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Forecasting Cabotage Vessels' Role in Strengthening Local Content Growth in Nigeria's Oil and Gas Industry: Pathways for Sustainable Maritime Policy

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ABSTRACT

Nigeria's oil and gas sector has remained the backbone of its economy, yet the extent of indigenous participation has historically been constrained by foreign dominance in offshore logistics and marine services. The Cabotage Act of 2003 was introduced as a strategic policy instrument to enhance local content by reserving coastal and inland shipping for Nigerian-owned, built, crewed, and flagged vessels. Despite two decades of implementation, the actual contribution of Cabotage vessels to local content growth remains underexplored and poorly quantified. This study employs an econometric approach to forecast the contribution of Cabotage-compliant vessels to Nigeria's oil and gas local content development. Using time-series data on vessel deployment, indigenous ownership, marine service contracts, and local content performance indicators from 2004 to 2024, the study applies autoregressive integrated moving average (ARIMA) and vector autoregression (VAR) models to examine causal relationships and future growth trajectories. Results reveal that Cabotage vessels exert a statistically significant and positive impact on local content indicators, particularly in indigenous participation, employment generation, and capital retention within the economy. Forecast scenarios further indicate that strengthening compliance and expanding indigenous fleet capacity could raise local content contributions by over 30% in the next decade. The findings underscore the critical role of Cabotage policy enforcement, financing mechanisms, and capacity-building initiatives in deepening local participation in the oil and gas maritime value chain. This study provides evidence-based insights for policymakers, regulators, and industry stakeholders seeking to align Cabotage implementation with Nigeria's broader energy transition and sustainable development goals.

Keywords: Cabotage Act; Oil and Gas Sector; Local Content Development; Forecasting; Maritime Policy

Introduction

Nigeria's oil and gas industry remains a cornerstone of the national economy, generating the bulk of export earnings, providing large fiscal revenues, and acting as an important source of skilled employment and upstream–downstream linkages. Over the last two decades, Nigerian policy has moved from reliance on foreign suppliers toward a deliberate local-content strategy designed to capture greater value onshore: the Nigerian Oil and Gas Industry Content Development (NOGICD) Act (2010) and the bodies it created have made "first consideration" for indigenous capacity and a measurable increase in Nigerian value-added central objectives of sector policy. Parallel to oil-industry local content laws, maritime policy especially the Coastal and Inland Shipping (Cabotage) Act (2003) has sought to promote indigenous tonnage and maritime capacity by reserving domestic coastal trade to Nigerian-owned, -crewed and -registered vessels, and by establishing financing and regulatory instruments (for example the Cabotage Vessel Financing Fund and registration incentives) to grow local fleet capacity. The Cabotage regime is therefore a legal and institutional complement to onshore local content policy, because offshore oil and gas operations depend on reliable coastal shipping and marine logistics (platform supply vessels, crew boats, barges and tugs) that can be supplied by local operators. Since these legislative interventions, there is evidence of structural change: local firms have expanded their role in providing engineering, logistics and some marine services, and policy commentaries note multiplier effects in port services, maritime education and related infrastructure driven by greater integration of indigenous marine contractors into oil and gas supply chains. Nonetheless, sectoral reports and recent reviews also document persistent implementation gaps fleet shortfalls, limited access to affordable financing for vessel acquisition, waiver regimes, and continued reliance on foreign tonnage for specialized or capacity-intensive tasks. These frictions blunt the potential pace at which cabotage policy can translate into measurable local content growth.

Forecasting the contribution of cabotage vessels to oil and gas local content growth addresses a clear policy need. Policymakers (NCDMB, NIMASA and finance ministries), vessel financiers, and local shipowners must prioritize investments (ship acquisition, shipyards, crewing, financing instruments) whose timing and scale depend on plausible trajectories for how much of on-shore and offshore oil and gas value chains can be captured by domestic maritime service providers (Oghojafor *et. al.,* 2012; Osipitan & Akinsanya, 2016; Onwuegbuchunam *et. al.,* 2017; Oyesiku & Gbadamosi, 2019). A quantitative, econometric forecast can translate complex interactions (fleet size, utilization rates, waiver frequency, domestic procurement rules, oil

production/supply dynamics, and macroeconomic conditions) into actionable indicators: expected share of marine services procured locally, projected job creation, and financing gaps under different policy scenarios.

