TRADE LIBERALIZATION AND NON-OIL EXPORT IN SUB-SAHARAN AFRICAN COUNTRIES

Charity Philip Sidi
Department of Economics,
Federal University of Lafiya,
Nasarawa, Nigeria.
07089654875
charitysidi2@gmail.com

Ilemona Adofu
Department of Economics,
Federal University of Lafiya,
Nasarawa, Nigeria.

Patricia Abah
Department of Economics,
Federal University of Lafiya,
Nasarawa, Nigeria.

Corresponding author:
Charity Philip Sidi
Department of Economics,
Federal University of Lafiya,
Nasarawa, Nigeria.
07089654875
charitysidi2@gmail.com

ABSTRACT

The paper examined the effect of trade liberalization on non-oil exports in Sub-Saharan African countries (SSA). The study used secondary annual panel data which span the period 2004 to 2023. The panel data was analyzed with the aid of the Pooled Mean Group (PMG) estimator. The variables incorporated in the study are non-oil output as proxy for non-oil exports which is the dependent variable, while trade openness, inflation, foreign direct investment, exchange rate, and institutional quality, all serve as the independent variables. The outcome of the findings, revealed that in the long run and short run, trade openness is found to have a positive relationship with non-oil export with a coefficient of 0.0035 and 0.1270 respectively, and is found to be statistically significant in the short run, while in the long run it demonstrated an insignificant effect on non-oil export. FDI, inflation, institutional quality and exchange rate having a negative coefficient value of -0.062, -0.018, -0.099, and -2.929 respectively indicated an inverse association with non-oil exports in the long run, and are statistically significant, except for FDI which possess an insignificant effect on non-oil exports. In short run both exchange rate, institutional quality and inflation are statistically insignificant, except for FDI which is significant. The study recommends that government and various stakeholders in SSA countries should implement trade liberalization policies by reducing tariffs, simplify customs procedures, and increase market access for non-oil exporters, also complementary policies as investment in infrastructure, human capital to support non-oil export growth should be implemented.

Keywords: *Trade liberalization, Non-oil Exports, PMG, and SSA countries.*

JEL Classification: F10, F19, L10, C23,

1.0 Introduction

Trade liberalization is a key driver of economic growth and development globally, particularly in developing countries. Trade liberalization was implemented through various regional and multilateral trade agreements, aiming to increase trade and economic integration (African Development Bank, 2020). Over time, trade liberalization has led to increased economic integration, with the growth of world trade averaging to 6% per year, twice as fast as world output (World Trade Organization, 2020). Trade liberalization which encompasses reducing or removal of trade barriers, such as tariffs, quotas, and subsidies, to facilitates the free flow of goods and services across borders has enabled many developing countries to

develop competitive advantages in non-oil export especially in manufacturing and services (Adam & James, 2022). The new globalizers, such as Vietnam, India, and Uganda, have experience rapid growth in trade as a result of openness to trade.

In order to promote economic growth, diversify exports, and integrate it trade into the global economy, Sub-Saharan Africa (SSA) countries have embraced trade liberalization, due to the region's historical reliance on primary commodity exports, especially oil, many of its nations are susceptible to outside shocks like changes in the demand for and price of oil globally (Bouet, Berisha-Krasniqi & Estrades, 2019). This has led to a significant move in the 1980s and 1990s, of SSA countries adopted trade liberalization reforms under the structural adjustment programs (SAP) sponsored by the Bretton wood institutions (Apansile & Olalekun, 2017). The reforms was designed to encourage economic diversification, especially into non-oil export, such as manufacturing services, minerals, and agriculture. This era saw a significant reduction in tariffs and non-tariffs barriers, for instance, between 1990 to 2015, the average tariff rate in SSA countries declined from 21.6% to 11.4% (World Bank, 2017).

Gradually with the adoption of trade liberalization policy and in order to boost the non-oil export, SSA countries like Nigeria, South Africa, Rwanda, and Gambia began to pursue regional integration initiatives, such as the African Economic Community (AEC), Economic Community of West African State (ECOWAS) and the Southern African Development Community (SADC). As result of the regional integration there has been a significant growth in SSA total trade which grew from $143 billion in 2000 to $472 billion in 2019 (AfDB, 2020). From the mid-2000s to the 2010s, there was a noticeable shift in export destinations, with SSA countries increasingly trading with emerging markets, particularly China. USA, and European countries. During this time, exports were reoriented towards fast-growing economies, although the focus remained on raw materials (International Trade Center, 2017).

As a recent move to pursue trade integration policies SSA countries implemented the African Continental Free Trade Area (AfCFTA) and the Africa Growth and Opportunity Act (AGOA) in 2000 to present, SSA countries have made significant progress in export diversification, with the number of exported products increasing from 151 in 2000 to 242 in 2019 (United Nation Conference on Trade and Development, 2020). All these initiatives aimed to promote trade liberalization, economic integration, draw in foreign investment to spur growth in non-oil exports. Malhotra and Kumari (2016) attested that export activities expanded the local market's size and increase competition, which helps the economy increase production and adopt new technologies.

Despite these policy initiatives, SSA's non-oil export performance has remained below equality, and it has however become an oscillating one. In 2015 and 2016, Nigeria non-oil exports declined from $6.3 billion to $1.6 billion, while that of Angola decreased from $1.2 billion in 2013 to $433 million in 2016.

