

BORDER CLOSURE AND DOMESTIC TRADE PERFORMANCE IN NIGERIA: A BEFORE AND AFTER CLOSURE ANALYSIS

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ABSTRACT

Despite the burgeoning literature on the empirical determinants and outcomes of border closure as an economic measure, a notable gap remains as these earlier studies have largely overlooked the nuanced, sector-specific effects of border closure on different dimensions of domestic trade and price dynamics over time in an emerging economy such as Nigeria. This study, therefore, investigates the impact of border closure on domestic trade performance in Nigeria through a before-and-after analysis. The research focused on two primary objectives, each addressed with specific research questions and corresponding hypotheses. Employing an ex post facto research design, the study utilized quarterly secondary data spanning 2016 to 2022, sourced from the World Development Indicators (WDI, 2022) and the Central Bank of Nigeria (CBN) Statistical Bulletin (2022). Domestic trade performance is measured by the contribution of wholesale and retail trade to GDP and the consumer price index. Data were analysed using Independent-Samples Mann Whitney U and Independent-Samples t-tests. The findings indicate a significant difference in wholesale and retail trade performance before and after the border closure ($Z = 2.481$, $p = .012$), as well as a significant change in the consumer price index ($t = 7.396$, $p = .000$). With these results, the study concluded that border closure significantly influences domestic trade performance in Nigeria. Consequently, the study recommended that, given the prevailing inflationary pressures, the Nigerian government should consider easing border restrictions to promote real economic growth.

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1.0 Introduction

Border closure is a strategic tool of government to curb smuggling, protect its territory, improve entrepreneurship, protect local production and control the movement of both community and people across its borders (Ibrahim & Singh, 2020; Nave & Franco, 2021). The informal sector, and by extension domestic trade, throughout Africa, with particular reference to Nigeria and Benin, represents an estimate of 50 percent of GDP. Unsurprisingly, informal border trade is pervasive with a long history of creating artificial porous borders, characterized by corruption, regional trade, weak border enforcement, and lack of coordination of economic policies among neighboring countries. Border closure is usually as a result of the formulation and implementation of government policies and regulations (Liuyi, Yunchan & Feirong, 2021), and sometimes politically designed and influenced.

Globalisation has brought about rapid growth in economies, socio-cultural as well as institutional integration among nations and this has impacted on the cross-border movement of goods and services, technology alongside other resources. Globalization has neutralized some of the barriers associated with cross-border activities, through treaties with ECOWAS countries (Okafor, Olurinola, Bowale, & Osabohien, 2023)

Previous studies have shown that the impact of border closure differs as it affects the government and informal trade (domestic trade) differently. The government tends to focus on their target for closing the border without reviewing the impact on the poor traders and dwellers within the region. These mostly cause the citizens to sabotage the policy of border closing making it difficult for government to achieve their target (Ghins & Heinrigs, 2019; Ibrahim and Singh, 2020). It is also observed that there are other negative effects of the border closure that may nullify the perceived benefit of the policy. This can be seen in the rate of inflation, hunger, crime, and scarcity of certain essential products anytime the boarder is closed. In West Africa, with special reference to Nigeria, border closure most times open door for few individuals (mainly the uniform personnel) to amass

wealth through illegal means by aiding and abating corruption, smuggling and illegal movement of people while the so-called border is closed.

While the literature (and the findings therein) on the link between border closure and economic performance of countries is admittedly extensive, contentions, however, remains on how border closure impacts domestic trade performance in emerging economies such as Nigeria. Spurred by these contentions and the above perceived economic and socio-cultural perspective of border closure, this study investigated the impact of border closure on domestic trade performance in Nigeria.

1.1 Statement of the Problem

The closure of Nigeria's borders by past leaders, particularly along the Nigeria-Benin corridor, has been a recurring event. Notably, the Nigeria-Benin border was shut from February 1984 to February 1986, again in 1996 due to political tensions, in June 2003, and in 2018 prior to the 2019 closure (Benjamin & Mbaye, 2012; Mbaye, Golub & Gueye, 2019). According to BBC (2019), the 2019 border closure positively impacted Nigeria's agriculture and manufacturing sectors. However, Nigeria's economy has recently faced significant challenges, as evidenced by the depreciation of the naira against other currencies.