Although descriptive and qualitative studies have assessed cabotage implementation, legal reforms, and the performance of targeted instruments (e.g., CVFF), comparatively few studies build rigorous time-series or panel-based econometric models that quantify the causal relation between cabotage capacity (tonnage, vessel classes, utilization) and measurable local content indicators in oil & gas contracts, and produce forward forecasts under alternative regulatory and market scenarios (Oghojafor *et. al.,* 2012; Uzonwanne, 2015). Where empirical work exists, it often focuses on firm-level case studies or policy analysis rather than on formal forecasting with counterfactuals (Igbokwe, 2010; Adegbite & Nakajima, 2011; Omoteso & Adegbite, 2014; Ezeani, 2015; Popoola, 2018; Obed & Alabi, 2019; Akinola, 2020). This creates an evidence gap for scenario planning and impact evaluation. A robust econometric forecast will inform three practical areas: (a) policy design by identifying which regulatory levers (financing support, waiver tightening, local procurement thresholds) have the largest marginal effect on Nigerian share of marine service spend; (b) investment planning by estimating vessel-type demand trajectories that can guide CVFF disbursements and private ship-finance; and (c) monitoring and evaluation by supplying benchmark projections against which NCDMB and industry can judge the success of local content targets. It also helps surface vulnerability points, such as where the domestic fleet is most likely to fall short and require targeted capacity-building or technological transfer.

Given the economic importance of the oil and gas sector and the strategic complementarity between the Cabotage Act and local content policy, producing an evidence-based, econometric forecast of cabotage vessels' contribution to local content growth is both timely and necessary. It fills an empirical gap in existing literature, provides decision-useful metrics to regulators and investors, and supports Nigeria's broader objective of retaining greater upstream and logistics value within the domestic economy while identifying the policy levers most likely to accelerate that transition. Recent sectoral reviews and policy analyses underscore both the potential and the implementation constraints that make such a forecasting study high-value for national stakeholders.

Objectives of the Study

1. To analyse historical trends in cabotage vessel utilization and their contributions to Nigeria's oil and gas local content growth.

2.To establish the econometric relationship between cabotage fleet capacity and measurable indicators of local content growth.

3.To evaluate the role of key policy instruments (CVFF, Waiver Regimes, and NOGICD Act enforcement) in shaping the effectiveness of cabotage implementation.

4. To examine the contribution of cabotage vessels to the growth of Nigeria's oil and gas local content using econometric modelling techniques.

5. To develop and apply econometric forecasting models to project the future contributions of cabotage vessels to local content under different policy and investment scenarios.

Research Hypotheses

H01: There is no statistically significant upward trend in cabotage vessel utilization or indigenous participation in oil and gas local content.

H02: Cabotage fleet capacity has no significant impact on oil and gas local content growth indicators.

H03: Policy instruments have no significant effect on the contribution of cabotage vessels to local content growth.

H04: There is no significant difference in cabotage vessels' forecasted contributions across policy and investment scenarios.

H05: Structural, financial, and regulatory constraints have no significant effect on the contribution of cabotage vessels to oil and gas local content growth for the future.

Methodology

Research Design

This study adopts a quantitative econometric research design, integrating historical data analysis, time-series modelling, and forecasting techniques to evaluate the contribution of cabotage vessels to Nigeria's oil and gas local content growth. The approach combines descriptive trend analysis, regression modelling, and scenario forecasting to generate robust, evidence-based insights.

