Asian Journal of Economics and Business
Volume 6; Number 2; 2025 : pp. 233-250
https://DOI:10.47509/AJEB.2025.v06i02.06

ARF INDIA
Academic Open Access Publishing
www.arfjournals.com

Economic Integration and Export Performance in Nigeria

Stanley Uche AKACHUKWU

Bashir Adeniyi Center for International Trade and Investment of the Nigerian Institute of International Affairs, Lagos, Nigeria. E-mail: akachukwustan@gmail.com

Article History
Received : 10 September 2025; Revised : 08 October 2025; Accepted : 15 October 2025; Published : 12 November 2025

Abstract: This study investigates the impact of economic integration on Nigeria's exports of the agricultural, intermediate (value-added), and manufacturing sectors. Most prior studies in Nigeria in this area studied the nexus between economic integration and a particular sector using cross-country analysis. The study focuses on the three sectors (agriculture, intermediate (value-added), and manufacturing) because of their interconnectedness and their critical role in stimulating growth. Although Nigeria has made efforts towards economic diversification for broad-based growth, its export performance remains unsatisfactory. The Auto-Regressive Distributed Lag econometric model was explored, in which short-run and long-run models were independently estimated for each sector. Manufacturing estimates revealed that economic integration (HOIEI) exerts about 0.37% improvement on manufacturing exports one year after economic integration in the long run. The agricultural sector results showed that as economic integration (HOIEI) improves, agricultural exports rise by about 2.46% in Nigeria. The Long-run estimate of the value-added sector did not identify any relationship between economic integration and value-added exports. The study established that economic integration influences agricultural and manufacturing sector exports but shows no impact on value-added (intermediate) exports. The intermediate sector needs to be productively strengthened through infrastructural investment and knowledge sharing. The linkage between the intermediate sector, agriculture, and manufacturing sectors is crucial to enhancing

To cite this paper:
Stanley Uche Akachukwu (2025). Economic Integration and Export Performance in Nigeria. *Asian Journal of Economics and Business.* 6(2), 233-250. *https://DOI:10.47509/AJEB.2025.v06i02.06*

productivity and exports. This will stimulate output vis-à-vis government revenue and make the government less dependent on foreign aid and external borrowing.

Keywords: Economic Integration, Export Performance, Auto-Regressive Distributed Lag

1. INTRODUCTION

International economic integration has been rapidly spreading across the world due to the increased globalization-related commerce, investment, information technology, and ideas. African countries are involved in many economic integrations (EI) such as the African Growth and Opportunity Act (AGOA), New Partnership for Africa's Development (NEPAD), African Continental Free Trade Area (AfCFTA), and Economic Community of West African States (ECOWAS). EI enables member nations of the economic bloc to create trade (products, services, technology, or ideas) along the Global Value Chain (GVC) and exchange them to the larger markets (Obeng et al., 2023; Mattoo et al., 2021). Member countries take advantage of the increased market size to improve production, innovation, and distribution, especially through comparative or competitive advantage. Increased productivity arises from the expanded volume of trade, competition, and flow of knowledge that makes countries more skillful, innovative, and efficient in the production process. The expanded productivity promotes export, revenue, and economic growth.

Nigeria is endowed with large natural and human resources (youth bulge) and actively participates in many regional integrations, including ECOWAS and the African Continental Free Trade Area (AfCFTA)[1]. These features are expected to reflect in their export intensity, especially non-oil exports. The government has developed policies to enhance diversified export baskets other than crude oil[23]. The government has also put forward reforms to incentivize exporters to promote export volumes, such as the Export Development Fund scheme (2004), Economic Sustainability Plan (2020), and various agricultural subsidy schemes (Central Bank of Nigeria, 2023).

However, Nigeria's export share to GDP has decreased over the years. In 2000, 2010 and 2021, Nigeria's trade to GDP were 36%, 25.3% and 18% respectively (World Bank, 2024). Nigeria's total export share to Africa trade in 2000, 2010, and 2021 recorded 45%, 45%, and 51% respectively (World Integrated Trade Solution, 2024). The statistics seem encouraging, but when

considering the contribution of manufacturing and agricultural share to the values in the same year, it casts doubt on the effectiveness of the economic integration and export reforms in facilitating the agricultural and manufacturing sectors in Nigeria.

Nigeria's abundant raw materials in agriculture, coupled with its affordable labor, are expected to foster connections and attract investment in the manufacturing sector, ultimately boosting exports, particularly with the expanded market rooted in EI. However, the non-oil export performance in Nigeria made it unclear if EI has contributed to Nigeria's agricultural, intermediate, and manufacturing export growth. It is expedient to quantify the contribution of EI in facilitating manufacturing, intermediate, and agricultural sectoral export revenue in Nigeria. This is particularly important now, as other forms of government financing are dwindling due to global geopolitical tension and falling global commodity prices. This study will offer a better understanding to policymakers on the structure, value addition, and linkage between manufacturing and agricultural export productivity in Nigeria. It will enable us to determine the contributions of manufacturing, value-added, and agricultural exports to output growth in Nigeria. It will help trade negotiators to strategically negotiate and implement reforms to address the challenges of export dynamics during AfCFTA implementation

1.1. Stylized Facts

Agriculture accounts for about 24.4% of the GDP on average from 2011-2021. As shown in Figure 1, crop production dominated the agricultural sector since 1981 and has maintained over 80% of the overall output till date. The next is Livestock production, which constitutes about 10%. manufacturing and mining have dominated the industrial output over the years, capturing about 90% of the sectoral production. Mining and quarrying production is dominated by crude oil extraction.

