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Trade, Institutional Quality and Trade Agreements: How Does Nigeria's Macroeconomic Stability Respond?

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Abstract

The macroeconomic health of an economy is reflected in its internal and external balances, which are critical for sustaining strong trade relations, economic growth, productivity, innovation and lasting stability. This study examines the interactive impact of institutional quality, global trade, and trade agreements on Nigeria's macroeconomic stability from 1981 to 2024. Data were sourced from the World Development Indicators (WDI), Central Bank of Nigeria (CBN) Statistical Bulletin, United Nations Conference on Trade and Development (UNCTAD), and World Trade Organization (WTO) legal documents, including TRIPS, GATT, and the Doha Declaration. Drawing on institutional economics and international trade theory, the study employs the Autoregressive Distributed Lag (ARDL) model to assess both short-run dynamics and long-run relationships. Inflation is used as a proxy for internal balance, while the current account balance measures external balance. The results indicate that trade openness has a negative impact on both external and internal balances, contrary to expectations, while foreign direct investment (FDI) exerts a positive effect. Interaction terms reveal that strong institutional quality amplifies the benefits of FDI for macroeconomic stability but does not significantly moderate the effects of trade openness or WTO membership on inflation, highlighting Nigeria's import dependence. In line with expectations, WTO trade agreements have a positive effect on the current account balance but a statistical negative insignificant impact on domestic price stability (inflation). Overall, the findings suggest that trade liberalization and agreements alone are insufficient to improve macroeconomic performance without complementary institutional reforms. The study recommends leveraging WTO engagement alongside domestic reforms, including expanding the Anchor Borrowers' Programme, strengthening development finance institutions such as the Bank of Industry and Bank of Agriculture, stabilizing macroeconomic structures, and increasing investment in non-oil sectors and human capital to achieve sustainable internal and external balances in the context of global trade dynamics

Background to the Study

The macroeconomic health of an economy is reflected in its economic balances, which are not just a sine qua non for its sustainability, trade capability, economic growth, but also its productivity and innovative capacities (United Nations Conference on Trade and Development [UNCTAD], 2023). It is divided into internal and external balances. The internal balance is reflective of full use of productive capacity and price stability over the medium term (International Monetary Fund [IMF], 2006). It is widely measured through inflation, output gap, and employment rates (World Bank, 2008; Obadan, 2020). While the external balances refer to a sustainable position in the current account, without leading to excessive accumulation of foreign debt or reserve depletion, and it is widely measured through current account balances (IMF, 2022; World Bank, 2023).

Global trade is a cross-border transaction of goods and services, shaped by trade policies, international agreements, and often driven by comparative advantage as well as global value chains (UNCTAD, 2022; WTO, 2024). Among the measurements of global trade is trade openness as a percentage of GDP, widely and mostly used by World Bank, the IMF, and the WTO (UNTCAD, 2022). Global trade sustainability is highly dependent on trade agreements. According to Adewuyi (2021), Nigeria's participation in global trade has been substantial since the 1980s. This has since ushered in trade liberalization policies such as the Structural Adjustment Programme. Nigeria's membership in the World Trade Organization (WTO) and the African Continental Free Trade Area (AfCFTA) further underscores its commitment to expanding trade as a lever for development (UNCTAD, 2023). Therefore, Nigeria's trade openness might have offered great opportunities but may have also constituted imbalances in Nigeria's economic performance (Adewuyi, 2021).

Inflation, as affirmed by the CBN Monetary Policy Review (2023), is a persistent rise in the general price level of goods and services, which reduces the purchasing power of money. It is a major internal balance indicator. On average, Nigeria's inflation since mid-2010 has sustained an increase from 13 to 18% but rose 18 to 24% since 2020, which might have been exacerbated by COVID-19 shocks and other institutional reforms (Sakanko & Joseph, 2019). This sustained increase in Nigeria's inflation, despite its increasing global trade, has given reasons for critical retrospective on the impact of Nigeria's trade liberalization and WTO trade agreements. Romer (1993) hypothesis, postulated a negative inflationary effect of trade openness, since trade liberalization enhances price competition, improve supply of goods and help suppress domestic inflations, if this postulation is truism, why then is Nigeria's inflation been on average rise despite it liberalization and trade agreements (World Trade Organization (WTO) and the African Continental Free Trade Area (AfCFTA). Despite, the enormous economic opportunities for diversification offered by trade openness as well as foreign exchange earnings the inflation level is not a reflective of the expectation of the trade Nigeria trade policy (Ajakaiye & Fakiyesi, 2020). Also, Olayiwola & Okodua (2021) argued that without strong industrial and fiscal policies, trade openness can exacerbate macroeconomic volatility. Therefore, understanding the macroeconomic stability respond to nuanced interactive impact of trade institutional

quality and trade agreements on Nigeria's internal (inflation) and external (current account balance).