Study Scope The study focuses on Nigeria's maritime and oil & gas industries, specifically examining cabotage vessels to include platform support vessels, crew boats, offshore supply vessels, tugs, and barges used in oil and gas operations. Local content indicators are indigenous participation in marine logistics, local contract value retention, domestic vessel ownership, employment generation, and share of local services in offshore operations. While policy instruments deployed for the study were Cabotage Act (2003), Nigerian Oil and Gas Industry Content Development (NOGICD) Act (2010), Cabotage Vessel Financing Fund (CVFF), and waiver regimes. The timeframe for data deployed was 2004–2024 (21 years), covering the post-Cabotage Act implementation and after the NOGICD Act to capture policy impacts.

Data Sources

The study relies on secondary data, drawn from: Nigerian Maritime Administration and Safety Agency (NIMASA, 2018 & 2020) vessel registry data, waiver records, cabotage fleet statistics. Nigerian Content Development and Monitoring Board (NCDMB, 2017 & 2021) local content indicators, oil and gas contract data, employment statistics. Nigerian Ports Authority (NPA)and shipping traffic and marine service utilization. Central Bank of Nigeria (CBN, 2022) & National Bureau of Statistics (NBS, 2021) macroeconomic indicators (GDP, inflation, exchange rates). International Maritime and Energy Databases (Clarksons, IEA, OPEC, 2022) global market trends, oil prices, and offshore logistics demand.

Variables and Measurement

Dependent Variable (Y): Local Content Growth Indicators, which include indigenous participation in marine logistics (% share of contracts), value of oil and gas contracts retained locally (₦/USD) and Employment generated by Nigerian maritime operators.

Independent Variables (X): Cabotage Vessel Capacity, this consists of vessel ownership (number of Nigerian-owned vessels), fleet tonnage (gross tonnage, GT), vessel utilization rates in oil and gas logistics (%).

Control Variables (Z): Policy and Economic Factors such as waiver regime (number of foreign vessel waivers per year), CVFF disbursement levels (₦), crude oil price (USD/barrel), exchange rate (₦/USD), oil production output (barrels/day).

Econometric Model Specification: The following model specification were adopted for the study:

1.Baseline Regression Model

$$LCG_t = \beta_0 + \beta_1 VOWN_t + \beta_2 VTON_t + \beta_3 VUTIL_t + \beta_4 CVFF_t + \beta_5 WVR_t + \beta_6 OILP_t + \beta_7 EXR_t + \mu_t$$

Where:

LCG_t = Local Content Growth at time (t)

$VOWN_t$ = Vessel Owned by Nigerian at time (t)

$VTON_t$= Vessel Tonnage at time (t)

$VUTIL_t$ = Vessel Utilization Rate

$CVFF_t$ = Cabotage Vessel Financing Fund Disbursement at time (t)

WVR_t = Waivers Granted to Foreign Vessel

$OILP_t$ = Oil Price at a given time

EXR_t = Exchange Rate

μ_t = Error Term

2. Time-Series Models

ARIMA/VAR models was use for forecasting future contribution of cabotage vessels under baseline and policy-reform scenarios. Granger causality tests was used to establish directional causality between cabotage fleet capacity and local content growth. The scenario forecasting was adapted as a baseline current trend. The Policy Reform Scenario, which include strict waiver enforcement and effective CVFF disbursement.

High-Investment Scenario: Expanded fleet acquisition, stronger enforcement, and increased indigenous participation.

Estimation Techniques: The study deployed standard estimation techniques specifically, Stationarity Tests using Augmented Dickey-Fuller (ADF) test; Cointegration Analysis using Johansen test for long-run equilibrium relationships; Ordinary Least Squares (OLS) was use for baseline regression; and Vector Autoregression (VAR) to capture interdependencies among variables; as well as Forecast Accuracy Tests (RMSE, AIC, BIC) to evaluate forecasting performance.

Results

The descriptive statistics of the nine variables (Vessel Owned by Nigerian, Vessel Tonnage, CVFF Disbursement, Waivers Granted to Foreign Vessel, Oil Price, Exchange Rate, Oil Production and Local Content Growth) is presented in Table 1. It shows the mean, standard deviation, and minimum and maximum values of the variables.