The study focuses on Agriculture and manufacturing exports. Nigeria's export to the world in 2020 is estimated at US$34.9 million, out of which 18.9% was exported to SSA. The share of Nigeria's exports peaked in 2017, capturing 56.38% of the SSA export since 1996. Nigeria's manufacturing export share to SSA is 4.8% on average between 2006 – 2020. The agricultural exports to SSA are far below expectations. Statistics show that the maximum

share of agricultural exports to SSA was 3.2% in 2002. Figure 1 shows that crop production determined 86% of agricultural output in Nigeria. However, this is not reflected in the agricultural export volume to SSA.

Nigeria's government (Export Promotion Council) has embarked on many export incentives and advocacy initiatives to enable exporters to expand their output volume and value. For example, the diversification policy of 2010 and Nigerian's involvement in many economic integrations. These efforts have not been reflected in the agricultural and manufactural exports in Nigeria.

Table 1: Manufacturing industry output by firms in Nigeria (%)

Years	*oil refinery*	*cement*	*food and beverages*	*textile and apparel*	*Wood & wood products*	*pulp and paper*	*chemical*	*non-metallic*	*plastic and rubber*	*electrical*	*basic metals*	*motor vehicle and assembly*	*other manuf.*
1981-1984	0.76	2.88	60.40	20.72	1.32	0.52	0.77	1.37	0.64	1.32	0.73	5.91	2.65
1985-1988	0.83	7.27	64.95	14.86	1.48	0.63	0.42	1.60	0.74	1.30	0.91	1.90	3.11
1989-1992	1.09	6.47	68.16	15.46	1.30	0.57	0.43	1.42	0.66	0.17	0.82	0.68	2.78
1993-1996	1.43	7.30	65.81	14.70	1.65	0.69	0.65	1.76	0.82	0.13	0.94	0.69	3.43
1997-2000	1.60	4.09	69.00	13.47	1.71	0.79	0.78	1.95	0.90	0.08	1.16	0.73	3.77
2001-2004	4.27	3.28	69.22	11.86	2.18	0.71	0.72	1.73	0.82	0.06	1.03	0.69	3.44
2005-2008	5.89	4.67	65.44	11.47	3.14	0.72	0.71	1.70	0.87	0.06	1.13	0.67	3.51
2009-2012	6.26	5.80	60.66	12.58	3.33	0.67	0.91	2.00	1.48	0.09	1.88	0.65	3.71
2013-2016	4.22	7.94	46.29	21.07	3.02	0.78	2.05	3.17	2.95	0.08	2.53	0.75	5.15
2017-2020	1.68	9.19	45.89	22.12	3.14	0.81	2.45	3.66	3.55	0.07	2.61	0.46	4.36
2021	0.30	10.13	48.91	20.23	2.97	0.75	2.65	3.40	3.49	0.06	2.48	0.49	4.14

Source: Central Bank of Nigeria Statistical Bulletin, 2022

Agricultural and Manufacturing Output and Export

One remarkable feature of the study is that the agricultural and industrial sectors' output contributed 62.8%, 49.2%, and 46.4% of the GDP in Nigeria in 2000, 2010, and 2021, respectively. When we factor out manufacturing output from the industrial output, agricultural and manufacturing output contributions to GDP were 23.1, 30.5, and 61.7% in 2000, 2010, and 2021, respectively.

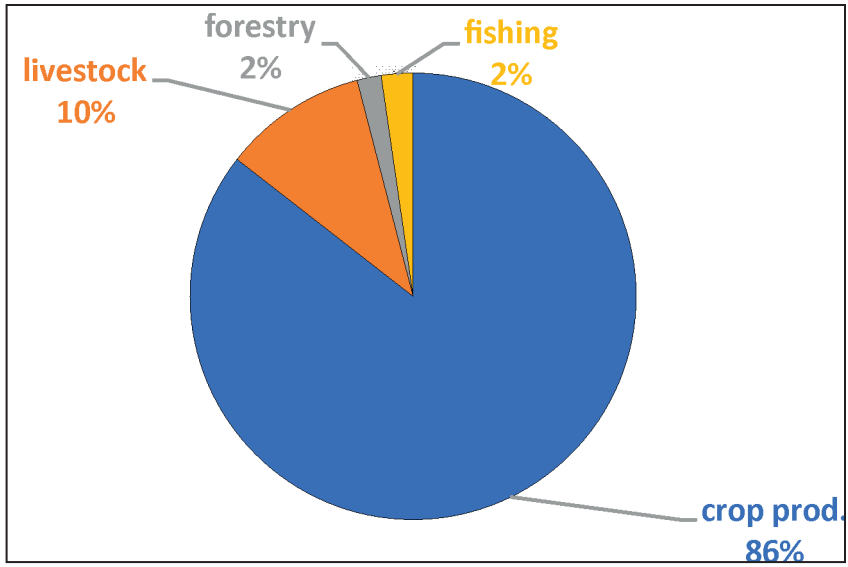

Figure 1: Agricultural components output share to the Agricultural sector (%) 1981-2020