Some SSA countries such as South Africa and Kenya, have experienced fluctuations in non-oil export growth, an overall, the trend has been negative. For instance, from 2011 to 2016 SSA non-oil export declined from 10.3% to -2.1% (World Bank, 2024). Although, some nations in SSA have seen slight improvements, while others still face major obstacles including inadequate infrastructure, unstable exchange rate which has led to high inflation, reoccurring conflict, weak institutions, and constrained industrial potential. The capacity of SSA countries to fully benefit from trade liberalization has also been limited by global market dynamics, such as protectionist policies in wealthy nations and strict non-tariff barriers.

In addition, the non-oil sector has faced various challenges that limit the ability of SSA countries to produce and export non-oil goods and services, as SSA nations lack an industrial foundation and infrastructure, in order to manufacture and export competitive goods. Also due to limited diversification which makes economies more susceptible to outside shocks since non-oil export are frequently concentrated in a small number of industries, like agriculture. SSA non-oil exports are subject to strict standards, inefficient customs procedures, and other non-tariff barriers that restrict access to global markets, even in the presence of low tariffs. This has made the benefits unevenly distributed throughout the area, with resource-rich nations reaping more advantages than resource-poor ones. To this end, in view of the challenges stated above, one begins to doubt the benefits of trade liberalization and the anticipated large increase in non-oil exports in SSA has not been consistently achieved, despite the advantages of trade liberalization policy.

In the light of this background, this study seeks to examine the effect of trade liberalization on non-oil export in Sub-Saharan Africa countries, and to fill the gap to this regard as there are paucity of studies in this region that captures the effect of trade liberalization on non-oil export in SSA. The rest of this study is organized into literature review, methodology, results and discussion of findings, and finally, conclusion and recommendations.

2. Literature Review

2.1 Conceptual Clarification

2.1.1 Trade Liberalization

Conceptually, trade liberalization refers to the reduction or elimination of trade obstacles and limits via the implementation of policy changes to promote greater openness of trade between nations this in turn may promote capital inflows into different countries (Sheriffdeen & Olasunkami, 2021). Accordingly, Patrick, Andrew and Ugwu (2020), viewed trade liberalization as an economic policy that reduces or removes any trade restrictions that may prevent nations from participating in free trade in order to enables the effective and successful trading of goods and services. Trade liberalization refers to the reduction of barriers to the movement of goods and services in the global market, in order to accommodate the international market and attract more foreign investments to the region (Ali, Kiani & Hafeez, 2018).

According to Emmanuel, Eleazar and Eweke (2017), trade liberalization refers to the process of getting rid of or diminishing trade barriers, consist of freeing up capital flows, that crosses borders diffusion of technology and international migration of labors from one country to another. Trade liberalization refers to the removal or reduction of trade barriers, such as tariffs, quotas, and subsidies, to enables the free flow of goods and services within borders (World bank, 2018). In the context of this paper, trade liberalization refers to the process of reducing or removal of all trade barriers, such as tariffs and non-tariffs barriers, to allow the efficient allocation of resources, increased market access and transfer of technology from one country to the other. Therefore, developing nations are henceforth compelled to decrease their trade barriers, which helps to accelerate non-oil export in these countries.

2.1.2 Non-oil export

Also, non-oil export refers to the goods other than crude oil (petroleum products) which are traded in international market in order to generate revenue (Kenechukwu & Akunjinma, 2022). According to International Monetary Fund (2020) Non-oil export comprises of commodities excluding the oil product (Crude oil), more so the non-oil export can be divided into different categories that correspond to a region varied natural resources, such as agricultural output, services, manufacturing, solid minerals and metals.

In the context of this paper, non-oil export is conceptualized as output that are not related to oil, that a nation sells to other nations. Exports of goods other than oil are vital for economic diversification, reducing dependance on volatile commodities like oil, and promoting the economy of a nation. The non-oil export enables a country to access a variety of economic sectors, improve trade balance and become more viable in international scale.

2.2 Theoretical Framework

The paper is anchored on the Export-led Growth Hypothesis (ELGH). The Neo-classical economic theory is the source of the ELGH, which gained recognition in the 1980s, it was propounded by Findley (1984) and Krueger (1985), the theory posited that when a country increases it exports, it tends to experience high economic growth over time. the export-led hypothesis postulates a long-run positive relationship between GDP growth and exports. This affirms a change in strategy away from import substitution and toward export development and greater trade openness. Onose and Aras (2021) holds that economic growth dependent on a multiplier impact of growing exports in addition to increase in labour force participation and capital formation.

Also, export-led growth hypothesis also assumes that a country's economic growth can be enhanced by concentrating on export promotion and integrating into the world economy. This approach is grounded in the classical theories of comparative advantage, which highlighted the benefits of specialization in the production and export of goods and services in which a country has an effective advantage. Advocate of this

hypothesis suggested that export-oriented strategies improve productivity, expand foreign exchange earnings, stimulate investment, and enable technological transfers, all of which are critical drivers of sustainable economic development.

By opening up local markets to global competition and improving access to foreign markets, trade liberalization is anticipated to stimulate export activities. Additionally, trade facilitation, which involves simplifying and streamlining trade procedures, can improve the non-oil export performance and promote economic growth. An essential principle of the ELGH is that export enhances GDP growth, this is because as countries in SSA sought to diversify their export portfolio by promoting non-oil sector such as agriculture, manufacturing and services. Trade liberalization has been a keystone of this effort, because it aimed at creating an enabling atmosphere for export growth by reducing trade barriers, increasing market access and fostering competition.

