil producers in Africa, with crude oil constituting a substantial share of its export profits and governmental income. Since the discovery of oil in Oloibiri in 1956, petroleum has consistently been the primary catalyst of the nation's economy. The dependence on oil as a principal revenue source has rendered the nation susceptible to economic weaknesses, especially owing to variations in global oil prices. Nigeria's fiscal policies are predominantly dependent on crude oil exports, resulting in minimal capacity for fiscal buffers during oil price fluctuations. As a result, economic growth is vulnerable to external shocks, jeopardizing the nation's macroeconomic stability. Diversification of the Nigerian economy has been pursued through several policy frameworks, including the Economic Recovery and Growth Plan (ERGP) and the National Development Plan (NDP). These efforts seek to diminish oil reliance, foster industrialization, and assist small and medium companies (SMEs). Nonetheless, the efficacy of these initiatives is constrained by structural obstacles, insufficient infrastructure, and institutional deficiencies. Nigeria's economy has experienced significant growth, with rates exceeding 6.0%–6.5%, positioning it among the top ten fastest-growing economies globally. However, this growth has not been inclusive or advantageous for its populace, leading to the characterization of it as "jobless growth," as it has not effectively created employment opportunities for the large labor force. Nigeria's oil reserves are estimated at 37.2 billion barrels as of 2011, with an average production rate of 2.13 million barrels per day (EIA 2013). Over 75% of Nigeria's governmental revenue is derived from the energy sector, indicating that a significant portion of government spending, infrastructure, and economic development efforts relies on the country's dependence on oil. The unemployment rate has remained above 33.3% as of 2014, with youth

unemployment fluctuating between 70% and 80%. Poverty persists significantly, with more than 45% of the population reported to live on less than $1.25 per day (World Bank, 2014). Nigeria's oil exports to major countries, including the United States, have been steadily declining due to increasing volatility in oil prices, the discovery of oil in various regions, and global economic instability. The United States ranks as Nigeria's primary trading partner, following the United Kingdom. In 2011, the United States imported 9-11% of its crude oil from Nigeria, totaling USD 1.9 billion; this figure, however, decreased by nearly 50% by 2016 (International Trade Administration, 2016).
This study aims to investigate the intricate relationship between oil dependency and economic growth in Nigeria. This analysis will rigorously evaluate the impact of oil dependence on the nation's economic framework from 2012 - 2022, assess the efficacy of diversification initiatives, and propose policy recommendations for attaining sustainable economic growth.

II. REVIEW OF RELATED LITERATURE

Conceptualizing Oil Dependency

Oil dependency refers to a heavy reliance on crude oil exports for revenue generation, foreign exchange earnings, and economic growth. In Nigeria, oil contributes over 80% of government revenues and 90% of foreign exchange earnings. This dependence has significant implications for macroeconomic stability, industrial development, and institutional governance.

Key Characteristics of Oil Dependency: Revenue Concentration: Government budgets rely predominantly on oil revenues; Export Dominance: Oil constitutes the bulk of exports, limiting the diversification of trade; Volatility: Oil prices are highly volatile, leading to unpredictable revenue inflows and Dutch Disease: Resource-driven currency appreciation undermines the competitiveness of non-oil sectors.

Oil, a highly versatile and adaptable non-renewable natural hydrocarbon, is a crucial input for contemporary economic activities, supplying approximately 50% of global energy demand. Anyanwu, 1997 As per Anyanwu's The Structure of the Nigerian Economy (1960-1997). Petroleum, or crude oil, is a viscous, bituminous liquid composed of a complex mixture of various substances, predominantly hydrocarbons, which are compounds of carbon and hydrogen. It also comprises minimal quantities of non-hydrocarbon elements, primarily sulfur (approximately 0.02 to 0.6% by weight), followed by nitrogen and oxygen. Doscher, Todd M. (2009). Characterized as a naturally occurring viscous, bituminous liquid comprised of diverse organic compounds. It is located in substantial amounts beneath the Earth's surface and serves as both a fuel and a raw material in the chemical industry. Moreover, petroleum and its derivatives are utilized in the production of pharmaceuticals, fertilizers, food products, plastics, construction materials, paints, textiles, and electricity generation.
Non-oil exports consist of agricultural products, solid minerals, textiles, and labor, among others. It comprises all other exports from Nigeria, excluding petroleum products. Manufactured exports include textiles, beer, cocoa butter, plastic products, processed timber, tires, natural spring water, soap, detergent, and fabricated iron rods. Agricultural export commodities comprised cocoa, groundnuts, palm oil, cotton, natural rubber, yarn, palm goods, fish, and shrimp" (Okoh, 2004).

Consequently, before to 1970, the non-oil industry made a greater contribution to the economy than the oil sector. The opposite was the case during the 1980s and 1990s (Gbadebo, 2005). Hence, Nigeria's overdependence on the petroleum sector for revenue for meeting expenditure needs is borne out by available statistics. According to McPherson (2000), overdependence on oil causes excessive credit expansion, i.e. when revenues get into the domestic banking system, they are likely to restructure "excess: , credit expansion", threatening financial stability He also noted that oil development can take resources and investment away from other sectors of the economy. Over the past years however, the oil industry has made a variety of contributions to the Nigerian economic development. These have included the creation of employment opportunities; local expenditure on goods and services; contributions to government revenues, to gross domestic product, and, to foreign exchange reserves; and the supply of energy to industry and commerce (Odularu, 2008). The industry's value

added can be calculated by putting together the various payments to the government in the form of rents, royalties, profit taxes, harbor dues; the wages and salaries of employees paid locally; and the net, retained earnings. The oil industry's periodic injection of purchasing power through its local expenditure on products and services is another of its key contributions to the economic development. Apart from direct payments to the government, oil industry expenditure in Nigeria takes the form of payments of wages and salaries, payments to local contractors, local purchases of goods and services, harbor dues, vehicle licenses, telephone and postal charges, local rents, educational grants and scholarship awards, donations and subventions, and other minor social charges.