Some reports attribute these economic difficulties to border closures and retaliatory actions by neighboring countries (Akinkuolie, 2020; Ojewale, 2022; Ogunwusi, Nzeako, and Utulu, 2019). Others argue that government policies are responsible for the hardships faced by citizens, pointing to increased consumer goods prices as a direct result of border closures (Abia, 2020; Ola & Fabiyi, 2020). Additionally, several sources contend that border closures have led to higher rates of smuggling, illegal migration, insurgency, and disruptions in informal domestic trade (Royal, 2019; Uwugiaren, 2019). Many Nigerians believe that these closures were inconsistent, lacked moral justification, and reflected insensitivity on the part of the ruling class.

While several studies (Busari, Kayode, Olonade & George, 2024; Babalola & Olasupo, 2021; Omodunbi, Olawole & Mohammed, 2022; Nwogu, 2023; Ola & Fabiyi, 2020) have explored the

impact of border closures on Nigeria's economic performance, few have specifically analyzed the effects on wholesale and retail trade or the consumer price index. This gap in the literature underscores the necessity of the present study, which seeks to provide a more comprehensive evaluation of the economic consequences of border closure in Nigeria.

1.2 Research Objectives

To investigate the effect of border closure on domestic trade performance in Nigeria. The specific objectives include:

- i. to examine the difference in the level of wholesale and retail trade performance between before and after border closure in Nigeria.
- ii. to evaluate the change in the level of consumer price index between before and after border closure in Nigeria.

1.3 Research Questions

- i. Is there any significant difference in the volume of wholesale and retail trade performance before and after border closure in Nigeria?
- ii. Does any significant change occur in the consumer price index before and after border closure in Nigeria?

1.4 Research Hypotheses

- i. **H₀**: There is no significant difference in the level of wholesale and retail trade performance before and after border closure in Nigeria.
- ii. **H₀**: There is no significant change in consumer price index before and after border closure in Nigeria.

1.5 Scope of the Study

This study examined the effect of border closure on domestic trade performance in Nigeria. It focused on the period between years 2016 and 2022. Domestic trade performance is proxied using the variables of wholesale and trade, as well as consumer price index.

2. Literature Review

2.1 Conceptual Review

Border Closure

A border is a line separating countries or political entities, determined by natural features or political agreements (Slater, 2016). Borders can be open—allowing free movement—or closed, with restrictions based on entry status and documentation. Open borders lack regulation, while closed borders restrict movement through measures like walls or militarized zones (Okorie, 2019). Regulated borders control the flow of people and goods, often requiring visas, passports, and checks (Vogeler, 2018; Groundwater, 2016).

Supporters of Nigeria's border closure blame Benin for turning its border into an entry point for smuggled goods, harming Nigeria's economy and currency (Nwogu, 2023). Opponents argue the closure is due to poor governance, noting it increased prices and was implemented without planning. They highlight Nigeria's inadequate port infrastructure as a core issue and believe closing borders won't resolve these problems (Omodunmbi *et al.*, 2022).

2.1.2 Nigeria and its border security

Nigeria's borders comprise land, air, and water routes. The air borders, monitored by the Nigerian Air Force, are strictly regulated, with nearly all entries and exits occurring through airports, making them the safest and most controlled due to high operational costs and tight oversight. Customs duties at these points provide substantial revenue for the country (Abegunde & Fabiyi, 2020; Barrett, Reardon, Swinnen, & Zilberman, 2022).

Seaports are managed by the Nigerian Port Authority alongside agencies like NIS, NCS, and NDLEA. Water borders, covering less than 25% of Nigeria's borders, include the Niger, Benue-Chad, and coastal waters. Security at these points limits smuggling, and the high cost further restricts illegal activities (Babalola & Olasupo, 2021).