2.3 Empirical Review

Odior (2023) evaluated a comparative analysis on global non-oil commodities export. The study made use of descriptive statistic to analyze the world competitive index, and world merchandize export and imports commodity. The findings of the study shows that China, Japan, United State, Netherland, and Switzerland are the competitive economies in terms of non-oil export commodities, while South Africa, Seychelles, Mauritius, Algeria, and Tunisia are the most competitive economies by the African ranking. The study recommends that production capacity, export dimensions, product quality, export market shares, size, technological upgrading, market access and innovation dynamic are well thought-out as the main pillars that determine countries non-oil commodities competitiveness in the global market towards economic growth.

Salik and Aras (2022) assessed the effects of trade liberalization, foreign direct investment (FDI), and exchange rate on non-oil GDP in Nigeria between 1986 and 2019. The time series data was analyzed with the aid of Autoregressive Distributed Lag (ARDL) method and Vector Error Correction Mechanism. The outcome of the findings established that trade openness is non-linearly related to Nigeria's non-oil export (NOG), indicating that higher degree of trade liberalization negatively affects NOG in the current year, but by the end of the first year the effect turns positive. FDI on the other hand, has a positive but statistically insignificant relationship with Nigeria's NOG in the short run, and exchange rate fluctuations negatively affect NOG in the short run. In the long run, the study found that trade openness, FDI, and Exchange rate have no significant impact on non-oil GDP in Nigeria. The study recommends that growing the efficiency of the country's external sector, mostly the export sector would permit Nigeria to obtain full benefits of trade liberalization.

Ibrahim, et al (2022) evaluated trade openness as to how it facilitates the agricultural sub-sector of the non-oil export performance in 33 SSA countries from 2005 to 2019. The study employed the use of

Dynamic system of generalized method of moments as the estimation techniques. The study recognized the following outcomes. First, higher import costs, documents, and time significantly improve agricultural value added as proxy for ASP, while exports inversely impact agricultural sector performance (ASP). Also, among other factors, improvements in human capital, gross fixed capital formation, population growth, and trade openness significantly improve agricultural sector performance. The results of the robustness check further emphasize the significance of trade facilitation (TF) on ASP from various dimensions. The study suggested that improving TF procedures by reducing costs, documents, and time in cross-border trade remains crucial to boosting agriculture sector performance in SSA.

Abubakar, Michael and Marvelous (2022) examined the effect of trade liberalization on non-oil manufacturing sector output in Nigeria. The study employed the use of Autoregressive Distributed Lag (ARDL), as the technique of analysis. The result of the ARDL bound test shows a long-run co-integration exist between the dependent and the independent variables, also the outcomes shows that trade liberalization helps to stimulate the non-oil sector output, foreign direct investment and export has an inverse and insignificant effect on non-oil sector in the long-run and short-run, while import and exchange rate were positively related to non-oil sector and are statistically significant. The study recommends that federal ministries to fortify and broaden trade liberalization policies have to be given top priority by the Finance and Trade and Investments ministries. This entails actively taking part in regional and global trade agreements, lowering trade barriers, and expediting customs operations.

Orji, et al (2021) examined the nexus between Exchange Rate and Non-Oil Export in Nigeria, time series data between 1985 to 2018 was used for the study. The study employed the Autoregressive Distributed Lag (ARDL) model as the estimation technique, and seven variables which comprises of the dependent variable which is Non-oil Export (NOE), while the dependent variables are Interest Rate (INT), Credit to Private Sector (CPS), Inflation (INF), Exchange Rate (EXR) Foreign Direct Investment (FDI), and Trade Openness (OPN). The results revealed that the EXR, INF and INT have a positive and significant impact on non-oil export in Nigeria, though INT has an inverse sign, while OPN, FDI and CPS has a positive connection with non-oil export but is insignificant. Accordingly, the study suggested that the Government should boost international trade to encourage non-oil export and intensify foreign exchange earnings. Similarly, there is a need for the government to expand the financial institutions to make investment funds obtainable.

Akims, Yohanna and Akims (2018) investigated the effect of trade liberalization on non-oil exports in Nigeria. The study employed the use of secondary time series data which was analysed via vector Error Correction Model (VECM). The variables incorporated in the study are deflated non-oil exports value for export quantity which is the dependent variable, while trade liberalization as dummy, real exchange rate, and

gross national income of Economic Community of West African State as proxy for world real income all serve as the independent variables. The result of the findings shows that real exchange rate, and world income both are having a negative and positive sign respectively, though trade liberalization has a positive long run effect on non-oil exports. The study recommends a liberal trade policy be sustained in Nigeria.

Apansile and Olalekan (2017) examined the growth effect of export promotion on non-oil output in Sub-Saharan African from 1970 to 2014. The study utilized the use of three estimation techniques to analyse the panel data, estimation techniques such as pooled ordinary least square (OLS), fixed effect, and dynamic generalized moment method (GMM) were employed. The result of the findings shows that all export promotion policy instrument such as foreign direct investment, real effective exchange rate, and government expenditure have a significant effect on non-oil output in SSA. The study further recommends that government should adopt a favourable export promotion policy which will stimulate non-oil output growth. This previous study emphasized on export promotion on non-oil export, and failed to look at the trade liberalization effect on the non-oil export.