Source: Central Bank of Nigeria Statistical Bulletin, 2022

This means that policies regarding these two sectors can significantly shape the entire economy. Algebraically, the manufacturing output has been gradually increasing until 2012, when it shows a spike in the trend. The statistic reveals about 800% increase in the growth rate of manufacturing output from 2000 to 2021. Agricultural output grew by about 34.5% over the period of 2000 and 2021. Remarkably, as the ratio of manufacturing output to GDP grew, that of industrial output (less manufacturing) declined. The industrial output ratio to GDP (less manufacturing output) declined from 38.6% in 1999 to 6% in 2020, which is about 84.4% reduction.

When analyzing Nigeria's exports, the contribution of agricultural and manufacturing output shows an insignificant impact. The descriptive statistics reveal that the mean contribution of agricultural and manufacturing output to exports between 2005 and 2020 is 2.6% and 0.5%, respectively. These parameters fall below the expectation of what the two sectors should generate to export, especially when compared to their contribution to GDP. In addition, this study becomes germane to identify the effect of EI on the export performance of the sectors because the government has made significant efforts and signed many trade agreements to boost these sectors' exports.

2. LITERATURE REVIEW

Several studies that investigated the effect of EI on export productivity were done at the aggregate level. Obasaju et al. (2021) examined the impact of regional economic integration on economic upgrading in Global Value Chains (GVC) in some African regions, which include the East African Community, Southern African Customs Union, and ECOWAS. The study adopted the least squares dummy variable technique and data ranging from 2000 – 2015. The result shows that regional economic integration does not influence the economic upgrading of the regions in their GVC. Obasaju et al. (2019) enquired about the effect the sub-regional economic integration of ECOWAS has on backward integration into GVC. The systems Generalized Method of Moments economic technique was used on data that spanned from 2007-2012. The paper concludes that ECOWAS regional integration positively influenced backward integration into the GVC of the member states. (see: Manwa, et al. (2019); Manwa and Wijeweera (2016)).

Some country-specific studies relating to this area include Obeng et al. (2023), which examined the role of institutions on deep preferential trade agreements and export efficiency in Ghana. The study applied the Stochastic Frontier Gravity model (SFG). 44 Ghanaian bilateral destination countries were covered using data that spanned from 2007–2019. The paper revealed that Ghana's bilateral export trade is efficient, and Preferential Trade Arrangements (PTAs) with environmental provisions reduce Ghana's export efficiency. Kaushal (2022) examined the export productivity of India's deep and shallow trade agreements using data from two decades ago. The study utilized the SFG model. The results show that India's deep trade agreement has achieved 32% efficiency, but does not promote export productivity. Hassan (2017) analyzed the prime determinants and constraints of Bangladesh's export market using the SFG model. The paper concludes that GDP, trade agreement, exchange rate, and distance are the main determinants of export volume in Bangladesh (see: Davvakhuu et al., (2014); Kathuria and Aiyar (2011)).

In Nigeria, Ogundipe (2022) studied the impact of the manufacturing sector on output growth. The study adopted the OLS methodology in the analysis and found that manufacturing sectoral output is one of the drivers of the economy. Amurtiya et al. (2018) investigated the link between manufacturing sector performance and economic growth in Nigeria. The study covered 1981-

2016 and employed the Autoregressive Distributed Lag (ARDL) model. The study concludes that manufacturing output positively influenced real GDP in Nigeria. (See: Afolabi and Laseinde (2019))

From the foregoing, the study observed that most of the studies examined the impact of EI on either agriculture [(Olayiwola et al., 2014)], manufacturing [(Afolabi and Lseinde, 2019)], Value addition [(Allard et al., 2016)], exports, or on economic growth [(Manwa et al., 2019)] are mostly cross-country analyses. In Nigeria, most studies investigated the effect of agriculture or manufacturing output on economic growth (see: Ogundipe (2022); Amurtiya et al., (2018)). This study differs from the existing study by examining the relationship between EI and agriculture, value addition, and manufacturing exports at the country level (Nigeria).

3. METHODOLOGY AND DATA

3.1. Theoretical Framework

The theoretical framework for the study is anchored on the endogenous growth theory (EGT), developed by Romer (1990). The underlying tenet of the endogenous growth theory is its ability to determine the engine of output growth (technology) within the model. The theory opined that the fraction of labor devoted to research and development and the fraction of capital saved are the drivers of long-run output growth. The theory best describes how international trade policy agreements and investment in factor inputs (human capital) influence agricultural, value-added, and manufacturing export performance in Nigeria.