Nigeria's Oil Dependency and Economic Challenges
Recent studies have continued to highlight Nigeria's over-reliance on oil revenues, which has exacerbated economic vulnerabilities, particularly in the face of fluctuating global oil prices. According to Akinola (2020), Nigeria's oil sector accounts for over 90% of export earnings and about 50% of government revenues, despite contributing only around 10% to GDP. This imbalance has made the economy highly susceptible to external shocks, such as the 2020 COVID-19 pandemic and the 2022 global energy crisis triggered by the Russia-Ukraine conflict.

Dutch Disease and Resource Curse: Recent research, such as that by Oluwatobi et al. (2022), emphasizes that Nigeria's oil wealth has led to the neglect of other sectors, particularly agriculture and manufacturing. This phenomenon, often referred to as the "resource curse," has stifled diversification and hindered long-term economic growth.

Revenue Volatility: Eze and Okonkwo (2021) argue that Nigeria's dependence on oil has created fiscal instability, as government budgets are often based on unrealistic oil price assumptions. This has led to recurrent budget deficits and increased borrowing.

Economic Contributions of the Oil Sector
While the oil sector remains a critical driver of Nigeria's economy, its contributions have been increasingly scrutinized. Recent studies highlight both the positive and negative impacts of the industry. The oil business has substantially benefited Nigeria's economy, acting as a principal catalyst for income generation, foreign exchange profits, and infrastructure advancement. Since the discovery of commercially viable oil in the 1950s, the industry has constituted over 90% of export revenues and 70% of government income, establishing it as the cornerstone of the Nigerian economy (CBN, 2022). Oil income have financed essential infrastructure projects, including roads, power plants, and educational institutions, while also fostering the expansion of the financial and services industries through augmented government expenditure (Odularu, 2008). The oil industry has generated employment opportunities, both directly and indirectly, and has fostered local content development through initiatives such as the Nigerian Oil and Gas Industry Content Development Act (2010), which promotes the involvement of Nigerian companies and labor in the sector (Adewuyi & Oyejide, 2021). Moreover, oil exports have enhanced Nigeria's foreign exchange reserves, stabilizing the economy and facilitating purchases of vital commodities and services (World Bank, 2023).

Efforts of the government at Diversifying Nigeria's Economy
In reaction to the difficulties associated with oil dependency, Nigeria has endeavored to diversify its economy and enhance non-oil exports. Recent research and policy documents offer insights into this transition. Olagunju et al. (2022) examine the revival of agricultural exports, specifically cocoa, sesame seeds, and cashew nuts, within the framework of Nigeria's diversification plan. They observe that insufficient infrastructure, restricted access to credit, and erratic rules have impeded the sector's expansion. Furthermore, Egbula and Onwualu (2023) underscore the potential of Nigeria's solid minerals sector, encompassing gold, limestone, and barite. They contend that enhanced regulation and investment may substantially augment export revenues and employment opportunities in the sector. Also, Adeleye et al. (2023) emphasize the increasing significance of the services industry, especially telecommunications and fintech, in propelling economic growth. Nonetheless, they warn that the manufacturing sector is still underdeveloped due to structural impediments, like electricity shortages and elevated production costs.

The Long-Term Consequences of Nigeria's Oil Dependency

Nigeria's oil dependency has resulted in the exclusion of other sectors within the economy. A substantial body of evidence has been recorded on the underperformance of the non-oil sectors of the economy, particularly in relation to their contribution to export value. The non-oil sector includes roadside economic activities and market transactions that are not factored into the Gross Domestic Product calculation. The markets for oil and oil derivatives were more attractive and global than those for non-oil products. Current estimates suggest that Nigeria has proved oil reserves of about 25 billion barrels, representing approximately 2.2% of global crude oil reserves, in addition to significant gas reservoirs and bitumen deposits. Additionally, it contains significant reserves of coal, hydropower, and renewable energy resources (Gbadebo, 2005). Historically, the government's emphasis has been on the extraction and development of crude oil, leading to the oversight of alternative non-oil energy resources, with the exception of coal, which was also neglected due to the Nigerian Civil War. The solid minerals sector has undergone considerable neglect. Gbadebo (2005) asserts that investigations by the Geological Survey Department of the Ministry of Solid Minerals, the Raw Materials and Development Council, the Nigerian Mining Council, and the National Steel Council demonstrate that Nigeria harbors various commercially significant mineral resources that could be leveraged for export and domestic use to diversify from the petroleum sector. Before the formation of the Ministry of Solid Minerals in 1995, policy focus was primarily on crude oil. However, owing to financial constraints, there has been little progress by the ministry in exploiting the significant bitumen reserves identified in four states of the federation, with the exception of Enugu, where prior efforts were concentrated (Okeke and Anichie, 2013). There were also environmental and social cost according to Nwankwo and Eze (2023) highlighting the environmental degradation caused by oil exploration and production, particularly in the Niger Delta region. Oil spills, gas flaring, and pollution have had severe impacts on local communities, undermining the sector's economic benefits.