In contrast, land borders make up about 75% of Nigeria's boundaries and are difficult to secure due to numerous informal crossings. Nigeria shares major land borders with Benin, Cameroon, and other neighboring countries. These porous and poorly monitored borders facilitate smuggling and illegal trade, undermining the economy. Neighboring countries often exploit these weaknesses by re-exporting goods such as rice and frozen foods into Nigeria, harming local industries and diverting revenue (Akinterinwa & Bassey, 2019; Golub & Hayat, 2015; Mbaye et al., 2019; Busari, Kayode, Olonade & George, 2024).

2.1.3 Domestic Trade Performance

This is the assessment of the quantity and quality of the buying and selling of goods and services within the confines of the international boundaries of a nation. While import and export are important for the economy of a nation, most of its GDP contribution comes from internal trade. Domestic trade performance is beset with a lot challenges. According to Srivastava, Mehta, & Swami (2023) and Stoyanov (2021), these include high goods and resource flow turnover, costly logistics, low profitability, and inefficient resource use throughout trade processes. The implications of these challenges could adversely affect the economic and financial operations of firms (Ikpe & Shamsuddoha, 2024; Parvasi, Taleizadeh & Thaichon, 2025). Several factors affecting domestic performance have been implicated in cognate studies. Examples are infrastructure (Wei & Liu, 2023), socio-economic (World Bank, 2021), behavioural and non-behavioural (Economou *et al.*, 2023). These factors tend to vary depending on the peculiar structure and workings of national economies (Zhanarys, Bakyt, Maira & Guldaray, 2025).

Theoretical Review

This study was conducted under the philosophical underpinning of Hegemonic Stability Theory (HST) and Economic Integration theory.

2.2.1 Hegemonic Stability Theory (HST)

The origins of this theory are attributed to Charles Kindleberger, who introduced it in his 1973 book, *The World in Depression, 1929-1939*. According to Kindleberger, the world economy requires a stabilizing force to maintain stability (Kindleberger 1973). The theory further explains that this stabilizer, referred to as the “hegemon” is responsible for absorbing surplus goods, ensuring a reliable or even countercyclical flow of capital, sustaining a rediscount mechanism to provide liquidity during financial panics, overseeing the foreign exchange rate system, and facilitating some coordination among national monetary policies (Ogo, Mbam & Nwokike, 2024).

The tenet is that open or liberal international economic order requires the existence of hegemonic power to retain wild support. In a nutshell, the theory expresses that powerful nations use their might and resources to subdue weaker nations to adhere to the dictates of the stronger nations. The choice of this theory in this study is not just because of its parsimony but due to the fact that it provides a powerful and intuitive attractive account of the ups and downs movement of international economic order over the past century which makes it adequate to explain the Nigerian land border closure. It is only rational that Nigeria with its largest economy, military might and population, in the West African sub-region should be reckoned with by the neighboring nations. This explains the confidence Nigeria has to close its land borders and expects complete obedience from her weaker neighboring countries, who perpetrate the illegal and undocumented passage, importation of contraband goods, as well as harboring criminals and terrorists in the region.

2.2.2 Economic Integration theory

The theory was propounded by Balassa in (1961). The premise of the theory is to dismantle trade barriers, accepting a common external tariff, custom union, free trade areas, economic union and establishing a single market. The economic integration theory provided a friendly atmosphere for member countries such as common tariff, removal of quantitative trade barriers while setting it barriers for non-member nations (Balassa, 1961). The European union was built on this assumptions and premise of economic integration theory as African Nations have not fully appreciated the theory.

However, the theory has been criticized to have focused on the short-run effect of regional integration without explaining the reasons why countries go into such arrangement. This theory is relevant to this study viewing from the perspectives of those who believe that Nigeria is among ECOWAS nations who signed treaty and so should allow the member nations access to her body.