The model assumes a dual economy: Goods production economy and research and development economy.

The model for goods economy is presented thus:

$$Y = \left[(a_k k_{(t)}) \right]^{\beta} \left[A_{(t)} (a_l L_{(t)}) \right]^{1-\beta} \tag{1}$$

Equation 1 states that the economy's output growth depends on capital and effective labor. Where Y is the output growth. $A_{(t)}(a_l L_{(t)})$ denotes effective labor devoted to production. $a_k K_{(t)}$ implies the fraction of capital used in the production of goods. $\beta \; and \; 1-\beta$ are the parameters that show returns to scale of the factor inputs of the Cobb-Douglas production function

The model for the new knowledge

$$\dot{A} = \left({}_{k1}K_{(t)} \right)^{\alpha} \left(a_l L_{(t)} \right)^{\pi} \; A_{(t)}{}^{\Phi} \tag{2}$$

Equation 2 states that the new knowledge production depends on the quantity of labor and capital engaged in research and development/technology, and also depends on the level of existing technology. $\dot{A}$ means growth rate of technology. $A_{(t)}{}^{\Phi}$ is the existing technology. $\alpha \, and \, \pi$ are parameters that capture the contribution of these factor inputs to technological growth. Φcaptures the quantity of the existing technology in the production of new knowledge.

Substituting equation 2 into equation 1 in an econometric form

$$Y_{(t)} = f\left(a_k K_{(t)}{}^{\alpha_1}, \, a_l L_{(t)}{}^{\alpha_2}, HC_{(t)}{}^{\Phi} \right) \tag{3}$$

Where HC is the same thing as it $\dot{A}$. HC is the fraction of labor and capital devoted to the production of technology/research and development, designated as human capital. α_1, α_2 Φ are the marginal products of capital, labor, and the existing stock of knowledge on the success of output, respectively. The parameter or exponent (Φ) determines the success or failure of the technology in stimulating output growth.

To maintain long-run growth, the endogenous growth model acknowledges the importance of other existing capital stock. This intuitively implies that other requisite factors need to be in place for an economy to maintain long-run growth. Equation 4 incorporated these factors using the standard augmented production function.

$$Y_{(t)} \quad f\left(a_k K_{(t)}{}^{\alpha_1}, \, a_l L_{(t)}{}^{\alpha_2}, HC_{(t)} \;\; , \;\; {}_{(t)}{}^{\gamma} \right) \tag{4}$$

$\varphi_{(t)}{}^{\gamma}$ represents the vector of other existing factors that stimulate output growth. The exponent of the parameter (γ) can affect the output growth either positively or negatively, depending on the value it assumes. Other variables remain as defined above.

3.2. Model Specification

To capture the influence of economic integration and other variables of interest on the endogenous growth model, we decompose the vector (φ^{γ}) in equation

4. For uniformity, the exponents of the variables in Equation 4 are changed to $\lambda_1, \lambda_2, \ldots \lambda_n$ accordingly.

$$Y_{(it)} = f\left({}_{a_k}K_{(t)}^{\lambda_1}, {}_{a_l}L_{(it)}^{\lambda_2}, HC_{(it)}^{\lambda_3}, EI_{(t)}^{\lambda_4}, XCR_{(t)}^{\lambda_5}, Inst_{(t)}^{\lambda_6}, \varepsilon_{(t)}\right) \tag{5}$$

Y is output measured by manufacturing, value-added, or agricultural export. K is physical capital proxied by gross fixed capital formation. L is labor measured by the number of persons employed in the agricultural, value addition, and manufacturing sectors, accordingly. HC (THC) is human capital/technology proxied by primary school enrollment.

Where $EI^{\lambda_4}{}_{(t)}$ represents economic integration proxied by two EI indicators, namely: the share indicator index (EISI) and Homogeneous intensity indicator (HOIEI). $XCR^{\lambda_5}{}_{(t)}$ Real effective exchange rate to US dollars. $Inst^{\lambda_6}{}_{(t)}$ means institutional quality represented by tariffs on the composite of manufacturing, intermediate, and agriculture imports and $\varepsilon_{(t)}$ signifies the error term which corresponds to other variables not captured in the model. Note that Y, L, and HC are vectors which is the rationale for introducing i in the respective variables. The exponent of the factor inputs is not necessarily of constant return to scale

Take a natural log of both sides of Equation 5

$$d\ln y_{it} = \lambda_0 + \lambda_1 \ln K_{(t)} + \lambda_2 \ln L_{(it)} + \lambda_3 \ln HC_{(it)} + \lambda_4 \ln EI_{(t)} + \lambda_5 \ln XCR_{(t)} + \lambda_6 Inst_{(t)} + \varepsilon_{(t)} \tag{6}$$

The model assumes that manufacturing, and agricultural sector output growth in Nigeria, depends on the autonomous savings from output (λ_0), capital, labor, human capital used in research and development, economic integration, exchange rate, governance institution, and error term.