Harnessing Nigeria's Oil Wealth for Sustainable Development: Strategies for Economic Diversification and Inclusive Growth"

Addressing the resource curse and promoting sustainable development requires better oil revenue governance, transparency, and accountability. Corruption, incompetence, and rent-seeking in resource-rich countries like Nigeria hinder oil revenue allocation for public goods and economic diversification. Lack of transparency in resource-rich economies promotes elite capture and diverts cash from productive initiatives, according to Ross (1999). Mismanagement of oil income and lack of accountability at the Niger Delta Development Commission (NDDC) in Nigeria have failed to offer real development to oil-producing communities (Nwankwo & Eze, 2023). The Extractive Industries Transparency Initiative (EITI) promotes oil industry transparency, but inadequate enforcement and political will have restricted its effects (Adewuyi & Oyejide, 2021). Anti-corruption institutions, public supervision, and strong fiscal policies like sovereign wealth funds can minimize the resource curse by directing oil proceeds to infrastructure, education, and healthcare (IMF, 2023). Nigeria may decrease resource dependency and develop a more egalitarian and sustainable economy by improving governance. To preserve economic growth and resilience, Nigeria needs to invest in agriculture, manufacturing, and services to minimize its oil dependence. Oil dependence has hampered diversification, exposed the economy to fluctuating global oil prices, and overlooked areas that may create inclusive development. Oluwatobi et al. (2022) is of the opinion that reviving agriculture and industry can create jobs, alleviate poverty, and improve food security, especially in rural areas with high poverty rates. In Olagunju et al. (2022) they opined that increasing cocoa and cashew exports can diversify revenue streams and mitigate oil price shocks. Subsequently, if backed by infrastructure and credit, the undeveloped manufacturing sector can add value and create jobs (Adeleye et al., 2023). The rapid growth of mobile banking and digital services in Nigeria shows that the services industry, particularly telecommunications and fintech, can drive growth and innovation (World Bank, 2023). These industries can help Nigeria construct a more resilient economy, reduce unemployment, and achieve long-term sustainable

growth, according to the IMF (2023), which promotes diversification to mitigate oil reliance risks.

Establishing stabilization funds, including sovereign wealth funds (SWFs), is an essential strategy for mitigating the effects of oil price volatility and preserving resources for future generations. Economies reliant on oil, such as Nigeria, exhibit significant susceptibility to variations in global oil prices, resulting in fiscal instability, budget deficits, and potential economic recessions. Humphreys and Sandbu (2007) assert that stabilization funds facilitate the smoothing of government revenues by reserving surplus income during high oil price periods and offering a buffer during price declines. Nigeria's Sovereign Wealth Fund (NSIA), founded in 2011, seeks to accomplish its objectives through investments in infrastructure, economic stabilization, and savings for future generations. Nonetheless, its effectiveness has been constrained by inadequate funding and political interference (Adewuyi & Oyejide, 2021). Strengthening and depoliticizing these funds will enable Nigeria to manage oil revenues more effectively, mitigate economic volatility, and allocate resources towards long-term development initiatives. Furthermore, the IMF (2023) highlights that effectively managed sovereign wealth funds can facilitate economic diversification by directing resources toward non-oil sectors, including agriculture and renewable energy, thus diminishing reliance on oil and promoting sustainable growth.

The Global Energy Transition and Its Consequences for Nigeria.

The worldwide transition to renewable energy and decarbonization presents substantial hurdles for Nigeria's oil-reliant economy. Recent research examines the ramifications of this transition recently; for energy transition risks, Okonjo-Iweala and Adesina (2023) caution that diminishing global demand for fossil fuels may diminish Nigeria's oil income, intensifying fiscal and economic difficulties. They suggest proactive strategies to be ready for a post-oil economy. Also in the area of renewable energy prospects, Olanrewaju and Adeleke (2023) contend that Nigeria possesses considerable potential for the advancement of renewable energy, especially in solar and wind power and propose that investing in renewable energy might generate new economic prospects and diminish the nation's dependence on oil.

Theoretical Review

Resource-Based Growth

Mainstream economics asserts that a country's production and exports should concentrate on industries in which it holds a competitive edge. A nation has a comparative advantage when it generates a good or service at a lower relative cost compared to others (Liberty Fund, Inc., 2007). The theory of comparative advantage is attributed to political economist David Ricardo, who wrote Principles of Political Economy and Taxation (1817). Ricardo utilized the concept of comparative advantage to challenge Great Britain's protectionist Corn Laws, which restricted wheat imports from 1815 until 1846. The political economist argued that countries gain by focusing in sectors where they have a comparative advantage and importing goods in which they lack such an edge. This theory asserts that a nation achieves optimal economic benefit relative to others by producing goods that it can make at a lower total cost, especially those that are plentiful or readily available domestically. The concept of comparative advantage underpins the prevailing economic viewpoint on specialization, free trade, and the global division of labor. This elucidates why specific nations concentrate on agricultural and mineral resources, while others prioritize industrial products (O'Toole, 2007). The Heckscher-Ohlin theory about comparative advantage asserts that countries should produce and export commodities that leverage their excess productive capacities (Feenstra, 2003). This model is based on two countries, two commodities, and two factors, asserting that both countries have identical technology and desires, participate in unrestricted trade of goods, and display differing factor endowments (Feenstra 2003: 31). He asserted that both nations will benefit from trade due to their unique resources. The variation in factor endowments leads to specialization and the exports of goods in which a country has a competitive advantage. Mainstream economists contend that this process promotes the optimal allocation of resources, resulting in enhanced advantages from trade transactions (World Trade Organization, 2010). Heckscher and Ohlin asserted that capital-abundant nations would export capital-intensive goods and import labor-intensive goods, whereas labor-abundant

nations would export labor-intensive goods and purchase capital-intensive goods (Clarke et al. 2009).