Current account balances are record of a country's transactions with the rest of the world in goods and services Balance of Payments Manual, IMF (BPM6). It shows whether a country is a net lender or borrower to the rest of the world. Nigeria's current account balances have not been very resilient, showing declining trends over the past decade. Data from the IMF (2024) indicated a surplus current account balance of 10.7% of GDP in 2000, peaking at over 20% of GDP in 2005. However, the current account sharply declined, fluctuating from -3.2% to -3.7% between 2014 and 2020. The trend reversed, with the account balances rebounding from 2021 to a surplus, fluctuating from 1.66% to 0.9% of GDP in 2023 and 2024, respectively. This trend raises questions about whether global trade and agreements, especially in a single-product economy like Nigeria, impact their economic performance without strong institutional quality. It might also be unfair to assume that global trade and trade agreements have not exerted persistent pressure on Nigeria's domestic prices and current account balances. Despite the apparent increases in the account balances, GDP per capita figures, which measure citizens' living standards, suggest continuous declining living standards and inadequate economic benefits per person (World Bank, 2024). So, the key question what is the missing link that explains why increased trade liberalization and agreements are not translating into improved living standards for citizens?

GDP per capita is widely used for the average economic output per person in a country (World Bank, 2024). The International Monetary Fund (2023) asserted that country's economic output that accounts for its number of people living standard. The GDP per capita is important to this study to serve as a control variable, since it is not only indicative of the prosperity of the country but also a critical factor in the assessment of its performance among its trading partners. Despite upward trend of Nigeria's GDP per capita from $547 to $2,592 in the early 2000s, which have since then turned downward from 2014 to 2024, to unimaginable proportions from $2,018 in 2021, $2,135, $1,597 in 2022 and 2023, respectively. The condition has further deteriorated in 2024 to $807 2024 (World Bank, 2024). This has further illustrated a pattern of early economic expansion and structural vulnerability, as highlighted by Adewuyi (2021), who asserted the need for structural change, diversification, and inclusive growth for Nigeria's effective participation in global trade and agreements.

Furthermore, the price at which one currency can be exchange for another currency is another critical variable in global trade and key monetary policy tools for economic stability. It is defined as the exchange rate of that currency. In this study it is not just conversion factor of one currency in relation to another but also a multiplier of trade outcomes. Ayobami (2019) crystalized these facts by stating that introduction of SAP in 1986 did not result to an upward swing in exchange rate but have its consequence on other sectors of the economy One of the core incidences of exchange rate dynamics, can easily observed through GDP growth rate.

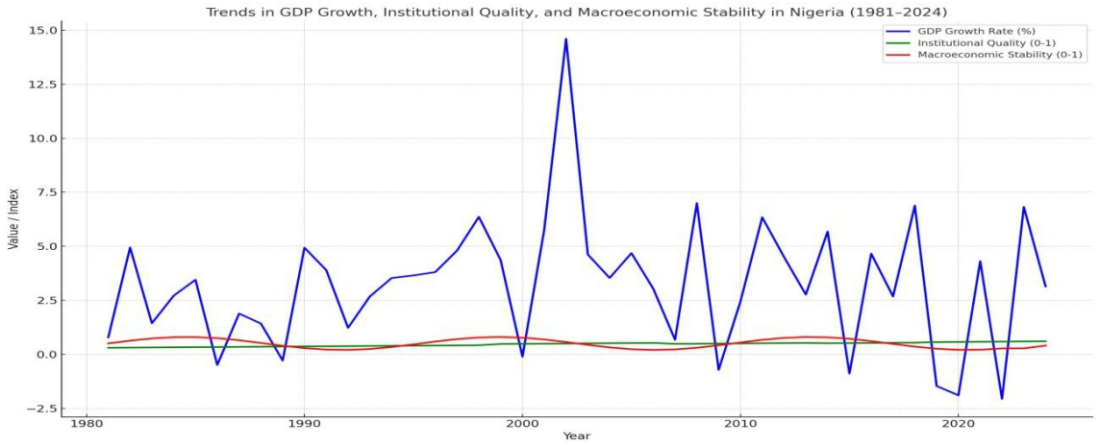

Fig 1: Institutional quality**,** GDP growth, and Macroeconomic stability in Nigeria from 1981-2024.
Source: Macro Trends 2024, WDI,2024.

The Fig. 1 shows how Nigeria's economy and institutions have changed between 1981 and 2024. The blue line tracks show a historical GDP growth rate of about 14.6% as a result of oil sector expansion and economic reforms, which was very unstable, rising and falling sharply over the years, including a sharp contraction to approximately 1.9% in 2020 due to COVID-19 and the oil price crash. The green line shows institutional quality, rated from 0 (very weak) to 1 (strong), which dipped slightly between 2014 and 2019 as insecurity, weak governance, and fiscal challenges increased. The red line represents macroeconomic stability, combining factors like inflation, government finances, foreign trade, and exchange rates. This measure shows how vulnerable Nigeria is to global shocks, especially changes in oil prices. After 2023, stability fell again as inflation rose from 13.3% in 2020 to 33.4% in 2024, and the currency weakened following the removal of fuel subsidies and the liberalization of the Naira. Therefore, is Nigeria trade policy still effective?