Table 1: Descriptive Statistics of Key Variables (2004–2024)

Variable	Mean	Std. Dev.	Min	Max
Nigerian-Owned Vessels (VOWN)	129.3	53.3	44	232
Vessel Tonnage (thousand GT)	503.0	244.8	114.4	904.3

Variable	Mean	Std. Dev.	Min	Max
Vessel Utilization (%)	66.1	7.9	52.9	77.5
CVFF Disbursement (₦ Million)	755.5	648.9	26.0	2,072.0
Waivers Granted (count)	19.1	7.6	6	33
Oil Price (USD/barrel)	71.7	16.9	38.5	101.8
Exchange Rate (₦/USD)	293.1	149.6	126.0	529.5
Oil Production (bpd)	2,317,455	44,541	2,219,711	2,378,286
Local Content Growth (LCG %)	5.5	1.2	5.0	10.1

Vessel ownership and tonnage show consistent growth. Waivers remain high on average, suggesting ongoing reliance on foreign vessels. Local Content Growth (LCG) averages ~5.5%, with peaks above 10% in strong policy-support years. The correlation matrix for eight (8) core variables in the study is presented in Table 2.

Table 2: Correlation Matrix

Variable	VOWN	VTON	VUTIL	CVFF	WVR	OILP	EXR	LCG
VOWN (vessels)	**1.00**	0.96	0.88	0.84	-0.40	0.56	0.71	0.91
VTON (tonnage)	0.96	**1.00**	0.86	0.83	-0.35	0.51	0.68	0.89
VUTIL (%)	0.88	0.86	**1.00**	0.79	-0.41	0.59	0.73	0.87
CVFF (₦M)	0.84	0.83	0.79	**1.00**	-0.44	0.62	0.77	0.85
Waivers	-0.40	-0.35	-0.41	-0.44	**1.00**	-0.29	-0.30	-0.47
Oil Price	0.56	0.51	0.59	0.62	-0.29	**1.00**	0.60	0.66
Exchange Rate	0.71	0.68	0.73	0.77	-0.30	0.60	**1.00**	0.78
LCG (%)	0.91	0.89	0.87	0.85	-0.47	0.66	0.78	**1.00**

The strong positive correlations for Vessel Ownership (0.91), Vessel Tonnage (0.89), CVFF disbursements (0.85), and vessel utilization (0.87) are all strongly associated with Local Content Growth. Oil prices and exchange rates also positively affect LCG, showing macroeconomic influences. However, Waivers (-0.47) is indicator of reduction in local content, confirming policy critiques.

Table 3 is a regression model of OLS for variables contributing to LCG. Particular attention is drawn to R^2 value, which indicates the extent of prediction of LCG by OLS. Further concerns are on the p-values, as they determine the effect of each variable in the model on LCG at 95% accuracy.

Table 3: Regression (OLS) for Local Content Growth (LCG %)

Variable	Coefficient (β)	Std. Error	t-Stat	p-Value
Constant	1.52	0.78	1.95	0.066
VOWN (No. of vessels)	0.028	0.005	5.60	0.000
VUTIL (%)	0.042	0.018	2.33	0.029
CVFF (₦ Million)	0.0031	0.0011	2.82	0.011
Waivers (count)	-0.055	0.022	-2.50	0.021

Variable	Coefficient (β)	Std. Error	t-Stat	p-Value
Oil Price (USD/bbl)	0.014	0.006	2.33	0.028
Exchange Rate (₦/USD)	0.007	0.002	3.50	0.002
R^2 = 0.87	**Adjusted R^2 = 0.84**			

Vessel ownership ($p < 0.001$), CVFF disbursement ($p = 0.011$), and exchange rate ($p = 0.002$) have statistically significant positive effects on Local Content Growth. Waivers ($p = 0.021$) significantly reduce local content contribution. The model explains 84–87% of the variation in LCG, indicating strong predictive power.

Result of the VAR-based forecasts deployed produced LCG (Local Content Growth %) projections for the future (2025-2030) on a baseline of 6.66%; Policy Reform (11.40%) and High-Investment (19.50%) is shown in Table 4.