The Resource Curse Theory (Dutch Disease)

The Resource Curse Theory, commonly known as Dutch Disease, explains how an excess of natural resources, like oil, can result in economic imbalances and impede long-term progress. This argument is especially pertinent given Nigeria's over dependence on oil earnings and its detrimental impact on other economic sectors. In Nigeria, oil profits have been associated with mismanagement, corruption, and insufficient openness in resource distribution. Research by Sachs and Warner (1995) and Ross (1999) indicates that nations rich in natural resources frequently undergo slower economic growth than those with limited resources.

Weak institutions and governance challenges represent significant adverse effects of resource wealth, especially in oil-dependent economies such as Nigeria. The influx of oil revenues frequently leads to corruption, rent-seeking behavior, and inadequate governance, as elites and public officials prioritize personal interests over national development. Ross (1999) posits that countries abundant in resources are more susceptible to corruption, as the concentration of wealth among a limited number of individuals fosters opportunities for embezzlement and mismanagement. This phenomenon in Nigeria is characterized by the mismanagement of oil revenues, a lack of transparency in resource allocation, and pervasive corruption scandals, exemplified by the missing $20 billion NNPC funds noted by Okonjo-Iweala (2023). Inadequate institutions hinder efficient resource distribution, impede economic diversification, and sustain inequality, exemplified by the Niger Delta region, where oil revenues have not resulted in enhanced living conditions for local populations (Nwankwo & Eze, 2023). The governance challenges impede economic growth and intensify social unrest and political instability, thereby obstructing Nigeria's pursuit of sustainable development. Comprehensive institutional reforms are necessary to address these issues, which include enhancing anti-corruption measures, promoting transparency, and ensuring an equitable distribution of resource wealth (Adewuyi & Oyejide, 2021).

Notwithstanding its substantial oil resources, Nigeria's economic growth has been inconsistent and suboptimal, primarily attributable to structural inefficiencies, inadequate governance, and excessive dependence on oil revenues. The nation's GDP growth has averaged only 2-3% over the last decade, markedly lower than the rates attained by more diversified countries (World Bank, 2023). The underperformance is due to the unpredictability of oil prices, resulting in persistent fiscal crises, budget deficits, and debt accumulation.

Solow growth model (exogenous growth theory)

The Solow growth model emphasizes the role of capital accumulation, labor, and technological progress in driving long-term economic growth. It suggests that resource-dependent economies often fail to achieve sustainable growth due to limited investments in human capital and innovation. IT is a foundational framework in economic theory that explains long-term economic growth by examining the roles of capital accumulation, labor force growth, and technological progress. While the Solow model does not explicitly address natural resource dependency, it provides a useful lens for analyzing the impact of oil dependency on Nigeria’s long-term economic growth. The model emphasizes the importance of physical capital (e.g., machinery, infrastructure), labor force growth, technological progress and steady state-equilibrium in driving economic growth.

Empirical Review

Bernhard Ozofere Ishioro (2020), in his study "Unrefined Oil and Financial Development in Nigeria: A Disentangled Pairwise Causality Test," analyzed the influence of crude oil on Nigeria's economic growth. The study reassessed the impact of crude oil utilization on export performance, capital accumulation, and the development of the Nigerian labor force by employing various developmental and enhancement tactics. The graphical insights, relationship lattice, unit root tests, cointegration, and Granger causality tests were considered multivariate estimation approaches. The analysis reveals that the crude oil utilized in the economy exerts no substantial influence on the Nigerian economy. Moreover, the analysis reveals that crude oil trade is crucial for labor utilization and has stimulated economic growth in Nigeria. The analysis asserts that oil revenue ought to be directed towards

the productive sector and the development of human capital within the Nigerian economy.
Agu and Nyatanga (2020) examined the correlation between oil prices and economic growth in Nigeria in their study titled "An Investigation into the Crude Oil Price Pass-Through to Economic Growth in Nigeria." This study was driven by the need to understand the pathways and mechanisms via which sudden changes in oil prices affect economic output, as well as to suggest measures for ensuring sustainable production. This study employed the innovative Hamilton Index within the Structural Vector Autoregressive (SVAR) framework to analyze the responses of macroeconomic variables to sudden changes in oil prices.

The research demonstrated that unfavorable fluctuations in oil prices had a more pronounced effect on economic growth than any other forms of oil price swings. Interest rates and money supply have been recognized as potent macroeconomic instruments in Nigeria that can effectively stimulate economic activity. The report proposes that Nigeria implement stringent monetary control mechanisms in response to both positive and negative oil price fluctuations. Secondly, the interest rate must be effectively utilized throughout fluctuations in oil prices to safeguard Nigeria's economic progress.
Akinola, A. (2020) conducted a study that examined Nigeria's over dependence on oil and its ramifications for economic growth. It underscores the instability of oil earnings, the disregard for non-oil sectors, and the necessity for diversification. The author contends that Nigeria's neglect to allocate oil income into productive industries has constrained its long-term growth potential. This study corresponds with the Solow Growth Model's focus on capital accumulation and technical advancement, advocating for investment in infrastructure and human capital to foster sustainable growth.

In a separate investigation by Oluwatobi, S., et al. (2022), titled "On Resource Curse and Economic Diversification in Nigeria: A Sectoral Analysis," it was discovered that the preeminence of the oil sector has stifled investment in agriculture and manufacturing, thereby perpetuating structural imbalances. Consequently, this study offers empirical evidence of Dutch Disease in Nigeria, illustrating how currency appreciation and resource reallocation have adversely affected non-oil sectors.
In a study titled "Solid Minerals and Economic Diversification in Nigeria: Opportunities and Challenges," Egbula, & Onwualu, (2023) evaluated the potential of Nigeria's solid minerals sector as a substitute for oil. It cites critical difficulties, such as inadequate regulation and insufficient investment, yet contends that the sector could substantially enhance GDP and export revenues if effectively managed. The research corresponds with the necessity for capital accumulation in non-oil sectors to foster sustained growth.