Nigeria's global trade and agreements were designed to integrate Nigeria into the global trading system and improve external competitiveness (UNCTAD, 2023). According to Olaniyan & Lawson (2015), it was to improve domestic economic efficiency, while Uzonwanne (2020) was of the view that it is to stimulate investment and technological development. These needs have resulted in Nigeria's subscribing to membership of the World Trade Organization (WTO) in 1995 and the African Continental Free Trade Area (AFCFTA) 2019. The membership of Nigeria to WTO in 1995 was a strategic trade policy that replaced the General Agreement on Tariffs and Trade (GATT) and ratified the Marrakesh Agreement, which established the WTO in 1994. However, the outcomes of Nigeria's trade liberalization and integration into the global trade system have remained mixed. The country has continued to struggle with macroeconomic imbalances. While export earnings, particularly from crude oil, have surged at times, the structure of trade remains narrow and vulnerable to global shocks (Aminu & Onodugo, 2020; Imoagwu et

al, 2023). Nigeria continues to struggle with persistent trade deficits, foreign exchange instability, and a weak non-oil export base, raising questions about the sustainability of its external balance (CBN, 2022; Imoagwu et al, 2023). Internally, unemployment, inflation, and fiscal instability persist. Externally, Nigeria's balance of payments remains vulnerable due to its overreliance on crude oil exports, weak non-oil export base, and frequent exchange rate crises. Although Nigeria has signed onto major international trade agreements such as the WTO and AfCFTA, these engagements have yet to translate into sustainable internal development or external sector resilience.

Although previous studies have examined trade, institutional quality, and trade agreements, yet significant gaps still remain especially in the Nigerian context, particularly in scope and model specification. Studies such as Osisanwo, Maku & Ajayi (2024); Olayiwola and Okodua (2021); Akinbobola and Yesufu (2022) confirm that institutional quality defines the effectiveness of trade policies. However, it largely neglects its moderating role of trade openness, foreign direct investment (FDI) and trade agreements like those under the WTO. While global evidence, Akinlo and Okunlola (2020); Chang et al., 2021 and Winters et al., 2004 show that benefit of trade agreements are conditional on governance standards, there is limited empirical research evaluating how such synergies influence both internal (price stability) and external (current account balance) macroeconomic stability in Nigeria. Moreover, the studies also focus on growth rather than the dual dimensions of macroeconomic stability, underscoring the need for a context-specific, time-series analysis that integrates trade, institutional quality, and trade agreements in a unified framework.

Therefore, what is the impact of global trade, institutional and trade agreements on Nigeria's internal and external balances? What structural reforms or strategic shifts are necessary for global trade and agreements to become a vehicle for macroeconomic stability? These objectives are to examine the impact of global trade and agreements on Nigeria's internal and external balances and provide policy recommendations for sustainable macroeconomic outcomes. Therefore, the study will specifically examine the interactive impact of institutional quality and trade openness, foreign direct investment and WTO trade agreement, first on Nigeria's macroeconomic indicators, proxied by inflation and current account balances.

Extant Literatures

The theoretical underpinning the relationship between institutional quality, global trade, WTO agreement and macroeconomic balances was based on the structural theory of trade propounded by Prebisch in 1950, and the Heckscher-Ohlin Theory of International Trade propounded in 1919 by Heckscher and expanded by Ohlin in 1933**.** These theories provide theoretical perspectives, highlighting the channels through which trade openness, globalization and participation in international institutions like the WTO may affect macroeconomic stability. The former posited that the terms of trade systematically deteriorate for countries that export primary commodities and import manufactured goods. The Structural rigidities, such as poor infrastructure, weak institutions, and

dependence on external markets, limit developing countries' ability to benefit from free trade.

Adewuyi (2021) and Obadan (2020) suggest that while trade openness can drive economic growth, its benefits depend on the structure and competitiveness of the domestic economy. In Nigeria's case, structural rigidities, import dependence, and weak trade facilitation mechanisms have undermined the potential gains of globalization. Olayiwola and Okodua (2021) assert that trade policies must be aligned with industrial and macroeconomic strategies to foster inclusive and sustainable growth. Similarly, Ogbuabor and Orji (2022) highlight the critical role of trade in influencing both fiscal and external sector performance, especially through its effects on revenue mobilization, exchange rates, and external reserves. More so, the country's poor infrastructure, low productivity, and weak industrial base limit its ability to compete effectively on the global stage (Olayiwola & Okodua, 2021).

Osisanwo, Maku, & Ajayi (2024), studied of effect of trade and financial openness on inflationary pressure in Nigeria, using inflation rate, trade openness, financial openness, and exchange rate and it found a negative and statistically significant effect of trade openness on inflation but financial openness is positive and significant after employing Fully Modified Ordinary Least Squares (FMOLS). This is indicative that liberal financial flows may fuel inflationary pressures. This finding was supported by Adefabi (2024) found that after using ARDL, a long run positive impact of trade openness and inflation, which is suggestive of the effect, is highly context dependent, especially institutional quality or monetary policy. Osisanwo, Maku & Ajayi (2024) provide an important contribution by simultaneously examining trade and financial openness in Nigeria's inflation context. Their findings reinforce that while trade integration helps dampen price pressures, financial market liberalization and currency misalignment may exacerbate inflation, a policy-relevant caveat not always captured in earlier studies.

The study of institutional quality, trade protection policy, and macroeconomic performance in Nigeria by Akinbobola and Yesufu (2020), explored how institutional quality mediates the effects of trade protectionism on macroeconomic outcomes in Nigeria. The study employed exchange rate, corruption indicators, unemployment rate, GDP growth, trade protection measures, government capital and education expenditure, and government effectiveness indexes. The researcher also used autoregressive distributed lag (ARDL) modeling and VAR-based Granger causality tests to find that high corruption and low government effectiveness significantly weakened the positive macroeconomic impacts of trade protectionism. Specifically, trade protectionist policies influenced exchange rate movements and GDP growth, while unemployment had a feedback effect on trade protection measures. These findings were in synchronization with the findings of Akinlo and Okunlola (2021), who argue that weak governance limits the benefits of trade openness on economic growth. Conversely, Ifeakachukwu and Fagite (2024) demonstrate that inclusive macroeconomic policy outcomes require robust institutions to translate policy intentions into equitable growth. The Akinbobola et al.