Yasiru (2017) examined the impact of globalization on non-oil export performance in Nigeria. The period of study covers from 1975 to 2014, the data were analyzed using the ARDL approach. The such as non-oil export is the dependent variable, while globalization which was proxied as trade openness, inflation, exchange rate and FDI served as independent variables. The finding of the study revealed that globalization as measured by the ratio of trade to GDP only had a long-run positive association with non-oil export growth in Nigeria, while inflation, exchange rate, FDI and inflation has negative relationship with non-oil export. but in the short run it turns out to be significant, like wise trade also.

There is paucity of empirical studies on trade liberalization on non-oil export in Sub-Saharan Africa countries, also to the best of my knowledge most studies reviewed did not incorporate institutional quality as part of the controlled variables. However, this intends to fill the gap to this regard.

3.0 Methodology
3.1 Nature and sources of Data

In order to examine the effect of trade liberalization on non-oil export in Sub-Saharan African countries. The data used for the study is secondary annual panel data which cover the period 2004 to 2023. The choice of this period is when the IMF suggested the external oriented trade policy for Africa and also SSA adopted the enhanced general data dissemination system (e-GDDS) of the IMF, in addition due to the availability of data. The SSA countries comprise of 38 countries, which include, Togo, Zambia, Centra Africa, Guinea, Mozambique, Botswana, Burundi, Comoros, Eswatini, Ethiopia, Lesotho, Mauritius, Namibia, Rwanda, Senegal, Tanzania, Uganda, Cabo Verde, Seirra-Leon, Angola, Cameroon, Chad, Ghana, Gabon, Republic of the Congo (Congo-Brazzaville), Democratic Republic of Congo (DRC), Equatorial

Guinea, Ivory Coast (Cote d' Ivoire), South Africa, Benin, Bukina Faso, Gambia, Guinea Bissau, Kenya, Madagascar, Mali, and Niger. The data was sourced from World development Indicator, International Monetary Fund, and Governance indicator.

3.2 Variables Description, Measurement and Sources.

Non-oil export (NONX): is proxied by non-oil output is the dependent variable, its refers to the total value of the output of non-oil goods and services excluding oil export produced in the economy annually. It is measured in percentage (%) of GDP, it was sourced from IMF.

Trade liberalization (TON): is proxied by trade openness, it serves as the independent variables. It refers the total sum of imports of goods and services. It is measured as a component of gross domestic product but in percentage form (%), it was sourced from world development indicator.

Inflation (INF): is proxied by consumers price index. It reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, its also measured in percentage and it is sourced from world development indicator.

Exchange rate (LEXCR): Is the value of one currency expressed in terms of another currency, it represents the rate at which SSA countries' currencies can be exchanged in dollar in the foreign exchange market, is measured in nominal rate and it is sourced from world development indicator.

Foreign Direct Investment (FDI): It refers to the net inflows of foreign direct investment, (new investments coming in excluding any investments that are hauled out) all relation to the proportions of the economy (GDP). It is measured as percentage of GDP. It is also sourced from world development indicator.

Institutional Quality (IQ): Political Stability it captures perception of the possibility of political stability, Rule of law refers to the perception that people have about the rule that govern them. Control of corruption refers to the extent to which public power is used for private benefits, it could be major or minor corruption. Governance effectiveness is the perception of the quality of public, civil servant and the degree of its independence. Regulatory quality reflects the perception of the government to initiate and implement sound policies and regulation that permit and promote private sector development (scale of -2.5 and 2.5) sourced from governance indicator. Principal component analysis (PCA) was used to generated an index to reduce the dimension of the indicator to avoid any likelihood of multicollinearity and the new index is called IQ.

3.3 Model Specification:

In order to achieve the effect of trade liberalization on non-oil export in Sub-Saharan Africa countries, the study adopts the export-led growth hypothesis and adapts the work by Salik and Aras (2022) on trade liberalization and non-oil export. Their model is specified in the functional form as:

NONX=f(TON,FDI,EXCR) [1]

 Where;

NONX represents the non-oil output of GDP, a proxy for non-oil export as the dependent variable. TON represents trade liberalization, FDI represents foreign direct investment, and EXCR represents the exchange rate.

The model was modified by introducing INF and IQ as part of the independent variables, This is because when domestic inflation exceeds that of trading partner countries, the cost of producing and exporting non-oil goods rises, which can decrease their competitiveness and export volumes, and also the institutional quality ensures that trade agreement are enforced, and rules are followed, this can have an impact on the competitiveness of non-oil exports in Sub-Saharan Africa (SSA) countries in the international market.

The functional and econometric forms of the modified model are presented in equations [2]

and [3] respectively:

*NONX=f(*TON, INF, EXCR, FDI, IQ*)* [2]

$$NONX_{it} = \beta_0 + \beta_1 TON_{it} + \beta_2 INF_{it} + \beta_3 LnEXCR_{it} + \beta_4 FDI_{it} + \beta_5 IQ_{it} + e_t$$ [3]

Where;

LnEXCR represent log of exchange rate, exchange rate was log because it is not measured in percentage like the other variables but rather in rates. The dependent variable which is NONX denotes non-oil output as proxy for non-oil export it is measured in percentage, TON represents trade openness as proxy for trade liberalization, measured in percentage, INF represents inflation rate, measured in percentage, LEXCR represent exchange rate measured in nominal rate, FDI represent foreign direct investment measured in percentage and IQ represent institutional quality measured in simple average, all serve as the independent variables.