2.3 Empirical review

Busari *et al.*, (2024) examined the impact of border closure policy on the entrepreneurial activities in selected main markets in Ibadan South-West Nigeria. The study used the Mertons' Functionalist theory as a guide, while descriptive statistics was implored in the study. Interview was use to retrieve information from the selected participants and their responses were properly analyzed. The findings revealed that there have been more complaints from the entrepreneurs following the border closure. The study also found that the border close has not brought an end to their businesses though they have experienced reduce/decreased profits.

Babalola and Olasupo (2021) examined the impact of border closure on Nigeria economy. The study reviewed related literature on border closure as it affected Nigeria especially that of the aggregate demand and aggregate supply from the Keynesian theory. The study employed the analytical method of simple and multiple bar charts to showcase the pre-border (Q1 and Q2) periods and post-border (Q4) closure periods. The results showed that agriculture goods indicated a favorable and expected impact as export goods started to rise and imported goods continued to fall, percentage share of agriculture to total export begun to increase appreciably. The finding also divulged that inflation rate and revenue generation mostly through custom duties increased after the border closure. Moreover, foreign trade indicated a trade deficit in the fourth quarter of 2019.

Omodunbi *et al.*, (2024) the politics of border closure and its implication on Nigeria economy. It was a qualitative study that adopted already existing facts from text books, journals, newspapers and other print materials. The study found that border closure has negative impact on the international status of Nigeria, as other neighboring countries have retaliated with economic sanctions. The study

equally found that Nigeria is facing high rate of inflation due to its dependence on imported goods but the border closure has helped the domestic production to grow.

Nwogu (2023) examined the microeconomic implication of Border closure in Nigerian. The study was a systematic review of literature, data was gathered from journals, books and other known sources. The study found among others that only agricultural sector has benefited from the border closure; almost all the income of household is spent on food at ridiculous prices, and that the closure of the border has angered other neighboring country.

Ola and Fabiyi, (2020) reviewed the Nigeria-Benin border closure: implication for economic development in Nigeria. Secondary data was sourced and content analysis was used to analyze the data. The outcome revealed that the reason for the closure of the border was to reduce crimes, banditry, kidnapping, contra-band, smuggling and illegal trade activities and with the border closure, all the so-called reasons are now in double folds. Their study also observed that agricultural produce increased following the border closure.

3.0 Research Methods

3.1 Research Design

Based on the study's empirical structure, the study utilized the *ex-post facto* research design involve the use of historical numerical data in conducting the study's empirical analysis.

3.2 Data Source and Structure

In conducting the empirical analysis, the study utilised quarterly time series data. The quarterly time series datasets were collected on wholesale and retail trade performance (using contribution of trade to GDP) and consumer price index. The data of the aforesaid variables were obtained from the sources such as the World Development Indicator (WDI, 2022) and Central of Bank of Nigeria (CBN) Statistical Bulletin (2022) for the quarterly period between 2016 and 2022, thus, generating datasets of 24 quarters (2016Q1 – 2022Q4). The period between 2016Q1 and 2019Q2 covers the before-border closure (BBC) era while the period between 2019Q3 and 2022Q4 covers the after-

border closure (ABC) era. In other words, each of the BBC and ABC era covers data point of 25 quarters.

3.3 Variable Definition

Table 3.1 demonstrates the description of variables such as border closure, domestic trade performance and consumer price index.

3.1-: Variable Description

Continuous Dependent Variable:	Proxy/Measure	Measurement	Source
Domestic trade performance	(a) Wholesale and retail trade performance (<i>WRT</i>)	This is measured by the contribution of wholesale and retail trade activity to GDP. Trade.	Central of Bank of Nigeria (CBN) Statistical Bulletin (2022)
	(C) Consumer price index (<i>CPI</i>)	Measures changes in the average prices by which consumers acquire bundles of goods. It is also a measure of cost of living.	World Development Indicator (WDI, 2022)
Categorical Independent Variable:	Proxy/Measure	Measurement	
Border-closure (BC)		A dummy variable: $BC = \begin{cases} 0, & \text{before - closure} \\ 1, & \text{after - closure} \end{cases}$ Before-border closure era (2016Q1-2019Q2) and After-border closure era (2019Q3-2022Q4).	