(2022) study is limited in its scope, as well as focuses on the moderating role of institutions within the trade protection context; it does not extend analysis to trade liberalization or global trade regimes such as the WTO and AfCFTA. This leaves a research gap in understanding how different institutional components interact with liberal trade policies rather than protectionism to shape macroeconomic stability in Nigeria.

Theoretical Model Specification

The theoretical frameworks for this study combined the structural theory of trade by Prebisch (1950) and the Heckscher-Ohlin theory of international trade (1919). On one hand, the structural theory of trade frames its theory of trade from the demand side and argues that trade is skewed to the advantage of the developed countries over developing partners, thereby creating an imbalance in trade outcomes. On the other hand, the Heckscher-Ohlin theory of international trade was conceived from the supply side of trade. Its perspective was that the endowments of the trading partners are the major drivers of global trade and agreements.

Research Design

This study adopted a mixed-methods design, combining quantitative analysis of secondary data with qualitative policy review. Since the data on the global trade and macroeconomic performance already exist and cannot be manipulated, the ex-post facto design allows for the analysis of historical data to infer relationships but policy implications of the WTO commitment can only be ascertained through qualitative analysis.

Data Sources

Secondary time-series data from 1981 to 2024 will be sourced from World Bank Development Indicators (WDI), International Monetary Fund (IMF), National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN) Statistical Bulletin, United Nations Conference on Trade and Development (UNCTAD) and WTO legal documents (TRIPS, GATT, Doha Declaration).

Model Specification

To investigate the impact of global trade on internal and external balances, the study adopts a multiple regression model. The functional form is expressed as:

Basic Model 1: External Balance Model

$$InCAB_t = \delta_0 + \delta_1 InCAB_{t-1} + \delta_2 InToP_t + \delta_3 inFDI_t + \delta_4 InGDPr_t + \delta_5 \mathrm{In}nExR_t + \delta_6 InInsQ_t + \delta_7 WTO\ dummy_t + \varepsilon_{it} \quad (1)$$

here $InCAB_t$ *is* log of current account balances, $InCAB_{t-1}$ *is CAB of the previous year*, $InToP_t$ is log of trade openness at time t, *inFDI is the foreign direct investment* , $inGDPr_t$ is log of GDP growth rate at time t, In $nExR_t$ is nominal exchange rate, $InInsQ_t$ is the log of institutional quality at time t and WTO dummy is 1 if years ≥ 1995 (WTO accession), 0 otherwise.

Basic Model II:

$$InInF_t = \delta_0 + \delta_1 InInF + \delta_2 InToP_t + \delta_3 inFDI_t + \delta_4 InGDPp_t + \delta_5 \mathrm{In}nExR_t + \delta_6 InInsQ_t + \delta_7 WTO\ dummy_t + \varepsilon_{it} \quad (2)$$

Where $InInF_t$ *is* log of inflation at time t and $inGDPp_t$ is the log of per capita every other variable as defined in equation 3.1. δ_0: is in the intercept constant) term, $\delta_1, \delta_2, \delta_3, \delta_4, \delta_5, \delta_6, \delta_7$ are parameters to be estimated and ε_t is the disturbance term/error term. The basic models are specified in equations 1 and 2 but to capture the interactions with the institutional quality, model 1 and 2 will be modified as:

Interactive model 1:

$$InCAB_t = \delta_0 + \delta_1 InToP * InsQ_{it-1} + \delta_2 inFDI * InsQ_{it} + \delta_3 InGDPr_t + \delta_4 InnEXR_{it} + \delta_5 WTO\ dummy_{it} + \varepsilon_{it} \quad (3)$$

Interactive model 1I:

$$InInF_t = \delta_0 + \delta_1 InToP * InsQ_{it-1} + \delta_2 inFDI * InsQ_{it} + \delta_3 InGDPp_t + \delta_4 InnEXR_{it} + \delta_5 WTO\ dummy_{it} + \varepsilon_{it} \quad (4)$$

The apriori, expectation is that trade openness; foreign direct investment and global trade agreements are expected to significantly reduce improve Nigeria current account balances and reduce domestic inflation. This implies that all the variables are expected to be negatively related to inflation but positively related to current account balances, which indicates healthy economy.

Table 1: Presents the Summary of Variable Definition, Measurement, Justification, and Sources of Data.

Variables	Definition	Measurement	Justification/Sources of data
CAB	Current Accounts Balances	% of GDP (in USD $)	Standard measure of a country's External global trade/ IMF(2024)
InF	Inflation rate	Annual inflation rate (%)	Indicator of internal macro-economic stability/WDI, 2024
ToP	Trade Openness	Total trade as % of GDP	Standard measure of a country's global trade/WDI, 2024
FDI	Foreign Direct Investment inflows	Foreign Direct Investment As % of GDP	Reflects the response of global investors to trade /WDI, 2024
$GDPr$	GDP Growth Rate	Annual % change in GDP	Measures internal economic performance WDI, 2024
$GDPp$	Real Gross domestic product per capita	GDP per capita (constant $)	Measures welfare of the people
$nExR$	Nominal Exchange Rate	Official exchange rate and (NGN/USD)	Influences export competitiveness balance of payments (CBN, 2024)
$InsQ$	Institution quality	Index using (PCI) (Ratio)	It measures governance/effectiveness WGI,2024
$WTO\ dummy$	Trade agreement dummy	WTO dummy is 1 if years ≥ 1995 (WTO accession), 0 otherwise.	