The study constructs three models for the three sectors considered (Agriculture, intermediate, and manufacturing).

$$y_{ait} = \lambda_0 + \lambda_1 \ln K_{(t)} + \lambda_2 \ln L_{(it)} + \lambda_3 \ln HC_{(t)} + \lambda_4 \ln EI_{(it)} + \lambda_5 \ln XCR_{(t)} + \lambda_6 Inst_{(t)} + \varepsilon_{(t)} \tag{7}$$

$$y_{vit} = \lambda_0 + \lambda_1 \ln K_{(t)} + \lambda_2 \ln L_{(it)} + \lambda_3 \ln HC_{(t)} + \lambda_4 \ln EI_{(it)} + \lambda_5 \ln XCR_{(t)} + \lambda_6 Inst_{(t)} + \varepsilon_{(t)} \tag{8}$$

$$y_{mit} = \lambda_0 + \lambda_1 \ln K_{(t)} + \lambda_2 \ln L_{(it)} + \lambda_3 \ln HC_{(t)} + \lambda_4 \ln EI_{(it)} + \lambda_5 \ln XCR_{(t)} + \lambda_6 Inst_{(t)} + \varepsilon_{(t)} \quad (9)$$

Equations 7, 8, and 9 capture models for agriculture, intermediate, and manufacturing sectors.

3.3. Estimation technique and data sources

The endogenous growth theory provided the framework. The augmented version of the standard general production function was explored to examine the effect of economic integration on manufacturing, intermediate, and Agricultural exports in Nigeria. The Auto-Regressive Distributed Lag (ARDL) econometric model is applied to reveal the effect economic integration has on manufacturing, value-added, and agricultural exports in Nigeria. The study adopts two different proxies popular in the literature to measure economic integration: (i) the share indicator index (ii) the Homogeneous intensity indicator. Annual data that range from 1981 to 2022 were applied. Data were obtained from World Bank Development Indicators (WDI, 2022), World Integrated Trade Solution (WITS, 2022), and the Nigeria Bureau of Statistics (NBS, 2022). All estimates were validated at $\alpha \leq 0.05$.

Table 2: Variable Names and Data Sources

Variable	*Description*	*Source*
Manufacture export	Nigeria manufactures export product share to SSA (%)	WITS, WTO
Agricultural export	Nigeria's agricultural export product share to SSA (%)	WITS
Intermediate export	Nigeria's intermediate export product share to SSA (%)	WITS
Share index of economic integration	Ratio of the total export of Nigeria plus import of Nigeria from SSA to total export of Nigeria plus total import of Nigeria from the world	WITS
Homogeneous intensity economic integration index	Ratio of export of the rest of SSA to Nigeria, plus import of the rest of SSA from Nigeria to export of the rest of the SSA to the world, excluding Nigeria, plus import of the rest of the SSA from the world, excluding Nigeria	WITS
Exchange rate	Real effective exchange rate	WDI, World Bank
Governance institution	Export tariffs on manufacturing, intermediate, and agricultural products	WITS
Technology/human capital	Primary school enrolment in Nigeria (% gross)	WDI, World Bank
Capital	Gross fixed capital formation	WDI, World Bank
Labor	Composite index of Employment in agriculture, intermediate, and manufacturing sectors in Nigeria (% of total employment)	WDI, World Bank

4. RESULTS PRESENTATIONS, CONCLUSION, AND RECOMMENDATIONS

The study adopted the ARDL methodology. The estimates obtained were presented in the short run and long run for the three sectors: agricultural, value-added, and manufacturing. The study used two measurements of economic integration: The share indicator index (EISI) and the Homogeneous intensity indicator (HOIEI). We focus on interpreting the homogeneous intensity indicator estimate because of its superiority and recency to EISI. The EISI indicator was adopted for robustness in this study.

4.1. Pre-estimation test

4.1.1. Unit root test

The study commences by considering the econometric properties of the variables using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. The rationale for checking the characteristics of the variables is to identify whether the variables are stationary or otherwise, which will enable us to avoid a spurious regression. The unit root results from both methods showed that the series exhibits a mixed order of integration that is not more than I(1), which is I(0) and I(1) as shown in Table 3. This characteristic further underscores the choice of the ARDL model as a suitable technique for this study. One of the crucial advantages of ARDL over other estimation techniques, such as Vector Autoregressive (VAR), General Autoregressive Conditional Heteroscedasticity (GARCH) models, etc., is its ability to function efficiently in series with mixed order of integration, and it has a relative minimum variance.