Source: Researcher's Compilation (2024)

3.4 Method of Data Analyses

The study utilised both descriptive and inferential analytical tools for the data analysis. The descriptive tools involve the summary statistics (such as mean, Jarque-Bera statistic and standard deviation) on the variables being examined, such as wholesale and retail trade and consumer price index. Following the study and the normality test results, the study utilized parametric and non-parametric tests of difference statistical techniques. In other words, the independent-samples t-test and Mann-Whitney *U* test were utilized for the study's inferential analysis. The use of above-mentioned independent tests was considered for the study's empirical analysis since the datasets were collected for two different groups of time periods, *i.e.*, before-(pre-) border closure and after-(post-) border closure eras. In other words, the test statistics were considered appropriate since the study examines domestic trade performance in Nigeria between BBC (2016Q1 – (2019Q2) and ABC (2019Q3 – 2022Q4) eras. Thus, both the independent-samples t-test and Mann-Whitney *U* test

examine the existence or otherwise of the statistically significant difference in each of wholesale and retail trade performance (*WRT*) and consumer price index (*CPI*) between before and after border closure periods. Meanwhile, while the independent samples t-test examines the statistical differences in the means of *CPI*, independent samples Mann-Whitney U test examines the statistical difference in the median of *WRT* between before and after border closure eras.

3.5 Test Statistic Specification

Following the study's, the study employed independent-samples t-test as a parametric testing technique and the independent-samples Mann-Whitney U test as the non-parametric testing technique.

3.5.1 Test Statistic Specification for Independent-Samples Mann-Whitney U test

Since the distribution of *WRT* does not meet underlying normality assumption, hypothesis 1 was tested using the independent-samples Mann-Whitney U test as a non-parametric technique. The z test statistic is defined as:

$$z = \frac{U - \bar{U}}{\sigma_U} \quad (3.1)$$

Where:

\bar{U} = Expected value of U

$$\bar{U} = \frac{n_B \times n_A}{2}$$

σ_U = Standard Error of U

$$\sigma_U = \sqrt{\frac{n_B \times n_A \times (n_B + n_A + 1)}{12}}$$

$$U = \min(U_B, U_A)$$

min = minimum

U_B = Mean Rank of *WTR* in BBC (before-border closure) era

$$U_B = (n_B \times n_A) + \frac{n_B \times (n_B + 1)}{2} - R_B$$

U_A = Mean Rank of *WTR* in ABC (after-border closure) era

$$U_A = (n_A \times n_B) + \frac{n_A \times (n_A + 1)}{2} - R_A$$

R_B = Sum of Ranks of WTR in BBC era

R_A = Sum of Ranks of WTR in ABC regime

n_B = Number of quarters (observations) of WTR in BBC regime

n_A = Number of quarters (observations) of WTR in ABC regime

3.5.2 Test Statistic Specification for Independent-Samples t-test

Demonstrating the basic normality assumption and equal-variance assumption in the data (*CPI*), hypothesis 2 was tested using the Student's t-test of the independent-samples t-test as a parametric technique. The test statistic is defined as:

$$t = \frac{\overline{CPI}_B - \overline{CPI}_A}{S_p \sqrt{\frac{1}{n_B} + \frac{1}{n_A}}} \sim t_{(n_B+n_A-1)} \quad (3.2)$$

Where: S_p = pooled standard deviation for common variance

$$S_p = \sqrt{\frac{(n_B - 1)S_B^2 + (n_A - 1)S_A^2}{n_B + n_A - 2}} \quad (3.3)$$

t = test statistic for the paired-sample t-test

\overline{CPI}_B = the mean of CPI in BBC era.

