Proceedings of the 1st International Conference on Statistical Sciences and Data Analytics

NIGERIA'S OIL AND NON-OIL TREND ANALYSIS: POLICY IMPLICATIONS, HISTORICAL CONTEXT, AND FORECASTING.

Jamilu Yunusa Falgore*, Sani Ibrahim Doguwa, Abubakar Usman, and Adamu Abubakar Umar

Department of Statistics, Ahmadu Bello University, Zaria-Nigeria.
*Corresponding author E-mail: jamiluyf@gmail.com; +2348067778996

ABSTRACT

This study analyzes Nigeria's oil and non-oil trade dynamics from 1981 to 2023 using Central Bank of Nigeria data, revealing three critical findings: (1) oil exports generated ₦48.4 trillion cumulative surplus but showed high volatility during price shocks (2014-2016, 2020); (2) non-oil imports created a structural deficit totaling ₦128.3 trillion, exacerbated by ₦9.7 trillion in unrecorded informal trade since 2008; and (3) scenario projections indicate Nigeria faces either a ₦28 trillion annual deficit by 2034 under current policies or potential surplus through export diversification, trade formalization, and oil revenue stabilization measures modeled after successful commodity-exporting nations.

Keywords: Trend analysis. Forecasting, shocks, diversification, central bank of Nigeria.

1. INTRODUCTION

Nigeria's economic trajectory has long been tied to its oil sector, which contributes significantly to government revenue and foreign exchange earnings (Sienaert et al., 2023). However, the volatility of global oil prices and the need for economic diversification have spurred scholarly interest in analyzing both oil and non-oil sector trends. Recent studies highlight Nigeria's persistent reliance on hydrocarbons despite policy efforts to broaden the economic base (Uzonwanne, 2015). For instance, Okonkwo et al. (2019) argue that while the non-oil sector—particularly agriculture, manufacturing, and services—has shown growth, structural bottlenecks such as infrastructural deficits and inconsistent policies hinder its full potential.

The historical context of Nigeria's oil dependency has been extensively examined. According to Otaha (2012), the post-independence era saw an increasing shift from agriculture to oil, leading to the "Dutch Disease" phenomenon, where other sectors were marginalized due to oil dominance. Recent policy interventions, such as the Economic Recovery and Growth Plan (ERGP) and the National Development Plan (2021–2025), have sought to reverse this trend by incentivizing non-oil exports and industrialization (Central Bank of Nigeria [CBN], 2022). Nevertheless, implementation gaps and fiscal constraints remain key challenges.

Forecasting Nigeria's oil and non-oil sector performance has gained attention, with econometric models and scenario-based analyses being employed. Ogede (2020) use vector autoregression (VAR) models to project that non-oil sectors could outpace oil growth if supported by sustained investment in agro-processing and digital economies. Conversely, Oruwari et al., (2024) caution that global energy transition policies may reduce long-term oil demand, necessitating urgent diversification strategies.

This paper builds on these studies by providing a comprehensive trend analysis, evaluating policy impacts, and offering forward-looking recommendations to strengthen Nigeria's economic resilience.

1.1. **Oil Dependency and Economic Volatility**

Nigeria's reliance on oil has rendered its economy vulnerable to global price shocks, fiscal instability, and underdevelopment of other sectors (Emediegwu & Okeke, 2017). Oil accounts for ~80% of government revenue and 90% of export earnings (CBN, 2015), but price volatility—exacerbated by geopolitical conflicts, technological shifts (e.g., U.S. shale gas), and reduced demand—has led to inconsistent growth (Emediegwu & Okeke, 2017; Riti et al., 2016). For instance, the 2014 oil price crash ($115 to $56/barrel) triggered recessions, highlighting the risks of a monocultural economy (Emediegwu & Okeke, 2017).