B$_0$ is the intercept; β_1, β_2, β_3, β_4, β_5, are the coefficients of the variables; ei = error or stochastic term; *it* represents the time dimension (2004 – 2023).

Apriori Expectation: β1 *>0,* β2*<0,* β3*>0,* β4>0 & β_5 >0.

Therefore, the ARDL model used in this study is presented in equation [4];

$$\Delta NONX_{it} = \alpha_0 + \sum_{t=i}^{p} \varphi_1 \Delta NONX_{it} + \sum_{t=i}^{p} \varphi_2 \Delta TON_{it-i} + \sum_{t=i}^{p} \varphi_3 \Delta INF_{it-i} + \sum_{t=i}^{p} \varphi_4 \Delta LnEXCR_{it-i} +$$

$$\sum_{t=i}^{p} \varphi_5 \Delta FDI_{it-i} + \sum_{t=i}^{p} \varphi_6 \Delta IQ_{it-i} + \alpha_1 NONX_{it-i} + \alpha_2 TON_{it-i} + \alpha_3 INF_{it-i} + \alpha_4 EXCR_{it-i}$$

$$+\alpha_5 FDI_{it-i} + \alpha_6 IQ_{it-i} + \varepsilon_t \qquad\qquad [4]$$

Where; NONX, TON, INF, LnEXCR, FDI, IQ α_0, ε *and t* are as defined earlier while Δ is the change operator . The long-run co-integration will be estimated using Equation [5];

$$\Delta NONXit = \alpha_0 + \sum_{t=i}^{p} \varphi_1 \Delta NONX_{it} + \sum_{t=i}^{p} \varphi_2 \Delta TON_{it-i} + \sum_{t=i}^{p} \varphi_3 \Delta INF_{it-i} + \sum_{t=i}^{p} \varphi_4 \Delta LnEXCR_{it-i} +$$

$$\sum_{t=i}^{p} \varphi_5 \Delta FDI_{it-i} + \sum_{t=i}^{p} \varphi_6 \Delta IQ_{it-i} + \varepsilon_t \qquad\qquad [5]$$

The selection of Pooled Mean Group (PMG) maximum lag (p q) was based on the automatic lag length selection. The study derives the short-run dynamic parameter from Error Correction Model (ECM) estimation, associated with the long-run estimate. $\Delta NONX_{it} = \alpha_0 + \sum_{t=i}^{p} \varphi_1 \Delta NONX_{it} + \sum_{t=i}^{p} \varphi_2 \Delta TON_{it} +$

$$\sum_{t=i}^{p} \varphi_3 \Delta INF_{it} + \sum_{t=i}^{p} \varphi_4 \Delta LnEXCR_{it} + \sum_{t=i}^{p} \varphi_5 \Delta FDI_{it} + \sum_{t=i}^{p} \varphi_6 \Delta IQ_{it} + \delta ECM_{t-1} + \varepsilon_t$$

$$[6]$$

Where;

$\varphi_1 - \varphi_6$ represents short-run dynamic coefficients converging to long-run equilibrium and δECM_{it-1} represents the speed of adjustment parameter and error correction model originated from the estimated equilibrium relationship.

3.4 PMG Estimation Procedure

Before carrying out the PMG analysis, there are some pre-diagnostic tests that will be conducted. This consist of the Descriptive Statistics Test which considers the mean, the minimum, maximum values, Kurtosis, Jaque-Bera, and Skweness. followed by Pairwise Correlation Matrix, after which the Cross Section Dependence Test the (CDS) will be conducted to explore whether the variables are cross-sectionally dependent or not. Afterward the Panel Unit Root Test using CIPS and CD-ADF will be performed on individual variable to ascertain the order of stationarity. The lag selection will be based on automatic selection, and the Panel Co-integration Test for long-run relationship among non-stationary variables using either (Kao, Westerlund or Pedronic) will be performed. After the pre-estimation tests, the analysis will be accomplished through the PMG, Dynamic fixed effect. Subsequently, the Hausman Test will be carried out.

4.0 Results and Discussion of Findings.

Descriptive statistics helps to have a glimpse of the nature of the data.

Table 1: Descriptive statistics.

	Obs	NONX	TON	INF	LEXCR	FDI	IQ
Mean	760	4.48951	65.49737	3.794644	5.953873	2.110009	5.284245
Maxi	760	46.1355	165.049	38.94286	47.64287	5.284245	9.24583
Mini	760	-36.39198	0	-17.29212	-63.6564	-3.736061	-0.10592
Std. Dev	760	4.860381	28.89137	5.273193	8.336323	-0.105922	2.02962

Source: Authors Computation using Stata 15.0, 2025.

Table 1 provides the summary statistics of the variables used in examining the effect of trade liberalization on non-oil export in SSA countries. As shown in the summary statistics result, it is seen that trade openness has the highest mean value of 65.49737, this implies that on an average the SSA countries economy are having a relatively high level of trade liberalization. This suggests that trade plays a significant role in SSA countries economy, such as Nigeria, Angola and south Africa are likely to be more integrated into the global economy. This is followed by foreign direct investment (FDI), which has the least mean with values of 2.110009, implying that on average, SSA countries receive a relatively small amount of FDI. This could be due to limited economic attractiveness, regional disparities and dependence on other capital flows. The maximum value of all the corresponding variables is (165.049, 46.1355, 38.94286, 47.64287, 5.284245 and 9.24583) which is greater than the mean value, it implies that based on trade liberalization some SSA countries have made significant progress in trade liberalization, while others lag behind and also countries with high non-oil export values may have successfully diversified their export base, reducing dependence on oil exports, additionally countries in SSA with high institutional quality values may have implemented effective reforms, while others may need to prioritize institutional strengthening. The higher standard deviation values suggested that the data for all the SSA countries included in the panel are strongly dispersed.