Table 3: Unit root test

variables	*ADF*	*PP*	*variables*	*ADF*	*PP*
Export-a	8.11***(0)	3.470***(0)	Lbo-a	2.244***(0)	4.636***(0)
Export-m	6.449***(0)	6.786***(0)	Lbo-m	6.110***(1)	6.160***(1)
Export-v	9.342***(1)	9.255***(1)	Lbo-v	2.166***(0)	2.161***(0)
Inst-a	5.819***(1)	5.820***(1)	Kt	2.612***(1)	2.567***(1)
Inst-m	2.161***(1)	2.390***(1)	THC	6.651***(1)	6.615***(1)
Inst-v	6.075***(1)	6.085***(1)	XCR	3.735***(1)	3.712***(1)
EISI	8.114***(0)	3.470***(0)	HOIEI	2.161***(0)	2.390***(0)

Note: *** represents significance at the 5% level while (0) and (1) imply stationarity at level and first difference, respectively

Source: author's computation

4.1.2. Bounds cointegration test

The underlying cointegration test for ARDL regression is the bounds cointegration test. Additionally, the exhibition of mixed order of integration by the variables necessitated the use of the bounds test to ascertain if the long-run relationship exists between the endogenous and exogenous variables. It is evident from Table 4 that the F-bound statistic is greater than the lower and upper bound critical value at 5% significance level in the agriculture (14.43), manufacturing (7.85), and intermediate goods sectors (8.92). These results imply that there is long-run relationship between the dependent variable and the independent variables across the three sectors. Hence, we present the short-run and long-run models below.

Table 4: Bound test result

	F-statistic	*significance*	*Lower bound*	*Upper bound*
Agriculture	14.53	10%	1.75	2.87
		5%	2.04	3.24
		1%	2.66	4.05
Manufacturing	7.85	10%	1.75	2.87
		5%	2.04	3.24
		1%	2.66	4.05
Value-addition	8.92	10%	1.99	2.94
		5%	2.27	3.28
		1%	2.88	3.99

Source: author's computation

4.2. ARDL result presentation

4.2.1. Short-run results of Agriculture, intermediate, and manufacturing sectors

In the short run, lag of export is significant and directly related to agricultural export. If last year's agricultural export increased by 1%, ceteris paribus, the current year's agricultural export rises to about 0.08%. Agricultural labor supply improves exports by 2.09% annually. The estimates show that capital retard agricultural export in the short run. Various measurements of lag of economic integration are significant and positively affect agricultural exports. The estimate of the homogeneous intensity indicator (HOIEI (-1) (0.027) is higher than that of the share indicator of economic integration – EISI(-1)

(0.004). This could be because HOIEI is relatively a more recent measurement of economic integration than EISI. In the value-added sector, a percentage rise in the capital results in about 0.22% rise in the value-added export in the short run. The HOIEI and technology (THC) increase agricultural exports. Exchange rate negatively affects the intermediate export. When the exchange rate appreciates by 1%, value-added export reduces by 0.125% annually.

The manufacturing estimates signified that last year's exports enhanced current exports by 2.35%. Institution represented as tariff improves exports by about 0.009%. Human capital and previous economic integration (HOIEI(-1)) are significant and positively influence manufacturing exports in Nigeria in the short run. A % improvement in human capital and HOIEI(-1) leads to 13.45 and 0.633% respectively to manufacturing exports in the short run. The exchange rate has an inverse relationship with the manufacturing export in Nigeria.

4.2.2. Long-run Agricultural Sector Result

The result revealed that the Homogeneous intensity economic integration indicator (HOIEI) (which is the major variable of focus) is not significant. However, lag of HOIEI is significant at 5%. The result shows that previous integration is positively significant to agricultural export growth. A percentage increase in the lag of HOIEI raises agricultural exports in Nigeria by 2.46%. As economic integration deepens by one year, it exerts about 2.46% increase in agricultural exports in Nigeria. When we consider the economic integration share indicator (EISI) for robustness, the estimates behave the same as the HOIEI estimate. Present EISI has no relationship with the agricultural sectoral export, but the lag of EISI is directly related to the agricultural export in Nigeria. This implies that previous integration deepens current export performance in the agricultural sector. The study equally showed that lag of export has a positive relationship with agricultural export at 5%. What this means is that past agricultural exports facilitate current export performance. This result could be plausible given the fact that international trade involves a variety of rules and engagements, whereby once a country meets those conditions, it can leverage on that for subsequent trades. Capital and labor validate the Cobb-Douglas production theory, where capital and labor determine output growth, which directly enhances agricultural exports. Institution is proxied as the export tariff

on agricultural export (Inst_a) has a positive impact on agricultural export in Nigeria. Technology (THC) and exchange rate (xcr) do not exhibit any influence on agricultural export in Nigeria during the period under review. This shows that the exchange rate system in Nigeria, which has led to a huge depreciation of the Naira, does not support export growth. Technology and innovation are silent on agriculture-export relations in Nigeria.