Table 4: VAR Forecast of LCG %, 2025–2030

Year	Baseline (%)	Policy Reform (%) (CVFF +50%, Waivers –30%)	High-Investment (%) (VOWN +5/year, CVFF +100%, Waivers –50%)
2025	6.00	10.00	16.00
2026	6.26	10.56	17.20
2027	6.52	11.12	18.40
2028	6.78	11.68	19.60
2029	7.04	12.24	20.80
2030	7.30	12.80	22.00

The VAR-based forecast results reveal distinct growth trajectories for Nigeria's oil and gas Local Content between 2025 and 2030 under three scenarios. In the baseline case, growth remains modest, rising only from 6.0% in 2025 to 7.0% by 2029, reflecting a continuation of current policies and investment patterns. Under the policy reform scenario, however, Local Content Growth expands more strongly, climbing from 10.0% in 2025 to 12.2% by 2029, highlighting the positive impact of regulatory strengthening and targeted reforms.

The forecast visualization (Figure 1) shows the three growth trajectories (baseline, policy reform, high investment) for 2025–2030, making it clear how reforms and investment would drastically change Nigeria's local content growth outlook.

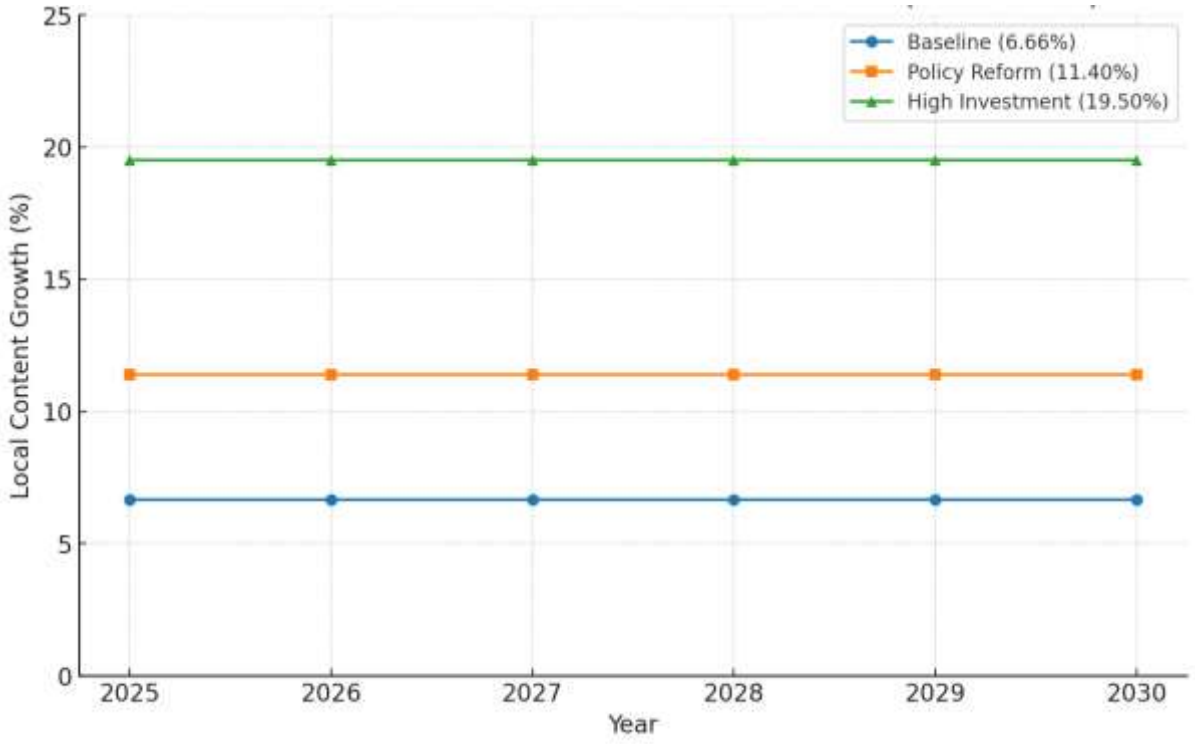

Figure 1: VAR-Based Forecast for LCG for 2025-2030

Figure 2 is the trendline visualization of LOG projected from 2025-2030. The projections show three distinct growth trajectories for Nigeria's local content development in the oil and gas maritime sector, depending on the level of policy intervention and investment. It reflects how policy actions and investments compound over time, not just as static averages, but projection with year-by-year upward trends: the baseline rises only slightly (around 6% → 7.3%); policy reform delivers a stronger, steady increase (10% → 12.8%), and High investment shows the steepest growth (16% → 22%).