Table 2: Pairwise Correlation Analysis

Summary	NONX	TON	FDI	INF	IQ	LEXCR
NONX	1.0000					
TON	0.0081	1.0000				
FDI	0.0350	0.3224	1.0000			
INF	0.0959	0.0038	0.0243	1.0000		
IQ	0.0200	0.2293	0.1120	0.0093	1.0000	
LEXCR	0.0124	0.2172	-0.0187	-0.1527	0.4455	1.0000

Source: Authors Computation using Stata 15.0, 2025.

The table shows the outcome of the correlation matrix, the result demonstrates that the highest correlation coefficient is between LEXCR and IQ with value of (0.4455), followed by FDI and TON with value of (0.3224), however, INF and TON has the least correlation coefficient of (0.0038). This indicates that there is no likelihood of multicollinearity between the panel data set.

Table 3: Cross Sectional Dependency Test Pesaran's CD

Variables	Pesaran (CD)	P-Value	CD-test	P-value
NONX	-2.085	0.016**	26.13	0.000**
TON	1.708	0.552	7.29	0.000**
INF	-1.844	0.246**	28.96	0.000**
LEXCR	-1.487	0.929	102.58	0.000**
FDI	-2.030	0.049**	2.65	0.008**
IQ	-2.030	0.994	3.87	0.000**

Source: Authors Computation using Stata 15.0, 2025. Note: ***,**,* indicate significant at 1%; 5%, & 10%.

The outcome of the cross-sectional dependency indicated that, we reject the null hypothesis of no cross-sectional dependence. Hence, this infers the presence of cross-sectional dependence, which suggests that the second-generation unit root tests are the most appropriate.

Table 4: Pesaran's CADF Unit Root Test in the presence of Cross-sectional dependence

Variables	Level(CADF)	t-bar	Remark	First Diff(t)	t-bar	Remark
NONX	-1.936	0.985	1(0)	-2.386	0.000	1(1)
TON	-2.540	0.064	1(0)	-2.338	0.000	1(1)
INF	-2.541	0.166	1(0)	-2.660	0.000	1(1)
LEXCR	-2.354	0.236	1(0)	-2.363	0.000	1(1)
FDI	-2.244	0.159	1(0)	-2.508	0.000	1(1)
IQ	-2.344	0.610	1(0)	-2.431	0.000	1(1)

Im-Pesaran CIPS Unit Root Test in the presence of cross-sectional dependence

Variables	Level(t)	5%	Remark	1st Diff(t)	5%	Remark
NONX	-3.386	-2.11**	1(0)	-5.312	-2.11	1(1)

TON	-1.970	-2.31^{n}	No	-4.050	-2.31	1(1)	
INF	-2.804	-2.11^{**}	1(0)	-4.955	-2.11	1(1)	
LEXCR	-1.576	-2.11^{n}	No	-4.454	-2.11	1(1)	
FDI	-3.040	-2.11^{**}	1(0)	-5.099	-2.11	1(1)	
IQ	-1.459	-2.11^{n}	No	-4.162	-2.11	1(1)	

Source: Authors Computation using Stata 15.0, 2025. Note 'n' denotes no stationarity.

Table 4 shows the outcome of the second-generation unit root test using cross-sectional augmented Dickey-Fuller (CADF) and Im-Pesaran (CIPS) as propounded by Im, Pesaran and Shin (2003). The result of the CADF shows that all the variables are stationary at both level and first difference, i. e, 1(0) and 1(1). Also, for the Im-Pesaran (CIPS) the outcome of stationarity was mixed, because variables such as NONX, LEXCR and FDI were stationary at level 1(0), while TON, INF and IQ were not stationary at level. But after taking the first difference 1(1) all the variables became stationary including NONX, LEXCR and FDI that were stationary at level. Therefore, we apply the pooled mean group or the panel ARDL approach to explore the long-run and short-run effect of trade liberalization on non-oil export in SSA countries.

Table 5. Westerlund Co-integration Test.

Westerlund Co-integration Test: H0:38, Ha:20

	Statistic	P-value
Augmented Dickey-Fuller L	-2.6847	0.0000

Source: Authors Computation using Stata 15.0, 2025.

The Westerlund panel co-integration test used in the study was presented in table 5. The cointegration test result shows that the null hypothesis is that there is no cointegrating relationship. Therefore, since the p-value of 0.0000 is below the 5% or the 0.05 critical value, suggesting rejection of the null hypothesis of no cointegrating relationship between non-oil export and the independent variables such as trade openness, inflation, log of exchange rate, foreign direct investment and institutional quality, employed in the model. Hence, we conclude that there is the existence of cointegration relationship in the model from 2004 to 2023.