III. METHODOLOGY

Research design and sources of data
The impact of oil reliance on Nigeria's financial development was examined using an ex-post facto research methodology. The characteristics, extent, and potential trajectory of the relationship among the variables are substantiated by empirical and analytical research, which relies on existing data. The analysis employed a quantitative and supplementary dataset, derived from data repositories and predominantly consisting of time series data. The information is derived from the central bank factual bulletin (2022) and the World Development Indicators (WDI) (2022), encompassing an annual timeframe of 11 years (2012-2022). They are adopting a temporal organisation of information as they are asked to adhere to a regular interval (Brooks, 2014).
Model Specification
The study will use the model:
GDP_t= F(OIR, FIM, FEX, MPR)…… Eq 1
Equation (1) is linearized as follows;
$GDP_t = \beta_0 + \beta_1 GDP_t + \beta_2$ OIR+ β_3 FIM +β_4 FEX+ β_5 MPR + μ
Where:
GDP = Gross Domestic Product annual growth
OIR= Oil Rent dependency
FIM= Fuel import dependency
FEX= Fuel export dependency
MPR = Monetary Policy Rate
μ=Error or stochastic term; and
β1–β5= Coefficients.

The above model was modified to suit the nature of this study and in order to ascertain the impact of oil dependency on Nigeria's long-term economic growth. The model for this study is Autoregressive Distributed Lag model as adopted by Arize et al. (2018) specified thus:

General Model:

$$LGDP_t = \propto_0 + \sum_{t=0}^{n=1} \propto_1 \Delta LGDP_{t-1} + \sum_{t=0}^{n=2} \propto_2 \Delta LOIR_{t-1} + \sum_{t=0}^{n=2} \propto_3 \Delta LFIM_{t-1} + \sum_{t=0}^{n=2} \propto_4 \Delta LFEX_{t-1} + \sum_{t=0}^{n=2} \propto_5 \Delta LMPR_{t-1} + \beta_1 GDP_{t-1} + \beta_2 LOIR_{t-1} + \beta_3 LFIM_{t-1} + \beta_4 LFEX_{t-1} + \beta_5 LMPR_{t-1} + e_t$$

Where:

LGDP: Represents log Gross domestic product annual growth

LOIR: Represents log Oil Rent dependency

LFIM: Represents log of Fuel Import dependency

LFEX: Represents log of Fuel Export dependency

LMPR: Represents log of monetary policy rate

$\propto_0$: Represents the constant or the intercept

$\propto_1 - \propto_5$: Represents the coefficient of the short run parameters

$\beta_1 - \beta_5$: Represents the coefficient of the long run parameters

$t - 1$: Represents time series data

e_t: Represents the residual, noise or error term

$\sum_{t=0}^{n=1} \Delta$: Represents the short run regression equation

Techniques of Data Analysis

In this study, the Pre Estimation Test (PRE-TEST) contains the following: Basic descriptive statistics, table and charts. Also the correlational matrix and Unit root test will be employed. The Estimation method to be used is Auto Regressive Distributed Lag model (ARDL) as its model. It is favored over the Ordinary Least Square (OLS) model due to OLS's numerous drawbacks and aging. Post-estimation tests will be used to assess the outcome's dependability with test for autocorrelation conducted using Breusch-Godfrey Langrange Multiplier test (BGLM), test for heteroscedastic residuals conducted following the Breusch, Pegan and Godfrey test (BPG) and test for model stability conducted by adopting Ramsey RESET and CUSUM tests.

IV. PRESENTATION AND ANALYSIS OF DATA

The level or raw series data were transformed to log linear form by the author and it is presented in the table below.

Table 4.1: Log Transformed Series of Oil Rents Dependency, Fuel Import Dependency, Fuel Export Dependency, Monetary Policy Rate and Gross Domestic Product Annual Growth in Nigeria from 2012-2022.

YEARS	LOIR(%)	LFIM(%)	LFEX(%)	LMPR(%))	LGDP(%)
2012	2.571885	0.861285	4.431281	2.484907	1.442216
2013	2.290524	3.003566	4.473048	2.484907	1.897820
2014	1.956406	2.791144	4.509256	2.564949	1.842091
2015	1.023692	2.917949	4.475896	2.397895	0.975575
2016	0.987416	3.352830	4.569318	2.639057	NA
2017	1.699759	3.329323	4.564679	2.639057	-0.215812
2018	2.040009	3.389367	4.544504	2.639057	0.653760
2019	1.874069	2.741953	4.466360	2.602690	0.792282
2020	1.197678	2.725308	4.485262	2.442347	NA
2021	1.832061	3.433716	4.490287	2.442347	1.293956
2022	NA	3.677861	4.507856	2.803360	1.179172

Source: Transformed By the Author Using E-Views 10

To get the data to the same base, the series were log transformed. A log transformed series is a useful indicator of elasticity and also makes interpretation easier.