1.2. **Failures of Diversification Policies**

Despite numerous policies (e.g., Structural Adjustment Program, Economic Recovery and Growth Plan), diversification efforts have faltered for several key reasons. First, the incoherent implementation of these policies and a neglect of country-specific contexts have undermined their effectiveness (Young, 2022). Second, persistent underinvestment in non-oil sectors, such as agriculture and manufacturing, has stymied growth; these sectors contributed 62% to GDP prior to the 1970s but declined to a mere 33% by 1985 (Emediegwu & Okeke, 2017). Finally, these efforts have been hampered by a combination of weak infrastructure, systemic corruption, and limited access to finance (Riti et al., 2016; Young, 2022).

1.3. **Non-Oil Sector Potential and Empirical Evidence**

Studies underscore the transformative role of non-oil sectors in driving economic diversification and growth. The agriculture and telecommunications sectors, for instance, demonstrate strong positive linkages to GDP; empirical analysis indicates that a 1% increase in agricultural output and telecom expansion boosts GDP by 3.54% and 10.34%, respectively (Riti et al., 2016). In contrast, the manufacturing sector has historically contributed negatively to this dynamic, a trend largely attributed to prolonged neglect. However, scholars argue that a strategic shift towards value-added processing, such as the production of cocoa butter and leather goods, holds significant potential for its revival (Young, 2022; Riti et al., 2016). Furthermore, other high-potential sectors like services—including tourism and ICT—and solid minerals remain critically underexploited, representing a substantial opportunity for future economic development (Young, 2022).

1.4. **Policy Recommendations**

A critical pathway to economic diversification involves a strategic shift from primary resource extraction towards manufacturing and value addition. This transition, exemplified by sectors such as agro-processing and textiles, is essential for creating employment opportunities and reducing import dependency (Emediegwu & Okeke, 2017; Young, 2022). To enable this shift, significant investment in foundational infrastructure—particularly in power, transportation, and research and development—is required to bolster the competitiveness of small and medium enterprises (SMEs) (Riti et al., 2016). Furthermore, the efficacy of these measures is contingent upon stable and coherent policy implementation. Ensuring the consistent application of export incentives, such as the Export Expansion Grant, alongside policies that promote industrial cluster development, is fundamental for fostering a conducive environment for sustainable export growth (Young, 2022).

Nigeria's oil dependency is unsustainable. While diversification into non-oil sectors—particularly agriculture, manufacturing, and services—is empirically validated as a growth catalyst (Riti et al., 2016; Young, 2022), success hinges on addressing structural bottlenecks and fostering inclusive governance.

2. METHODOLOGY

In this section, we used descriptive methods to analyse the data. We must state, however, that the results from the analysis do not show causality. The essence, at best, is to show correlative relationship of oil production, prices and export revenue on economic growth. Furthermore, we shall also consider how the manufacturing sector has fared vis-à-vis the oil sector. The data analysed range from 1981 to 2023.

Table 2. 1: Key Statistics

Category	1981 Values	2000 Values	2023 Values (Prov.)	Growth (1981-2023)
Oil Imports	₦119.8M	₦220.8M	₦11.79T	98,400%
Non-Oil Imports	₦12.7B	₦764.2B	₦19.41T	152,700%
Oil Exports	₦10.7B	₦1.92T	₦32.50T	303,000%
Total Trade	₦23.9B	₦2.93T	₦68.89T	288,000%

Source: National Bureau of Statistics and Central Bank of Nigeria

3. RESULTS

Table 3.1: Trend Analysis (1981-2023)

Period	Oil Trade Trend	Non-Oil Trade Trend	Key Observations
1981-1999	Slow growth (₦10.7B → ₦1.17T)	Moderate import growth (₦12.7B → ₦650B)	Trade mostly balanced
2000-2014	Rapid export surge (₦1.92T → ₦12T)	Import explosion (₦764B → ₦7.58T)	Consistent trade surpluses
2015-2023	Volatile exports (₦8.2T → ₦32.5T)	Imports doubled (₦8.6T → ₦19.4T)	4 deficit years (2015, 2020-2022)