Table 6: PMG-ARDL Long-run Estimation Outcomes

D.NONX	Coefficient	Std.Err	Z-stat	P>(Z)

Long-run Coeff				
TON	0.0035471	0.0053266	0.67	0.505
FDI	-0.0625514	0.0386031	-1.62	0.105
INF	-0.0186845	0.0092961	-2.01	0.044
IQ	-0.099028	0.187798	-5.85	0.000
LEXCR	-2.929247	0.1719469	-17.04	0.000
Error Correction Coefficient (EC)	-0.8277736	0.0673795	-1.82	0.000
Short-run Coefficient				
D.TON	0.1270807	0.0339395	12.29	0.000
D.FDI	-1.1456406	0.1036617	3.74	0.000
D.INF	-0.095995	0.058005	-1.40	0.160
D.IQ	1.032499	0.8362818	-1.66	0.098
D.LEXCR	-4.729493	2.740237	-1.23	0.084
Intercept	-16.35193	1.820455	-8.98	0.000
Observation	722	722	722	722

Source: Authors Computation using Stata 15.0, 2025. **Note,** ***,**,* is statistically different from zero at 1%, 5%, and 10% significance level, respectively,

The pooled mean group (PMG) result is presented in table 6. In both long run and short run the coefficient of trade liberalization (TON) is (0.0035471 and 0.0682748) which conform to the apriori expectation, it suggests a positive relationship with non-oil export (NONX), it infer that a one unit increase in TON is associated with an increase of 0.0035471 and 0.0682748 unit in NONX, holding other independent variables constant. The P-value for TON in the short run is 0.000, which is less than 0.05, indicating that TON is statistically significant in explaining NONX variability, while in the long run it is insignificant to NONX. In the long run and short run, the coefficient of foreign direct investment (FDI) is (-0.0625514, and -0.0517104) and insignificant to NONX, this does not conform to the apriori expectation, it suggests that a one-unit increase in FDI is associated with a decrease of 0.0625514 and 0.0517104 units in NONX.

In the long run the coefficient for inflation (INF) is (-0.0186845) showing that it conform to the apriori expectation, suggesting that a one unit increase in INF is associated with a decrease of 0.0186845 unit in NONX, holding other independent variables constant. The p-value for INF is 0.044 which is less than 0.05, indicating that INF is statistically significant in explaining NOX variability. While, in the short run it is having a positive coefficient of (0.0148719) suggesting that a one unit increase in INF is associated with a

decrease of 0.0148719 units in NONX, although the p-value of 0.152 indicates that it is statistically insignificant to NONX.

The coefficient for institutional quality (IQ) in the long run is (-0.099028), this does not conform to the apriori expectation, indicating that a unit increase in IQ is associated with a decrease of 0.099028 units in IQ, holding other independent variables constant. The p-value for IQ is 0.000 which is less than the 0.05, indicating that IQ is statistically significant in explain NONX variability. While in the short the coefficient for IQ (0.1026957) is positive which conform to the apriori expectation, this infer that a one unit increase in IQ is associated with an increase of 0.1026957 units in NONX, holding other independent variables constant, the p-value for IQ 0.891, which is greater than the 0.05 critical value, indicating that IQ is statistically insignificant in explaining NONX.

The log of exchange rate (LEXCR) is having a negative coefficient of (-2.929247, and -3.215679) in both long run and short run, this does not conform to the apriori expectation. This suggest that a one unit increase in LEXCR is associated with a decrease of 2.929247 and 3.215679 unit in NONX, holding other independent variables constant. The p-value for LEXCR in the long run is statistically significant, while in the short run it is insignificantly related to NONX.

The error correction coefficient is having a negative sign, and its p-value of (0.000) indicates that it is significant; it suggests that any deviations from the long run equilibrium is adjusted at the 82% adjustment speed from the period 2004 to 2023. The EC significant level implies a significant long run co-integration. It also indicates that we can deduce joint causality of the independent variables jointly influence the dependent variable.

Table 7 Dynamic Fixed Effect Result

	Coefficient	Std.Err	Z-stat	P>(Z)
Long-run Coeff				
TON	0.0682748	0.0170589	4.00	0.00

FDI	-0.0517104	0.0670963	-0.77	0.441
INF	0.0148719	0.0424599	0.35	0.726
IQ	1.760454	0.4692941	3.75	0.000
LEXCR	-3.221431	0.6673995	-4.83	0.000
Error Correction Coefficient (EC)	0.755732	0.038359	19.76	0.000
Short-run Coefficient				
D.TON	0.0401306	0.0151891	2.64	0.000
D.FDI	-0.0631068	0.0441064	-1.43	0.152
D.INF	0.0104031	0.1036119	0.29	0.773
D.IQ	0.1026957	0.7485766	0.14	0.891
D.LEXCR	-3.215679	0.008985	-1.60	0.109
Intercept	-16.35193	1.820455	-8.98	0.000
Observation	722	722	722	722

Source: Authors Computation using Stata 15.0, 2025.

The outcome of the dynamic fixed effect deduced that all the variables such as FDI and LEXCR are both having a negative relation with NONX in both short run and long run, but TON, INF, and IQ are positively related to NONX in both short run and long run, although in the long run TON, IQ and LEXCR are having a p-value of (0.000, 0.000 and 0.000) which indicates that they are significantly related to NONX. Additionally, FDI, INF, are insignificant in both long run and short run, while LEXCR was found to be insignificant in the short run.

The coefficient of the error correction term is found to have a positive sign of (0.755732) but the p-value of (0.000) is significant because it is less than 0.05 critical value. this suggest the speed of convergence to long-term equilibrium to around 75% per year from 2004 to 2023 and it is highly significant with p-value of (0.000).