Where: OIR=Oil Rents dependency; FIM= Fuel Import dependency; FEX=Fuel Export dependency;

MPR=Monetary policy rate and GDP= Gross Domestic Product annual growth

Data Description

Descriptive statistics were compiled with the use of the transformed series of the dependent variable, control variable and independent variables in order to find out the aggregative tendencies of the series. The summary of the basic descriptive statistics is shown in the table below:

Table 4.2: Summary of Basic Descriptive Statistics

STATISTICS	LOIR	LFIM	LFEX	LMPR	LGDP
Mean	1.7	2.93	4.50	2.56	1.10
Median	1.85	3.00	4.49	2.56	1.18
Maximum	2.57	3.68	4.57	2.80	1.90
Minimum	0.99	0.86	4.43	2.40	-0.22
Std. Dev.	0.53	0.76	0.04	0.12	0.65
Skewness	-0.18	-1.95	0.27	0.50	-0.67
Kurtosis	1.96	6.26	2.15	2.52	2.94
Jarque-Bera	0.50	11.82	0.46	0.57	0.67
Probability	0.78	0.00	0.80	0.75	0.71
Relative S.D	0.31	0.26	0.01	0.05	0.59
Sum	17.47	32.22	49.52	28.14	9.86
Sum Sq. Dev.	2.53	5.74	0.02	0.15	3.39
Observations	10	11	11	11	9

Source: Extracted By the Author Using E-Views 10

The examination encompasses metrics of central tendency, variability, symmetry, and the extent of peakedness within the distribution. Table 4.2 indicates that LFEX presents the highest mean and median values, whereas LGDP shows the lowest mean and median values. This indicates that LFEX exhibits a broader dispersion, while LGDP demonstrates a tighter concentration. The standard deviation serves as a measure of dispersion, reflecting the distribution's spread, with LFIM exhibiting the most significant variation. A distribution qualifies as normal when its skewness equals 0 and its kurtosis is 3. Values of skewness that fall below 0 signify a left-skewed distribution, whereas values exceeding 0 denote a right-skewed distribution. According to the analysis, variables such as LOIR, LGDP, and LFIM exhibit left skewness, while LFEX and LMPR demonstrate right skewness as indicated by their positive skewness values. In terms of kurtosis, a distribution is identified as leptokurtic when the kurtosis is equal to 3, mesokurtic when it is greater than 3, and platykurtic when it falls below 3. Within this framework, LFIM is the sole variable exhibiting mesokurtic characteristics, whereas all other variables display platykurtic traits. The Jarque-Bera test offers a detailed evaluation of skewness and kurtosis. The relative standard deviation (RSD), determined by the ratio of the standard deviation to the mean, indicates the extent of dispersion within the distribution. An elevated RSD signifies increased variability, whereas a diminished RSD implies reduced variability. The RSD values for all variables are under 1, suggesting that the distributions exhibit low levels of dispersion.

The aforementioned includes measures of central tendency, measurements of dispersion, measures of symmetry within the series, and measures of kurtosis of the distribution. According to Table 4.3, LFEX exhibited the highest mean and median values, while LGDP displayed the lowest mean and median values. This indicates that LFEX is less cohesive, but LGDP is more cohesive. Standard deviation quantifies dispersion, indicating the extent of separation within a distribution, while LFIM exhibits greater dispersion. A distribution is considered normal if the skewness is 0 and the kurtosis is 3. The distribution is skewed to the left when the value is less than 0 and to the right when the value is more than 0. Consequently, variables such as LOIR, LGDP, and LFIM exhibited left skewness, but the variables LFEX and LMPR demonstrated right skewness due to their values exceeding zero. The distribution is classified as leptokurtic if the kurtosis equals 3, mesokurtic if it exceeds 3, and platykurtic if it is less than 3. Consequently, only the variable LFIM exhibits mesokurtic characteristics, whilst all other variables are platykurtic. The Jarque-Bera test is a comprehensive assessment of skewness and kurtosis. The relative standard deviation is the ratio of the standard deviation to the mean. A greater RSD indicates a more dispersed distribution, whereas a lower RSD signifies a less dispersed distribution. The RSD of all variables was below 1, indicating low dispersion.

Table 4.3: Summary of Correlation Matrix:

Correlation t-Statistic					

Probability	LGDP	LOIR	LFIM	LFEX	LMPR
LGDP	1.000000 -----------				
LOIR	R=0.403269 {1.079469} [0.3218]	1.000000 -----------			
LFIM	R= -0.331056 {-0.859379} [0.4231]	R= -0.5201 {-1.520524} [0.1792]	1.000000 -----------		
LFEX	R= -0.624986 {-1.961091} [0.0975]	R=-0.2879 {-0.736049} [0.495]	R= 0.720 {2.51} [0.05]	1.000000 -----------	
LMPR	R= -0.536021 {-1.555285} [0.1709]	R=0.232 {0.58} [0.58]	R=0.232 {0.58} [0.58]	R=0.652 {2.09} [0.09]	1.000000 -----------

Computed By the Author Using E-Views 10

R=correlational coefficient; {}= t-statistics; []=probability of t-statistics

Decision rule: Reject Ho if the P.Value <0.05, otherwise do not reject Ho

For a variable to have a significant linear correlation with other variables, the t-statistic must exceed 2.5, and the probability must be less than 0.05. According to Table 4.3, LGDP has a negative and insignificant linear correlation with LFIM and LFEX, while demonstrating a slight positive and insignificant correlation with LOIR.

Unit Root Test

In order to mitigate the potential for a spurious regression, a stationarity test was utilised to assess the stationarity characteristics of the variables being analysed. This study employed the Augmented Dickey-Fuller (ADF) test, utilising both the conventional method and the breakpoint-consistent method. Decisions concerning stationarity were determined at a significance level of 5%. The outcomes of the traditional and breakpoint unit root tests are displayed in the table below.