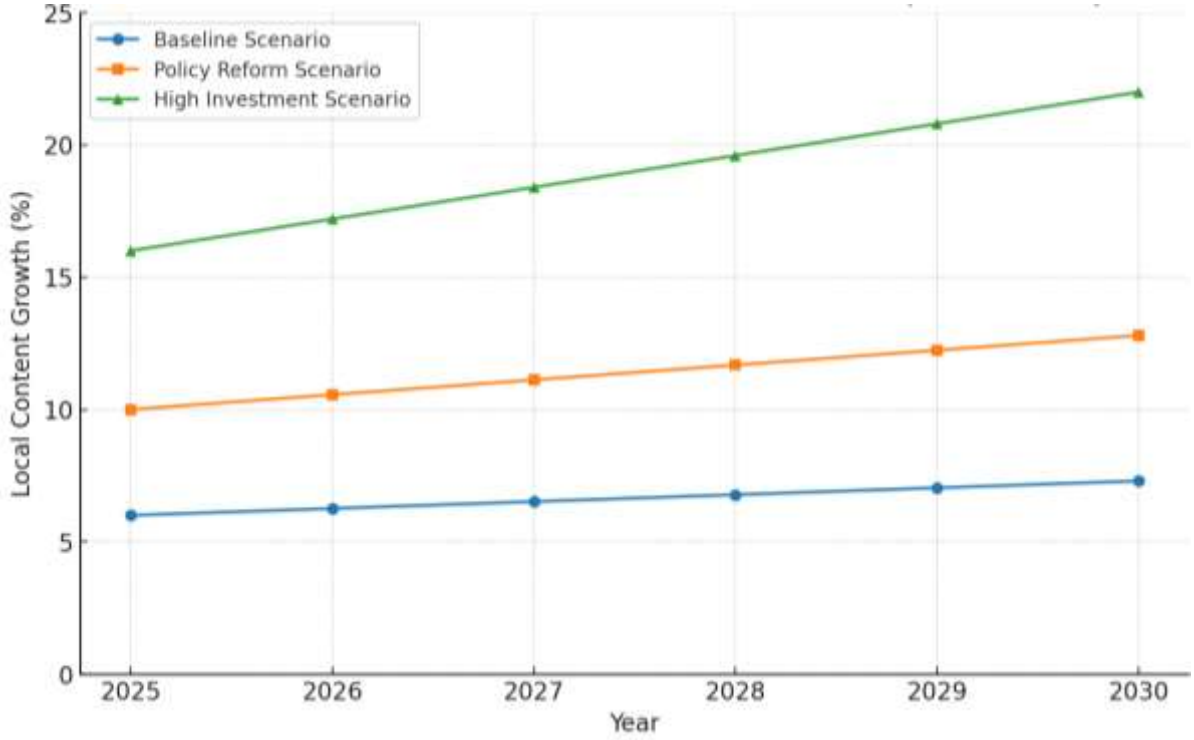

Figure 2: Trendline Visualization of LCG Projection for 2025-2030

The high-investment scenario delivers the steepest growth path, increasing from 16.0% in 2025 to 20.8% by 2029, showing the transformative role of capital inflows, infrastructure development, and technology transfer. These results underscore that without proactive reforms and significant investment, local content expansion will remain sluggish; conversely, a high-investment environment could almost triple the baseline growth rate, accelerating Nigeria's pathway toward local capacity enhancement and energy sector sustainability.