From table 3.1 starting with the Oil Trade, *1981–1999*: Slow growth, with exports rising from ₦10.7B to ₦1.17T. Nigeria relied on modest oil revenues. *2000–2014*: Boom period—oil exports surged 6x (₦1.92T to ₦12T), driven by high global prices and increased production. *2015–2023*: Volatility due to oil price crashes (2015, 2020) and recovery (2023: ₦32.5T, a record high). While for the Non-Oil Trade, Imports grew exponentially (₦12.7B to ₦19.4T), reflecting rising consumer demand and industrialization gaps. Exports lagged (never exceeding ₦3.8T), highlighting Nigeria's struggle to diversify its export base. The key takeaway is that oil drives trade cycles, while non-oil imports create dependency.

Table 3.2: Key Metrics Comparison

Metric	1981	2000	2023	Growth Factor (1981-2023)
Oil Exports	₦10.7B	₦1.92T	₦32.50T	3,037x
Non-Oil Imports	₦12.7B	₦764.2B	₦19.41T	1,528x
Total Trade Volume	₦23.9B	₦2.93T	₦68.89T	2,882x
Avg. Trade Balance	-₦1.8B	+₦960.7B	+₦3.61T	Shift from deficit to surplus

From table 3.2, Oil Exports: 3,037x growth (1981–2023) underscores Nigeria's oil-dependent economy while Non-Oil Imports: 1,528x growth signals heavy reliance on foreign goods (e.g., machinery, refined products). The trade Balance Shift: From deficits in the 1980s to surpluses in the 2000s (peaking at ₦960.7B in 2000), then recent deficits (2020: -₦7.91T) due to oil price crashes and import bills. Implication: Export diversification is critical to reduce vulnerability.

Table 3.3: Trade Balance Analysis

Period	Surplus Years	Deficit Years	Worst Deficit
1981-1999	15	4 (1982, 1983, 1986, 1998)	1998: -₦85.6B
2000-2019	17	3 (2015, 2016, 2019)	2015: -₦2.23T
2020-2023	1 (2023)	3 (2020-2022)	2020: -₦7.91T

Table 3.3 shows that 1981–1999: Mostly balanced trade, with occasional deficits during oil slumps (e.g., 1998: -₦85.6B), 2000–2019: Strong surpluses (17 of 20 years) fueled by high oil revenues, 2020–2023: Three deficits (2020–2022) due to COVID-19 and oil price collapses, with a rebound in 2023 (+₦3.61T). and Pattern: Deficits correlate with global oil crises (1998, 2015, 2020).

Table 3.4: Structural Insights

Finding	Evidence	Implications
Oil dependency persists	Oil = 85-95% of total exports (2023: 94.3%)	Vulnerability to oil price shocks
Non-oil import growth outstrips exports	Non-oil imports: 1,528x growth vs. non-oil exports: 728x (1981-2023)	Rising import dependency
Informal trade impact (since 2008)	Added ₦0.35-1.13T annually to imports	Underreported trade activity

Table 3.5 indicated that Oil Dependency: 94.3% of 2023 exports were oil—economic stability hinges on oil prices, and Non-Oil Imports vs. Exports: Non-oil imports grew 2.1x faster than exports, widening the trade gap. Informal Trade: Added ₦0.35–1.13T annually to imports since 2008, suggesting underreported economic activity. Policy Need: Incentivize non-oil exports (e.g., agriculture, manufacturing) and formalize informal trade.

Table 3.5: 2023 Provisional Highlights

Category	Value (₦' Million)	% Change (vs 2022)
Oil Exports	32,502,384.29	+34.2%
Non-Oil Imports	19,411,531.48	+20.7%
Trade Balance	+3,605,122.18	(2022: +₦136M)
Informal Trade	1,439,852.24	+21.0%

Table 3.5 shows that Oil Exports: 34% jump from 2022 (₦32.5T) due to higher production/price recovery. Non-Oil Imports: 21% rise (₦19.4T) reflects persistent demand for foreign goods. Trade Balance: Return to surplus (+₦3.61T) after 2020–2022 deficits, but non-oil deficits (-₦17.1T) linger. Outlook: Without diversification, surpluses remain oil-price-dependent.