4.2.3. Long-run Value-added Result

Observably, there was no identified relationship between economic integration and value-added exports in Nigeria using both the HOIEI and EISI. Consequently, the lag of the two measurements of economic integration still shows no relationship with value-added exports in the study. The result shows that the prior exports of value-added do not have any relationship with the current value-added export. Capital is directly related to value-added exports. This implies that additional procurement of physical capital (machines) will lead to the expansion of value-added exports in Nigeria. Institution is significant and related to value-added export. The estimate shows that the tax rate applied to value-added products supports exports of intermediate products in Nigeria. When tariffs on value-added products increase by 1%, value-added exports rise by about 0.07% annually. Human capital (THC) is positively related to value-added export. 1% improvement in technology guarantees 0.35% increase in intermediate exports in Nigeria. Exchange rate is inversely connected to the value-added export. Depreciation of the exchange rate leads to more demand for intermediate goods internationally. This is plausible because depreciation makes local products relatively cheaper

4.2.4. Long-run Manufacturing Result

In the manufacturing sector, the estimates revealed that the two indicators of EI used in the study affect manufacturing exports from lag. HOIEI index exerts about 0.37% improvement on manufacturing exports one year after integration. One-year lag of EI using share indicator improves manufacturing export by about 0.09. Previous manufacturing exports is significant but negatively affect the current manufacturing exports in Nigeria. Ogundipe (2022) found similar results in Nigeria. This is attributed to incessant trade policy changes in Nigeria, such as tariffs that negatively affect the growth of

manufacturing exports. When we consider the institutional variable, it exhibits an inverse relationship with manufacturing export growth. A percentage rise in tariff results in about 0.07% corresponding decrease in manufacturing exports. This statistic gives credence to the nature of the relationship between lag of export and manufacturing export above. The estimate of Technology (THC) follows the a priori. Improvement in human capital development or additional acquisition of technology is significant and positively influences manufacturing output. The exchange rate is indirectly related to manufacturing exports in Nigeria. This follows the economic theory: an increase in price results in a reduction in demand.

Table 5: Regression result

ARDL SHORT-RUN RESULTS			
Variables	*Agriculture*	*Value-added*	*manufacturing*
Export(-1)	0.088***(0.000)	0.772(0.000)	2.357***(0.002)
LBO	2.09***(0.03)	-0.4242(1.363)	0.080(2.220)
KT	-0.0027***(0.000)	0.224***(0.000)	1.264(0.403)
INST	0.194(1.306)	0.903(0.280)	0.009***(0.011)
HOIEI	-0.76(5.027)	9.971***(0.037)	6.95(1.005)
HOIEI(-1)	0.027***(0.008)	2.64(0.624)	0.224***(0.000)
EISI	-1.886***(0.010)	-2.363(1.205)	8.486(1.612)
EISI(-1)	0.004***(0.000)	0.473(0.174)	0.633(0.872)
THC	1.177(1.236)	1.128***(0.000)	13.45***(0.0045)
XCR	0.028(3.038)	-0.125***(0.002)	-0.092***(0.0017)
ECM_	-0.629	-0.953	-0.733
ARDL LONG-RUN RESULTS			
Export(-1)	0.422331***(0.0002)	-0.14805(0.4105)	-0.2339***(0.0120)
LBO	-0.084820***(0.0038)	-0.07085(0.4957)	0.2649***(0.0343)
KT	-2.17E-13***(0.0649)	2.22E-12***(0.0001)	-4.19E-13(0.1230)
INST	0.196865***(0.0000)	0.07955*** (0.0269)	-0.0771***(0.9326)
HOIEI	-1.233163(0.3056)	0.885570(0.8285)	6.954006(0.1861)
HOIEI(-1)	2.738276***(0.0212)	0.06608(0.8301)	-0.37780***(0.1495)
EISI	-1.860718(0.1061)	7.234815(0.1915)	8.486681(0.0700)
EISI(-1)	2.723333***(0.0226)	2.42901(0.3003)	-0.0950***(0.1260)
THC	0.344337(0.7785)	0.35939***(0.0116)	1.45008***(0.01861)
XCR	-0.013279(0.1283)	-0.05403***(0.0260)	-0.0923***(0.0337)
R-Squared	0.973798	0.764288	0.801091
Adjusted R-squared	0.963973	0.703178	0.79484
F-Statistic	99.10820(0.000000)		

Source: author's computation

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

One of the major conclusions drawn from the study is that economic integration influences agriculture and manufacturing export performance in Nigeria. The results show that economic integration does not determine value-added exports in Nigeria. The study discovered that the lag of EI has more influence on export performance than the current EI. Prior export deepens export potential of agriculture and manufacturing, but value-added sector export. The empirical evidence established in this study supports the importance of exchange rate dynamics in determining export performance in Nigeria. Technology is a bane to agricultural output and export performance in Nigeria. The study identified that the Homogeneous intensity economic integration indicator (HOIEI) index is a better proxy for EI than the economic integration share indicator (EISI)

5.2. Policy Recommendations

Specifically, the study found that economic integration does not impact value-added exports but influences agriculture and manufacturing exports. This implies that intermediate industries and technology are inadequate in Nigeria. The government must strengthen intermediate industries by providing an enabling environment (such as giving grants with less stringent conditions to intermediate industry's players, provision of constant energy and basic infrastructure to reduce unit cost, restructuring of Nigeria's customs to be more efficient in handling importers and exporters of intermediate goods) for private sector growth. This will spur production and exports.