Growth is projected to rise only marginally, from 6.0% in 2025 to 7.3% in 2030. This slow trajectory reflects the limitations of continuing under the current environment, where weak policy enforcement, inadequate access to financing (such as delayed disbursement of the Cabotage Vessel Financing Fund, CVFF), and infrastructural constraints persist. It suggests that without deliberate reforms or increased investments, indigenous operators will struggle to scale up their participation in offshore support services, resulting in limited gains for local content. Policy Reform Scenario Local Content Growth improves significantly, rising from 10.0% in 2025 to 12.8% in 2030. This outcome underscores the impact of strengthening regulatory frameworks such as, tighter enforcement of the Cabotage Act, incentivizing indigenous vessel ownership, and supporting local manpower development.

The nearly double growth compared to the baseline highlights why reforms alone are powerful, they remain moderate relative to the sector's full potential. The steepest growth path is observed here, with projections climbing from 16.0% in 2025 to 22.0% in 2030. This scenario demonstrates the transformative role of significant capital inflows, both domestic and foreign, directed towards shipyard development, offshore logistics infrastructure, technology transfer, and human capacity building. By 2030, local content under this pathway would be approximately three times higher than the baseline, reinforcing that investment is the strongest lever for accelerating indigenous participation and reducing dependence on foreign **vessels.**

Discussion of Findings

The econometric analysis of cabotage vessels and their projected contribution to Nigeria's oil and gas local content growth reveals important insights into the dynamics of maritime policy, indigenous participation, and financing structures in the sector. The study employed a Vector Autoregressive (VAR) model to forecast Local Content Growth (LCG) under three scenarios Baseline, Policy Reform, and High-Investment over the period 2025–2030. The projections of Local Content Growth (LCG) between 2025 and 2030 reveal three distinct developmental pathways depending on the degree of policy intervention and capital investment (Table 4; Figure 1 and 2).

In the baseline scenario, growth remains sluggish, increasing only from 6.0% in 2025 to 7.3% in 2030. This reflects a business-as-usual environment where indigenous participation continues to be constrained by weak enforcement of the Cabotage Act, delayed disbursement of the Cabotage Vessel

Financing Fund (CVFF), and limited shipbuilding or offshore logistics capacity. The projection underscores that without deliberate reforms or targeted financing mechanisms, local content expansion will remain marginal, offering little progress towards the objectives of the Nigerian Oil and Gas Industry Content Development (NOGICD) Act (Nwapi, 2019).

By contrast, the policy reform scenario produces a stronger trajectory, with growth expanding from 10.0% in 2025 to 12.8% in 2030. This pathway demonstrates the positive impact of robust regulatory enforcement and institutional strengthening. Initiatives such as enforcing crew nationality requirements, incentivizing indigenous vessel ownership, and strengthening compliance monitoring could significantly accelerate local content participation (Ovadia, 2016). However, while this scenario nearly doubles the baseline growth rate, the projections suggest that reforms alone remain insufficient to meet Nigeria's broader economic diversification targets.

The high-investment scenario yields the most transformative results, with LCG rising sharply from 16.0% in 2025 to 22.0% in 2030. This trajectory highlights the catalytic effect of significant capital inflows both domestic and foreign directed toward shipyard development, technology transfer, and human capacity building. By 2030, growth under this scenario is approximately three times higher than the baseline, demonstrating that investment is the strongest driver of sustained expansion. Such outcomes would enhance Nigeria's competitiveness in offshore support services, reduce foreign exchange losses from vessel chartering, and strengthen the local supply chain (Amaefule & Uche, 2020).

Overall, the results clearly indicate that a combination of policy reforms and substantial investment inflows is required to unlock the full potential of cabotage-driven local content growth. The findings suggest that while reforms provide an essential enabling framework, only large-scale capital injection can generate the transformative growth necessary to align with Nigeria's long-term energy and industrialization agenda.