Source: Researchers' compilations

Estimation Technique

The study employed the Autoregressive Distributed Lag (ARDL) model by Pesaran et al. (2001). Preliminary analyses include descriptive statistics, a correlation matrix, and Augmented Dickey-Fuller (ADF) tests for stationarity. A Bounds test for cointegration is used to determine long-term relationships among variables, with decisions based on the F-statistic compared to critical bounds. If cointegration is established, ARDL analysis is used to estimate both short- and long-term effects of the interaction of the Global trade, trade agreement (WTO), and internal and external balances. In order to find answers to the research questions and the objectives as specified in the econometric model (1, 2, 3, and 4). The ARDL model is specified as:

The generalized ARDL (p, q) model is:

$$Y_t = \gamma_{0t} + \sum_{i=1}^{p} \delta_i Y_{t-i} + \sum_{i=0}^{q} \beta_i X_{t-i} + \varepsilon_t \qquad 5$$

Where Y_t is a vector and variables in (X_t) [1] are allowed to be purely I (0) or 1(1) or co-integrated; β and δ are coefficients; ϒ is the constant k; i = 1, p, q are optimal lag orders; ε_t is a victor of the error terms, unobservable zero mean white noise vector process (serially uncorrelated or independent). The dependent variable is a function of its lagged value, the current and lagged values of other exogenous variables in the model. The lag lengths of p, q may not necessarily be the same. p lags: used for the dependent variable, q lags: used for exogenous variables.

Decision Rules on the dummy variable:

I. If the coefficient of the dummy variable is significant, then the Nigerian global trade policy or agreement has an impact on explaining Nigeria's Macroeconomic stability; if insignificant, then Nigeria's trade policy (WTO) does not have an impact on the macroeconomic performance of Nigeria.

Justification of the model

The ARDL technique is employed due to its ability to handle variables of mixed order of integration and the ability to estimate both short-run and long-run impacts (Pesaran et al. 2001). It yields high-quality results even if the sample size is small, and Nigeria has less than 100 years of historical data, which makes ARDL most appropriate in such a small sample size, as well as capturing the objective of this study. It also allows dependent and explanatory variables to have different optimal lags. It has also been used by other researchers in the determination of the most impactful macroeconomic variables (Adebanji et al. 2020, Akinola, & Asaolu 2022).

Presentation and Analysis of Results

Descriptive Statistics

MODEL 1	CAB	INF	TOP	FDI	NEXR	GDPP	GDPR	INSQ
Mean	3.520248	18.70559	2.579740	1.274536	198.8671	45.90564	4.222343	66.28538
Median	2.020199	13.00697	1.792045	1.196726	131.2743	46.77542	4.195924	92.40394
Maximum	20.79404	72.83550	24.36747	2.900249	1478.965	59.85094	15.32916	114.4642
Minimum	-3.698743	5.388008	-32.24126	-0.039127	8.038285	32.18464	-2.035119	0.000000
Std. Dev.	5.485044	15.86930	13.93367	0.839325	263.6575	10.29471	3.850174	43.48290
Skewness	1.254418	2.071452	-0.609560	0.221604	3.509628	-0.110281	0.524998	-0.816646
Kurtosis	4.402484	6.495683	3.473892	1.896684	17.16925	1.327089	3.592593	1.826907
Jarque-Bera	12.04762	42.85088	2.494957	2.061705	364.6382	4.152281	2.119916	5.897193
Probability	0.002420	0.000000	0.287228	0.356703	0.000000	0.125413	0.346470	0.052413
Observations	35	35	35	35	35	35	35	35

Source: Researcher's Computation, 2025.

The descriptive statistics provide insights into the distribution and characteristics of the variables, which serve as the foundation for interpreting the ARDL models. Current account balance (CAB) has a mean of 3.52, a maximum of 30.75, and a minimum of -3.69, with a standard deviation of 5.48, indicating moderate variability over time. The positive skewness (1.25) suggests that higher current account balances occur more frequently than lower rates. Inflation (INF) shows a mean of 18.71, with maximum and minimum values of 72.83, 5.38, respectively. Its skewness (2.07) and flatter kurtosis (6.49) and nearly symmetrical distribution (skewness of 2.07), suggest a relatively symmetric and less peaked distribution, with lower variability (standard deviation of 15.86). Trade openness (TOP) exhibits a mean value of 2.58 dollars or 258% and a wide range from 24.37 to -32.24, indicating considerable fluctuations of the trade to % of GDP ratio in Nigeria. The negative skewness (-0.60) shows that higher trade openness is more frequent. Foreign direct

investment (FDI) displays a high level of stability, with a mean of 1.27 and a very close range from -0.04 to 2.90, reflecting Nigeria's significant FDI dynamics. Nominal exchange rate (NEXR) has an average appreciation of 198.87 naira/ dollar, with moderate variability (standard deviation of 263.65), while Gross domestic product per capita (GDPp) shows less variability, evidenced by its kurtosis value of 1.33 and a maximum of 59.85 dollars. Gross domestic product (GDPR) has also shown an average growth of 4.22% over the 44 years under consideration (1980-2024), it is little deviation, with a value of 3.85. Institutional quality (INSQ) has a mean of 66.28 and a negatively skewed distribution (-0.816), suggesting relatively low institutional quality during the period of analysis. The Jarque-Bera statistics are insignificant for all the variables; this implies that they were all normally distributed.