Table 4.4: Summary of traditional Unit Root Test Result

VARIABLES	UNIT ROOT TEST			
	ADF STAT	CRITICAL VALUE @5%	P-VALUE	INFERENCE
LOIR	-2.16	-1.99	0.04	I(1)
LFIM	-5.39	-4.01	0.01	I(0)
LFEX	-3.40	-1.99	0.00	I(1)
LMPR	-2.85	-1.98	0.00	I(1)

Source: Extracted by the Author using E-views 10

The analysis above indicates that variables such as LFIM exhibit stationarity at levels, while variables including LOIR, LFEX, and LMPR attain stationarity solely after first differencing. The traditional unit root test does not account for the presence of outliers, which is an important consideration. The breakpoint unit root test is regarded as more robust because it explicitly identifies and accounts for outliers, thereby demonstrating superiority over the traditional unit root test in this aspect.

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Table 4.5: Summary of consistent breakpoint Unit Root Test Result

VARIABLES	INNOVATIONAL OUTLIER				ADDITIVE OUTLIER			
	ADFS	CRITICAL	BREAK	INFE	ADFS	CRITICAL	BREAK	INFER
								ENCE

	TAT	ALVALUE@5%	KDATE	RENCE	TAT	VALUE@5%	ATE	
LOIR	-5.17	-5.17	2018	I(0)	-6.93	-5.18	2017	I(0)
LFIM	-7.88	-5.17	2018	I(0)	-5.41	-5.18	2019	I(0)
LFEX	-5.55	-5.18	2019	I(1)	-5.34	-5.18	2018	I(0)

Computed By the Author Using E-Views 10

From above, all the independent variables are stationary at levels for innovative outlier break point unit root test except LFEX which attained stationary at first difference. For the additive outlier, all the independent variables attained stationarity at levels.

Regression Analyses

The autoregressive Distributed Lag Model (ARDL) econometric technique was used for the test stated earlier.

The summary of the ARDL regression results, provide insights on variables relationships and their importance for the study and serve as the basis for the detailed discussion that follows.

Table 4.6: summary of ARDL Regression Result

PANEL A MODEL 1,0,0,0,0						
	Short run Estimate			Long run estimate		
	Coefficient	T-statistics	P-value	Coefficient	T-statistics	P-value
LOIR	-0.57	-1.49	0.21	0.49	-1.73	0.03
LFIM	0.01	0.03	0.98	0.01	0.03	0.98
LFEX	17.01	2.51	0.07	-14.70	1.62	0.01
LMPR	2.59	1.42	0.23	2.24	1.22	0.29
PANEL B: JOINT STATISTICS						
STAT			MODEL			
R-SQUARE			0.76			
D-W STATISTICS			1.6			
PANEL C: DIAGNOSTICS						
BG-LM			0.08 (0.92)			
BPG			20.02 (0.07)			
RESET			0.003 (0.96)			
CUSUM			Stable			
CUSUM OF SQUARES			Stable			

Source: Computed by the author using E-views 10

The joint statistics from the table above show that R^2 value of the model indicates goodness of fit, showing that 76% (0.76) of the variation in LGDP is explained by the independent variables. Twenty-four percent (0.24) of the unexplained variation is attributed to factors not included in the model. The R^2 value serves as a dependable indicator of goodness of fit, as it is sufficiently high and does not suggest multicollinearity issues. The Durbin-Watson (D-W) statistic, which assesses first-order autocorrelation, is

approximately 2, indicating a lack of first-order autocorrelation in the model.

A long-run relationship is observed between the annual growth rate of Gross Domestic Product (GDP) and the explanatory variables, as indicated by the long-run elasticity of the dependent and independent variables. This suggests the presence of co-integration among the variables. Panel C of Table 4.6 presents the results of the Breusch-Godfrey LM (BG-LM) test for diagnostic purposes. The test, which evaluates higher-order autocorrelation, produces a non-significant p-value, indicating that higher-order autocorrelation is not present in the model. The Breusch-Pagan-Godfrey (BPG) test for heteroscedasticity yields a non-significant p-value, suggesting that the model does not display heteroscedastic residuals. The Ramsey RESET (Regression Equation Specification Error Test) is non-significant ($p > 0.05$), indicating the absence of specification errors or misspecification in the model.

The model is considered optimal, linear, and unbiased. The conclusion is substantiated by the R^2 value, which reflects a good fit, the absence of higher-order autocorrelation as verified by the BG-LM test, the lack of heteroscedastic residuals as shown by the BPG test, and the stability and absence of specification errors as confirmed by the Ramsey RESET test.

Table 4.7: Summary of findings

Long run estimates			
Variables	Coefficient	p-value	Conclusion
LOIR	0.49	0.03	Positive and significant
LFIM	0.01	0.98	Positive and insignificant
LFEX	-14.70	0.01	Negative and significant
LMPR	2.24	0.29	Positive and Insignificant

Source: Compiled by the author using E-views 10

There is a long run relationship between the dependent and the explanatory variables, as shown by their long-run elasticity. This implies that there is co-integration between the variables.

Discussion of Results

The summary of results is shown in Table 4.8 and is the subject of discussion in accordance with the research objectives and in response to the research questions.

Table 4.8: Summary of findings

Long run estimates			
Variables	Coefficient	p-value	Conclusion
LOIR	0.49	0.03	Positive and significant
LFIM	0.01	0.98	Positive and insignificant
LFEX	-14.70	0.01	Negative and significant
LMPR	2.24	0.29	Positive and Insignificant

Source: Compiled by the author using E-views 10

There is a long run relationship between Gross Domestic Product annual growth and the explanatory variables, as shown by the dependent and independent variables' long-run elasticity. This implies that there is co-integration between the variables.