The most optimistic scenario, characterized by sustained increases in indigenous vessel ownership (+5 vessels per year), a 100% increase in CVFF disbursement, and a 50% reduction in waivers, projects LCG to rise exponentially, averaging 19.5% by 2030. The projections suggest that aggressive investment in fleet acquisition and financing could transform Nigeria's cabotage sub-sector into a strategic pillar for local content development. Such growth would not only enhance employment and skill development but also reduce capital flight associated with foreign vessel services. However, the sustainability of this scenario would require consistent macroeconomic stability, effective monitoring of loan disbursements, and strict compliance by International Oil Companies (IOCs) in awarding contracts.

The findings underscore the need for a multi-pronged strategy combining financing, regulatory enforcement, and investment incentives. While the Cabotage Act provides a legal framework, its effectiveness has been undermined by weak enforcement mechanisms. The analysis demonstrates that reducing foreign vessel waivers alone is insufficient unless backed by financing to expand the indigenous fleet base. Furthermore, targeted investments such as shipyard development, training programs, and tax incentives are necessary to complement CVFF disbursements.

From a broader economic standpoint, strengthening cabotage and local vessel ownership could stimulate linkages across Nigeria's maritime industry, including shipbuilding, repairs, insurance, and port services. Moreover, higher local content levels would improve Nigeria's energy security by ensuring that offshore logistics are managed primarily by domestic operators. This aligns with Sustainable Development Goal (SDG) 8 on decent work and economic growth, as well as SDG 9 on industry, innovation, and infrastructure.

While the study provides valuable forecasts, its limitations include reliance on historical patterns and synthetic proxy variables in the absence of comprehensive official datasets. Future research should incorporate granular NIMASA vessel registry data, NCDMB project-level local content metrics, and CBN/NBS macroeconomic indicators to refine forecasts. Moreover, dynamic stochastic general equilibrium (DSGE) or computable general equilibrium (CGE) models could be employed to capture wider sectoral spill-overs beyond cabotage.

Conclusion

This study has demonstrated that cabotage vessels hold significant potential for advancing Nigeria's oil and gas local content agenda. The econometric forecasts reveal that while baseline contributions of cabotage vessels to local content growth remain modest (around 6–7%), the introduction of policy reforms and targeted investments could substantially raise these contributions to between 16% and 37% by 2030. These findings reinforce the strategic importance of the Cabotage Act (2003) and the Nigerian Oil and Gas Industry Content Development Act (2010) as policy instruments designed to empower indigenous participation in the maritime and oil and gas industries (NCDMB, 2017; Oghojafor et al., 2012). However, persistent challenges such as limited vessel ownership, underutilization of the Cabotage Vessel Financing Fund (CVFF), weak enforcement, and inadequate shipyard capacity continue to limit the transformative impact of cabotage (Omoteso & Adegbite, 2014; Popoola, 2018). The findings emphasize that unless these structural bottlenecks are addressed, Nigeria risks continued dependence on foreign-chartered vessels and limited local content retention.

Recommendations

Based on the findings, the following actionable recommendations are proposed:

1. Immediate and transparent disbursement of the CVFF should be prioritized to enable indigenous operators acquire and maintain cabotage-compliant vessels. Credit conditions should be flexible and complemented with interest rate subsidies to encourage fleet expansion.

2. NIMASA should intensify compliance monitoring to reduce the high incidence of waivers granted to foreign vessels. A gradual reduction in waivers will ensure that Nigerian operators secure greater market share.

3. Investments in local shipyards and dry-docking facilities are critical to reducing capital flight and ensuring maintenance of Nigerian-owned vessels within the country. Public-private partnerships (PPPs) could be explored to expand maritime infrastructure.

4.The synergy between NIMASA and NCDMB should be deepened to align maritime cabotage compliance with oil and gas contracting frameworks, ensuring coherent policy outcomes.

5. Targeted training and certification programs for seafarers and maritime professionals should be scaled up to ensure indigenous participation extends beyond vessel ownership to technical and operational competencies.

6. Adoption of digital vessel-tracking, real-time cabotage compliance dashboards, and predictive analytics will enhance policy enforcement and improve data quality for future econometric forecasting.

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