Table 2: Correlation Matrix

Model 1	**CAB**	**INF**	**TOP**	**FDI**	**NEXR**	**GDPP**	**GDPR**	**INSQ**
CAB	1.000000							
INF	-0.233350	1.000000						
TOP	0.737173	-0.093952	1.000000					
FDI	0.475753	0.015740	0.604393	1.000000				
NEXR	0.055729	0.020367	-0.267178	-0.316456	1.000000			
GDPP	-0.078373	-0.341971	-0.236645	-0.217792	0.530957	1.000000		
GDPR	0.488574	-0.422771	0.495599	0.333863	-0.113451	-0.025431	1.000000	
INSQ	0.178050	-0.450993	-0.044425	0.022059	0.517098	0.512648	0.255288	1.000000

Source: Researcher's computation, 2025

The correlation analysis is estimated to ensure that the independent variables do not have a perfect or near-perfect correlation with their selves. It can be inferred from Table 2 that none of the coefficients is greater than 0.8 with each other. Therefore, the conclusion can be reached that the included variables have no perfect correlation with the independent variable and should not portend a risk of multicollinearity in the model estimated.

Unit Root Tests

This was done in order to correctly apply the appropriate regression technique, which is most suitable for purely I(0) and purely I(1) variables and not for I(2) variables (Pesaran, Shin and Smith, 2001). Augmented Dickey-Fuller (ADF, 1979) tests were performed. The result is presented in Table 3.

Table 3: Unit root (ADF)

Variables	Adf test at levels	5% critical value at level	Adf test (first diff)	5% critical value(first diff)	Order of integration	Remarks
CAB	(-2.982)	(-2.929)			I(0)	Stationary
INF	(-3.140)	(-2.929)			I(0)	Stationary
TOP	(-1.728)	(-2933)	(-7.016)	(-2933)	I(1)	Stationary
FDI	(-4.259)	(-2929)			I(0)	Stationary
NEXR	(0.884)	(-2.931)	(7.509)	(-2.931)	I(I)	Stationary
GDPP	(-0.847)	(-2954)	(-3.057)	(-2.954)	I(1)	Stationary
GDPR	(-2.931)	(-2.931)	(-12.386)	(-2.931)	I(1)	Stationary
INSQ	(-0.803)	(-2.929)	(-6.287)	(-2.931)	I(1)	Stationary

Source: Researcher's computation, 2025.

Decision Rule: Reject H_0 if the ADF test of absolute value is greater than 5% critical value, otherwise accept. From the above results in Table 4.3 the CAB, INF, and FDI are the variables stationary at the level. Others are stationary at first difference. They are greater than their 5% critical value at level *I(0)* as indicated in Table 3. These unit root results reveal that the variable has mixed order integration of *I(0)* and *I(1).*

Test for Co-integration

Given that the series are integrated of order zero and one, that is *1(0)* and *1(1),* auto auto-redistributed lag co-integration approach is found most appropriate in ascertaining if there is a long run relationship existing between the variables of the models. The theory of co-integration was pioneered by Granger (1981), Engle and Granger (1987), and addresses this issue of integrating short-run dynamics with Long-run equilibrium. This study makes use of the ARDL bound test approach developed by Pesaran et al (2001) to evaluate if there is a co-integration among the variables. Null hypothesis to be tested (H_0): There is no co-integration among the variables.

ARDL Bound Co-integration Test Result

Table 4: ARDL Bounds Test

Model I F-Statistics = 4.935		**Model II F-Statistics = 3.283**	
Critical Value Bounds			
Significance levels		**I(0) Bounds**	**I(1) Bounds**
Model I	5%	2.45	3.61
Model II	5%	2.45	3.61

Source: Researcher's compilations, 2025.

The co-integrating was evaluated through the ARDL Bounds Test. The result, as shown in Table 4 indicated that the F-Statistics values (4.935, 3.283) for models I and II, respectively, is greater than their lower and upper critical bounds (2.45, 3.61) at 5% significance value for both models. This indicates evidence of co-integration among the variables. The

conclusion from the result is the rejection of the null hypothesis of no co-integration. Since the variables are co-integrated, we estimate the long run external and internal functions as well as their short run dynamic using the ARDL technique as suggested by Stock and Watson (1993).

Analysis of the ARDL

The results of the two models using ARDL techniques were presented in Tables 4.5 and 4.6 for models I and II, respectively. The result provided empirical facts to allow for an extensive interpretation of the impact of trade openness, foreign direct investment, and macroeconomic balances in Nigeria. The models focus on current account balances (CAB) in Model I and Inflation (INF) in Model II as dependent variables. Key explanatory variables include Trade openness (TOP), foreign direct investment (FDI), nominal exchange rate, Gross Domestic Product per capita (GDPp), Gross Domestic Product growth rate (GDPR), and institutional quality (INSQ). Below are detailed interpretations of each model and its policy implications.