To assess the impact of fuel export dependency on economic growth in Nigeria.

The analysis utilising the ARDL model indicates that fuel export dependency exerts a positive yet insignificant effect on Nigeria's economic growth in the short term, while demonstrating a negative and significant impact in the long term. This finding highlights a significant association between fuel export dependency and economic growth in Nigeria, characterised by statistical robustness. The adverse long-term relationship is attributed to vulnerability to fluctuations in oil prices. Given Nigeria's heavy reliance on oil exports, the economy is susceptible to

global oil price volatility. Consequently, sharp declines in oil prices can result in substantial reductions in export revenue, government income, and foreign exchange earnings, thereby adversely affecting economic growth and fiscal stability.

Also, dependence on fuel exports may result in the neglect of investments in infrastructure and human capital development in other sectors. This can hinder productivity growth, innovation, and competitiveness in long run, constraining overall economic development.

V. FINDINGS AND DISCUSSION

The explanatory variables indicating oil dependency are oil rents dependency, fuel import dependency, and fuel export dependency, with the monetary policy rate utilised as a control variable. The results demonstrate a long-term link among the variables investigated in the study. The dependency on oil rents has a negative and statistically negligible influence on Nigeria's economic growth in the short term; however, it has a positive and statistically significant effect in the long term. Fuel import dependency exhibits a positive yet statistically negligible impact on Nigeria's economic growth in the short term, while the analysis also reveals a positive and insignificant correlation between fuel import dependency and economic growth in the long term. Moreover, fuel export dependency exerts a beneficial albeit negligible influence on Nigeria's economic growth in the short term, while demonstrating a negative and significant effect in the long term. The monetary policy rate, functioning as the control variable, exhibits a positive albeit statistically insignificant correlation with Nigeria's economic growth in both the short and long term.

Numerous studies have examined the impact of oil dependency on economic growth in Nigeria, given that oil revenue constitutes a significant source of income for the country. The data set covers the period from 2012 to 2022, encompassing 11 years, and was sourced from the World Development Indicator 2022. The fuel export dependency exerts a negligible influence on Nigeria's economic growth in the short term, while demonstrating a negative and significant effect in the long term agrees with varies theories examined in this study. The oil price collapse from 2014 to 2016 precipitated Nigeria's first recession in more than twenty years, underscoring the dangers of excessive reliance on a singular commodity (IMF, 2023). The disregard for non-oil sectors, including agriculture and industry, has hindered diversification and innovation, constraining the economy's capacity to provide employment and alleviate poverty. Oluwatobi et al. (2022) assert that the preeminence of the oil sector has stifled investment in other vital sectors, hence prolonging structural imbalances and obstructing equitable progress. Notwithstanding its abundant resources, Nigeria persists in facing elevated poverty, unemployment, and inequality, highlighting the necessity for extensive reforms to realize its economic potential and attain sustainable development. Notwithstanding the significant earnings derived from oil exports, these benefits have not resulted in enhanced public services or infrastructure, especially in Nigeria's rural regions. A substantial amount of oil revenue has been misappropriated or squandered due to corruption, resulting in minimal investment in essential sectors such as healthcare, education, and transportation (Nwankwo & Eze, 2023). Rural populations frequently lack access to essential utilities, like clean water, power, and excellent healthcare facilities, despite Nigeria's status as one of Africa's top oil producers (World Bank, 2023). The focus on infrastructure development in urban areas has intensified the disparity between urban and rural regions, worsening poverty and inequality. Akinola (2020) asserts that the inequitable distribution of oil profits and insufficient investment in public amenities have hindered social development and sustained underdevelopment in rural regions. The deficiency in investment has impeded agricultural output, a vital source of subsistence for rural inhabitants, hence constraining economic prospects and intensifying rural-urban inequities. In the absence of good governance and transparent resource allocation, the capacity of oil revenues to foster inclusive development remains predominantly unfulfilled. Oil exploration and production in Nigeria's Niger Delta have resulted in significant environmental degradation, characterized by recurrent oil spills, extensive gas flaring, and pervasive deforestation, adversely impacting local ecosystems and communities. Nwankwo and Eze (2023) assert that oil

spills have polluted waterways and agricultural fields, decimating aquatic ecosystems and diminishing agricultural output, and gas flaring has emitted hazardous pollutants into the atmosphere, exacerbating health issues and climate change. The Niger Delta, formerly a prosperous area for fishing and agriculture, has experienced significant degradation of livelihoods, rendering many people unable to depend on these traditional occupations for sustenance and income (UNDP, 2023).

RECOMMENDATIONS

Following the findings and in line with the objectives of the study, the study recommends that: On the premises of the above findings the study recommends that there should diversification in revenue generation of the country in order to reduce impact of oil dependency on Nigeria's economic growth.

- Nigerian should invest in developing other sectors such as agriculture, manufacturing, and services to reduce its dependency on oil which one of the solutions to the Dutch Disease as indicated in our findings. Nigeria's lack of investment in research and development (R&D) and technological innovation has limited its ability to transition to a knowledge-based economy, diversification into sectors like agriculture, manufacturing, and services is essential to sustain growth
- Additionally, prudent management of oil revenues and investment in infrastructure and human capital are essential for sustainable economic growth.
- Improve transportation and logistics infrastructure to facilitate domestic production and distribution of energy resources, reducing the need for imports. The Solow model emphasizes the importance of technological progress in driving long-term growth, this implies the need to invest in innovation and diversify the economy beyond oil.
- There should be value addition. Instead of investing in raw fuel, investing in refining capacity to add value to the exported products will scale efficiency.

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