Table 8: Hausman Test

	(b) DFE	(B) pmg	(b-B) Difference
TON	0.0682748	0.0035471	0.0647277
FDI	-0.0517104	-0.062514	0.010841

INF	0.0148719	-0.186845	0.0335564
IQ	1.760454	1.099028	0.6614262
LEXCR	-3.221431	-2.929247	-0.2921845
Chi2(5)	11.17	Prob>chi2	**0.0418**

Source: Authors Computation using Stata 15.0, 2025.

The Hausman test in table 8, enables us to have a check to know whether we incorporated the right estimator in our model. Therefore, since the p-value (0.0418) of the Hausman test is below the 5% critical value it implies that the dynamic fixed effect is not the appropriate estimator to adopt but rather the pooled mean group (PMG) is the appropriate estimator we can apply in the model. Thus, based on the Hausman test, the PMG model in which trade liberalization jointly affect the non-oil export in SSA countries is appropriate for estimation.

4.1 Discussion of Findings

As reported in the model specification, Panel ARDL was incorporated as the method of estimation. Specifically, we used the PMG to estimate both long run and short-run effect of trade liberalization on non-oil export in SSA countries. In the long run and short run, the positive effect of TON on NONX export implies increased export competitiveness making SSA countries non-oil exports more competitive in the global market leading to increased export growth, improve trade balance and economic growth. Although the insignificant effect of trade openness to non-oil export in the long run implies a weak relationship between TON and NONX, this outcome is in agreement with the study done by Akims, Yohanna and Akims (2018) and Yasiru (2017) which found trade liberalization to be positively associated to non-oil export.

Foreign direct investment was found to have a negative relationship with non-oil exports. This is in contrast to the Study done by Salik and Aras (2022) and Orji et al. (2021), which found FDI to be positively related to non-oil output. The negative effect of FDI implies that high FDI inflows can create dependence on foreign capital, reducing the incentives for domestic firms in SSA to invest in the NONX sector. FDI can crowd out domestic investment in NONX. Also, it can lead to the transfer of technologies that are not suitable for NONX sector reducing their competitiveness.

Inflation was found to have a negative relationship with NONX in both the short run and long run. This is in contrast to the study done by Orji et al. (2021) and Yasiru (2017), which found inflation to have a positive relationship with non-oil exports. Consequently, the negative effect implies that higher inflation leads to decreased export earnings, which can negatively impact the trade balance and non-oil export growth, also reduction in inflation will increase demand thereby leading to increased demand for non-oil exports, as foreign buyers will take advantages of lower prices, and producer will buy raw materials at a lower price and this will accelerate the non-oil output especially in the manufacturing sector of the non-oil export

Institutional quality is positively related to non-oil exports in short run, this does not align with some of the study. The positive relationship suggests an improved business environment by encouraging firms to invest in the non-oil export sector. In addition, low corruption levels increase transparency, reduce transaction costs and encourage firms to engage in non-oil exports. This is supported by an efficient regulatory framework, simplified procedures, and reduced bureaucracy, thereby promoting non-oil growth. Although in the long run IQ had a negative relationship with NONX, it implies weak institution will lead to lower non-oil exports. The over-regulations can increase the cost of doing business and reduce the competitiveness of non-oil export, this will decrease economic growth and increase vulnerability to external shocks such as changes in the global non-oil prices.

In both long run and short run exchange rate happens to have a negative relationship with non-oil export, this is not in agreement with studies done by Akims, Yohanna and Akims (2018); Orji et al (2021), but in the short run it was found to be significantly related to non-oil export which aligns with the study carried out by Apansile and Olalekan (2017), which found exchange rate to be significantly associated with non-oil export. The negative relationship of exchange rate to non-oil export in both the long run and short run implies that exchange rate volatility can create uncertainty for SSA exporters, making it difficult for them to predict future revenues and investment in the non-oil sector.

5. Conclusion and Recommendation

The paper provides vital insight into the effect of trade liberalization on non-oil exports in SSA countries. The outcome of the cross-sectional dependency indicates the presence of cross-sectional independence among the independent variables and the dependent variable. This resulted in incorporating the second-generation unit root tests such as CADF and CIPS. The cointegration test of Westerlund, shows that a long-term relationship existed between the dependent variable and the independent variables from 2004 to 2023; this prompted us to adopt the pooled mean group estimator (PMG).

Based on the regression result, it was revealed that in the long run both FDI, INF, IQ and LEXCR are having a negative effect on NOX. Although INF, IQ and LEXCR are significantly related to NONX, FDI, on the other hand, is insignificant. In the short run FDI, LEXCR are negatively related to NONX and are statistically insignificant to NONX, while IQ and INF are positively related with NONX and are also insignificant to NONX. Additionally, in both periods, only TON was found to have a positive effect on NONX, but in the long run, it was insignificant, while in the short run, it was significant. The outcome underscores the critical needs for effective implementation of trade liberalization and other complementing policies, weak institutions can hinder this growth. Therefore, the following recommendations were established.

Recommendations

The government and stakeholders in SSA countries should continue to implement trade liberalization policies to reduce tariffs, simplify customs procedures, and increase market access for non-oil exporters. Complementary policies, such as investment in infrastructure and human capital, should also be initiated to support non-oil export growth.

Policy makers should carefully manage FDI to ensure that it complements domestic industries rather than crowds them out.

The government in SSA countries should prioritize macroeconomic stability by controlling inflation, maintaining a stable exchange rate, and promoting a favourable business environment.

The government in various SSA countries should implement effective institutional reforms to improve the business environment, reduce corruption, and increase transparency.

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