Table 5: Model I ARDL Long Run Model

Dependent Variable: Current Account Balance (CAB) Model I				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOP	-0.876	0.359	-2.438	0.025
FDI	3.712	1.960	1.894	0.074
NEXR	-0.158	0.053	-2.970	0.008
GDPR	0.532	0.314	1.696	0.106
INSQ	0.316	0.107	2.958	0.008
WTODUMMY	6.944	3.008	2.308	0.032
ECM(-1)	-0.483	0.119	-4.042	0.000
C	-3.737	2.275	-1.643	0.117
R^2 = 0.942	Adj.R^2= 0.878	F-stat= 14.703	Prob(F-stat) = 0.000	D.W= 2.183

Source: Researcher's compilations, 2025.

The analysis of Table 5 indicated that trade openness (TOP) has a statistically significant (-0.876) and negative impact on the current account balance (0.025). The TOP result indicated that increased trade openness in Nigeria leads to a deterioration in the trade position, possibly due to higher imports than exports. It is also in affirmation with Obadan (2010) and Olayiwola and Okodua's (2021) findings that high import penetration due to trade liberalization has often led to current account deficits in developing economies like Nigeria. Limited contribution to improving Nigeria's current account was demonstrated by the result of FDI, which shows a positive (3.317) but marginally insignificant (0.074). This outcome aligned with the findings of Akinlo (2004), who suggested that while FDI inflows are beneficial, their impact is often weakened by poor absorptive capacity and repatriation of profits. The nominal exchange rate (NEXR) in Nigeria significantly worsens the current account balance (CAB) (-0.158, 0.008), indicating that depreciation increases import costs and trade deficits, as it was also found by Adedeji et al. (2020) and a

suggestive of Nigeria been import dependence. The GDPR is positive but not statistically significant, meaning that the GDP growth rate is not impactful on Nigeria's current account balance. In contrast, institutional quality shows a strong (0.312) and significant (0.008) impact on Nigeria's current account balance. It highlighted the role of governance in managing external balances. Also, Nigeria's WTO membership, as captured by WTO DUMMY, is positive (6.944) and significant (0.032). This is indicative that Nigeria's WTO membership enhances external trade and accounts balances. The Error correction term ECM (-1) (-0483, 002) is negative and significant, showing good adjustment dynamics. The goodness of fit 94.2% variation in CAB ($R^2 = 0.942$), indicating strong explanatory power.

Table 6: Model II: ARDL Long Run Model

Dependent Variable: Inflation (INF)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOP	-0.175	0.110	-1.597	0.129
FDI	1.302	1.562	0.834	0.416
NEXR	0.018	0.003	5.291	0.000
GDPP	-0.050	0.228	-0.220	0.829
INSQ	0.0365	0.064	0.569	0.577
WTODUMMY	-50.249	4.684	-10.729	0.000
ECM(-1)	-0.798	0.081	-9.906	0.000
C	56.567	9.573	5.909	0.000
$R^2 = 0.911$	Adj.R^2= 0.702	F-stat= 4.378	Prob(F-stat) = 0.005	D.W= 1.872

Source: Researcher's compilations, 2025.

The internal balance was investigated in Table 6, using inflation (INF) as the dependent variable. The results show that Trade openness (TOP), FDI, GDPR, and institutional quality (INSQ) are all statistically insignificant in having an impact on inflation in the long run. This outcome is indicative that no individual variable could exert strong pressure on domestic price stability. In contrast, nominal exchange rate (nEXR, 0.018) has a significant (0.000) impact on Nigeria's price stability (inflation). This is suggestive that currency depreciation drives inflation, which was supported by Sanusi (2010), who emphasized the exchange rate pass-through in Nigeria's inflation dynamics. The most compelling finding is the Nigeria WTO membership (WTODUMMY), which shows very strong negative (-520.249) and statistically significant (0.000). The WTODUMMY result, that trade agreements may exert deflationary effects through increased competition and improved supply chains. This finding aligned with Winters et al. (2004), who argue that trade liberalization can reduce inflation through greater market discipline. The ECM term is significant and negative, indicating robust correction toward long-run equilibrium. Though the R^2 is high (0.911), the adjusted R^2 is lower (0.702), suggesting some overfitting but still a good model fit.

Table 7: Interactive Model I ARDL Long Run Model

Dependent Variable: Current Account Balance (CAB) Model I				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOP*INSQ	-0.004752	0.003324	-1.429596	0.1683
FDI*INSQ	-0.034051	0.041576	-0.819002	0.4224
NEXR	-0.139821	0.035999	-3.883982	0.0009
GDPR	0.643222	0.199411	3.225607	0.0042
WTODUMMY*INSQ	0.381964	0.083829	4.556453	0.0002
ECM(-1)	-0.754534	0.128022	-5.893788	0.0000
C	0.992001	0.828634	1.197152	0.2452
R^2 = 0.940	Adj.R^2= 0.881	F-stat= 15.798	Prob(F-stat) = 0.000	D.W= 1.995

Source: Researcher's compilations, 2025.