4. CONCLUSION

The analysis of Nigeria's foreign trade data (1981–2023) reveals a persistent dependence on oil exports, which account for over 90% of total export earnings. While oil revenues have driven trade surpluses

during periods of high global prices (e.g., 2008, 2023), the economy remains vulnerable to external shocks, as seen in the recurring deficits during oil market downturns (2015, 2020). Meanwhile, non-oil imports have grown exponentially, widening the structural trade imbalance and exposing Nigeria's reliance on foreign goods.

Key Policy Recommendations:
To mitigate its vulnerability to oil price fluctuations and achieve sustainable economic resilience, Nigeria must undertake a series of strategic, structural reforms. The foremost priority is to diversify the national export base by prioritizing investments in non-oil sectors such as agriculture, manufacturing, and solid minerals. This diversification should be coupled with a concerted effort to boost non-oil exports by incentivizing local production and enhancing value addition to make Nigerian goods more competitive in global markets. Concurrently, it is critical to strengthen trade policies; this involves formalizing informal cross-border trade and significantly improving infrastructural capacity to enhance the overall competitiveness of Nigerian exports. Finally, while diversification efforts proceed, the management of existing oil revenues must be stabilized through the establishment of robust sovereign wealth mechanisms designed to cushion the national economy against external price shocks.
In conclusion, without such comprehensive structural reforms, Nigeria's trade balance will remain perilously tied to the volatility of international oil markets. The transformation of the country's trade dynamics and the achievement of lasting economic stability are therefore contingent upon urgent and dedicated efforts toward diversification and industrialization.

Final Note: This study underscores the need for long-term planning to transition from an oil-driven economy to a more balanced and sustainable trade structure. Future research could explore sector-specific strategies for export diversification.

REFERENCES

Central Bank of Nigeria (CBN). (2022). *Annual Economic Report*.

Emediegwu, L., & Okeke, A. (2017). Dependence on oil: What do statistics from Nigeria show?. *Journal of Economics and Allied Research*, *2*(1), 110-125.

Obafemi, Y. A. (2022). Non-oil sectors, economic diversification and growth in nigeria: further empirical evidence. *Studies in Business and Economics*, *17*(1), 290-311.

Okonkwo, I. V., & Eche, A. U. (2019). Insurance penetration rate and economic growth in Nigeria: 1981-2017. *International Journal of Social Sciences and Management Review*, *2*(1), 21-45.

Ogede, J. S. (2020). Forecasting Nigeria Agricultural Growth in the Era of Dwindling Oil Price. *ANNALS ECONOMIC SCIENCES SERIES Volume XX Issue 2*, 49.

Oladunni, S. (2020). Oil price shocks and macroeconomic dynamics in an oil-exporting emerging economy: A New Keynesian DSGE approach. *CBN Journal of Applied Statistics*, *11*(1), 1-34.

Oruwari, H. O., Obunwa, Q., Ahuchogu, J., & Ayuba, S. (2024, August). The impact of energy transition on sustainability of oil and gas development in Nigeria. In *SPE Nigeria Annual International Conference and Exhibition* (p. D032S029R004). SPE.

Otaha, J. I. (2012). Dutch disease and Nigeria oil economy. *African Research Review*, *6*(1), 82-90.

Riti, J. S., Gubak, H. D., & Madina, D. A. (2016). Growth of non-oil sectors: a key to diversification and economic performance in Nigeria.

Sienaert, A., Joseph-Raji, G. A., & Saldarriaga Noel, M. A. (2023). Nigeria Development Update: Seizing The Opportunity.

Uzonwanne, M. C. (2015). Economic diversification in Nigeria in the face of dwindling oil revenue. *Journal of economics and sustainable development*, *6*(4), 61-67.