Product differentiation in the global value chain is to boosting intermediate exports. The similarity of African export products and their low demand in the global market indicates a need for a backward integration strategy. This will increase market size, create employment, and improve exports and government revenue.

Modern technology hampers agriculture, especially in the processing and extension services. The government should train more agricultural extension workers and build more agricultural processing firms that will enhance agricultural exports.

Exchange rate risk is a key factor in determining the sectorals' exports. The government should put adequate measures to mitigate instability in the exchange rate. More so, the government should create an exchange rate policy that is productivity-friendly to these sectors and at the same time offer them a competitive advantage in global trade.

NOTES

1. See: International Trade Administration (2023)
2. The Vision 20:2020 reform was set out to actualize increased global competitiveness in the production of processed and manufactured commodities by linking industrial production with primary sector activity, and domestic and foreign trade. These underscore Nigeria's government ideology in using export-oriented policy through innovation, technology, and value-addition on the GVC to foster output growth.
3. (see Uzonwanne, (2015).

REFERENCES

Afolabi, A. and Laseinde, O. T. (2019). Manufacturing Sector Performance and Economic Growth in Nigeria. *Journal of Physics:* Conference Series. Doi:10.1088/1742 6596/1378/3/032067

Allard, C., Krijenko, C. J., Chen, W., Gonzalez-Garcia, J. Kitsios, E. and Trevino, J. (2016). Trade Integration and Global Value Chain in Sub-Saharan Africa: in Pursuit of the Missing Link. International Monetary Fund, Washington, DC

Amurtiya, M., Tashikalma, A., and Maurice, D. (2018). Agricultural Inputs Subsidy in Nigeria: An Overview of the Growth Enhancement Support Scheme (GESS). *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 66(3) 781–789. Doi:10.11118/actaun201866030781

Central Bank of Nigeria (2023). Export Development Fund (EDF). http//cbn.gov.ng

Davvakhuu, O., Sharma, K. and Bandara, Y. (2014). Export Performance during Economic Transition in Mongolia. *Economic Analysis and Policy*, Doi: 10.1016/j.eap.2014.11.003

Hassan, M. (2017). An Analysis of Prime Determinants and Constraints of Bangladesh's Export Market: Stochastic Frontier Gravity Model approach. *World Customs Journal,* 11(2), 77-92. ID 221669069

International Trade Administration (2023). Nigeria–Trade Agreement. Retrieved from http// trade.gov/country-commercial-guides/Nigeria-trade-agreement

Kathuria, V. and Aiyar A. (2011). Link between Exporting and Productivity: Firm-Level Analysis for Indian Chemical Industry. Science, Technology and Society. DOI: 10.1177/097172181101600304

Kaushal, L. A. (2022). Have Indian Deep Trade Agreements Achieved their Export Potential - Implications for the Future. *The Business and Management Review,* 13(2)

Manwa, F. and Wijeweera, A. (2016). Trade Liberalization and Economic Growth Link: The case of Southern African Customs Union Countries. *Economic Analysis and Policy* Doi: 10.1016/j.eap.2016.05.001

Manwa, F., Wijeweera, A. and Kortt, M. A. (2019). Trade and Growth in SACU Countries: A Panel Data Analysis. *Economic Analysis and Policy*, 63, 107-118. Doi:10.1016/j.eap 2019.05.003

Mattoo, A., Rocha, N. and Ruta, M. (2021). The Evolution of Deep Trade Agreements. World Bank, Washington, DC, United States

Obasaju, B. O., Olayiwola, W. K., Okodua, H. and Adekunle, B. S. (2021). Regional Economic Integration and Economic Upgrading in Global Value Chains: Selected Cases in Africa. *Heliyon***,** 7,2. Doi: 10.1016/j.heliyon.2021.e06112

Obasaju, B. O., Olayiwola, W. K., Okodua, H., Adediran, O. S. and Lawal, A. I. (2019). Regional Economic Integration and the Backward Integration in ECOWAS Sub-Region into Global Value Chains. *International Journal of Economic Policy in Emerging Economies*, 12, 3

Obeng, C. K., Boadu, M. T. and Ewusie, E. A. (2023). Deep Preferential Trade Agreements and Export Efficiency in Ghana: Do Institutions Matter? *Research in Globalization,* 6. DOI: 10.1016/j.resglo.2023.100112

Ogundipe, M. (2022). The Impact of Manufacturing Sector on Economic Growth in Nigeria. *Research Square*, doi:10.21203/rs.3.rs-2203096/v1

Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy,* 98(5) 71-102. Doi: /10.1086/261725

Uzonwanne, M. C. (2015). Economic Diversification in Nigeria in the Face of Dwindling Oil Revenue. *Journal of Economics and Sustainable Development*, 6(4)

World Bank Group (2024). http//data.worldbank.org/indicator

World Integrated Trade Solution (2024). http//wits.worldbank.org

World Trade Organization Trade Policy Regime (2017). Framework and Objective 247.