Table 7 analyzed how institutional quality interacts with trade-related variables and WTO trade agreement influences the Nigerian current account. The interaction of trade openness and institutional quality (TOP*INSQ) shows a negative (-0.005) but not statistically significant (0.168), suggesting that institutional quality does not alter significantly the impact of trade openness on Nigeria's current account balance in isolation. Similarly, the interaction of FDI*INSQ is negative (-0.034) but insignificant (0.422), which is suggestive of the inability of intuitional quality to significantly mediate the impact of FDI on external balance (current account). However, the interaction of WTODUMMY*INSQ is highly positive (0.381964) and significant (0.0002). This underscores a strong synergy between WTO global trade rules and domestic governance. This is consistent with Rodrik and Subramanian (2003), who highlighted the conditional benefits of trade openness if the institutional quality is high. The GDP growth (GDPR) remains positively significant (0.004), reinforcing Okonkwo and Ezeaku (2020) assertion that the growth rate is positively related on the current account. The Exchange rate depreciation (NEXR) continues to negatively influence CAB, reinforcing earlier findings. The negative and significant ECM confirms long-run equilibrium adjustment. The interaction of institutional quality and trade-related variables and the WTO trade agreement in Table 7 clearly shows that the institutional framework matters when interacting with the global trade framework like the WTO.

Table 8: Interactive Model II: ARDL Long Run Model

Dependent Variable: Inflation (INF)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
TOP*INSQ	-0.000859	0.004952	-0.173400	0.8636
FDI*INSQ	0.008662	0.114050	0.075952	0.9400
NEXR	0.028292	0.023588	1.199441	0.2404
GDPP	-0.177485	0.872345	-0.203457	0.8402
WTODUMMY*INSQ	-0.166568	0.294908	-0.564812	0.5767
ECM(-1)	-0.483470	0.167294	-2.889950	0.0074
C	31.127764	30.338414	1.026018	0.3137
R^2 = 0.613	Adj.R^2= 0.509	F-stat= 5.888	Prob(F-stat) = 0.000	D.W= 1.516

Source: Researcher's compilations, 2025.

Table 8 evaluated the interactive impact of the global trade variable on inflation (internal balance). The interaction terms (TOP*INSQ, FDI*INSQ, and WTODUMMY*INSQ) are all statistically insignificant, suggesting that institutional quality does not significantly moderate the impact of trade openness, FDI, or WTO agreements on inflation in Nigeria. Unlike the current account balance (CAB), the impact of governance does not seem to strongly influence inflation through these trade mechanisms. This result is contrary to Khan and Senhadji (2001) argument that strong institutions are necessary for monetary stability. The nominal exchange rate (NEXR), however, is positive (0.0283) but statistically insignificant, suggesting that other unaccounted structural factors may influence inflation in this model. The GDP per capita (GDPP) remains insignificant, which is suggestive of its non-statistical relevant. The error correction term ECM (-1) is statistically significant (0.0074), which confirms the presence of short-run convergence to long-run inflation equilibrium. The R^2 is moderately strong at 0.613, with an adjusted 0.509, which is a weaker explanatory capacity than the variable in model I in Table 4.6. This suggests that while trade and institutional quality are important for external balance, inflation in Nigeria may be driven more by monetary and fiscal dynamics than by trade-related institutional interactions. This also affirms Sachs and Warner (1995) as well as Frankel and Romer (1999) ,who asserted that the inflationary effect of trade reforms may be subdued or masked by structural rigidities in developing countries.

Conclusion

The interactive impact of institutional quality, global trade, and trade agreements was investigated to understand their impacts on Nigeria's macroeconomic performance (Internal and external). The internal and external macroeconomic balances, inflation (INF) and current account balance (CAB) serve as the indicators. Using the ARDL model, trade openness has a negative impact on both external and internal balances, contrary to expectations, while foreign direct investment (FDI) exerts a positive effect. Interaction terms reveal that strong institutional quality amplifies the benefits of FDI for macroeconomic stability but does not significantly moderate the effects of trade openness or WTO membership on inflation, highlighting Nigeria's import dependence. In line with expectations, WTO trade agreements have a positive effect on the current account balance but a statistical negative insignificant impact on domestic price stability (inflation). Furthermore, exchange rates were found to be a critical determinant of both internal (inflation) and external (current account balances), indicating the sensitivity of Nigeria's macroeconomic performance to currency volatility. These findings clearly show that Nigeria's macroeconomic outcomes from global trade engagements are contingent on domestic structural and institutional capacities. Therefore, global trade or trade liberalization and agreements alone are not sufficient to guarantee improved macroeconomic performance; rather, institutional reforms and strategic integration into global markets are imperative for achieving success.

Recommendations

The study recommends leveraging WTO engagement alongside domestic reforms, including expanding the Anchor Borrowers' Programme, strengthening development

finance institutions such as the Bank of Industry and Bank of Agriculture, stabilizing macroeconomic structures, and increasing investment in non-oil sectors and human capital to achieve sustainable internal and external balances in the context of global trade dynamics. Nigeria should not just open its market but should build productive capacity and diversify its export base for competitive in the market. This can be done through aligning trade with industrial policy. Also, following the strong impact of exchange rate on both current account and inflation, the monetary policy authorities should adopt a stable exchange rate regime and enhance exchange liquidity to reduce macroeconomic distortions. Finally, reform of macroeconomic structures, with more emphasis on increased investment in non-oil sectors and human capital is necessary for sustainability of internal and external balance in the faces of global trade dynamics.

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