\overline{CPI}_A = the mean of CPI in ABC era

n_B = Number of quarters (observations) in BBC era

n_A = Number of quarters (observations) in ABC regime

S_B^2 = the variance of CPI in BBC regime

S_A^2 = the variance of CPI in ABC regime

\sim = implies the test statistic (t) follows student's t -distribution

The above specification (1) was applied to hypothesis 2 since the empirical data *CPI* meet the normality assumptions.

4.0 Results and Discussion

4.1 Summary Statistics

This section presents the summary statistics of the variables being investigated in the study, viz., border-closure (*BC*) as the categorical variable, wholesale-retail trade performance (WRT) and consumer price index (*CPI*). The summary statistics were computed in three sets such as: the full sample period and 2 sub-sample periods. The full sample covers the fiscal period between 2016Q1 – 2022Q4. Meanwhile, the first subsample involves before-border closure (BBC) era between

2016Q1 and 2019Q2 while the second subsample captures after-border closure (ABC) era between 2019Q3 and 2022Q4.

Table 4.1-: Summary Statistics
Full Sample Period: 2016Q1 – 2022Q4

Statistics	Variable	
	WRT	CPI
Obs.	28	28
Mean	14183.84	283.437
Median	5441.581	267.254
Maximum	74941.95	449.484
Minimum	4563.930	173.684
Std. Dev.	21848.14	79.146
Skewness	2.0749	0.5393
Kurtosis	5.3808	2.2464
Jarque-Bera	26.7037	2.0197
P-value	0.0000	0.3643

Source: Author's computation, 2024.

Table 4.1 presents the results of the summary statistics of the above-mentioned variables for the full sample period of 28 quarters (2016Q1 – 2022Q4). Domestic trade performance measure (*WRT*) is expressed in scale of ₦'billions while *CPI* is an index. The mean values or averages observed for the given sample period for *WRT* and *CPI* are ₦14183.84 billion and 283.437 respectively. Evidently, *WRT* witnessed high variability the standard deviation above the mean. The forgoing statistical narrative implies low predictive capacity in *WRT*. On the contrary, moderate variability was witnessed in *CPI* with standard deviation being less than the mean, thus, suggesting high predictive power.

Meanwhile, the coefficients of skewness indicate that both domestic trade performance measures appear to be positively skewed (long right tail) having positive coefficient (2.0749 and 0.5393 respectively). It could also be observed that *WRT* demonstrate leptokurtic (peaked) distribution having kurtosis coefficients (5.3808) less than the benchmark of 3 for moment distribution. However, *CPI* appears to be leptokurtic (flat-topped) having its coefficient (2.2464) below the threshold value of 3. Nevertheless, the Jarque-Bera (JB) statistics for normality test indicate that *CPI* demonstrates the normality assumption having its *p*-value above 0.05 level of significance for the

given sample period. On the contrary, *WRT* exhibits non-normal distributional property having insignificant test statistic for the period of 28 quarters.

Table 4.2:- Summary Statistics of the Sub-samples

	BBC: 2016Q1 – 2019Q2		ABC: 2019Q3 – 2022Q4	
Statistical	WRT	CPI	WRT	CPI
Obs.	14	14	14	14
Mean	5351.907	219.450	23015.77	347.424
Median	5278.958	221.259	5953.751	339.530
Maximum	6074.826	263.328	74941.95	449.484
Minimum	4796.794	173.684	4563.930	271.179
Std. Dev.	328.6111	28.889	28692.97	57.938
Skewness	0.5911	-0.0910	0.9806	0.3373
Kurtosis	3.1758	1.7969	2.0153	1.8712
JB Statistics	0.8334	0.8637	2.8095	1.0089
<i>p-value</i>	0.6592	0.6493	0.2454	0.6039

Source: Author's computation, 2024.

Table 4.2 presents the summary statistics of *WRT* and *CPI* for the before-border closure (BBC) and after-border closure (ABC). The average *WRT* recorded in the BBC era was ₦5351.907 billion while during the ABC era, an average of ₦23015 billion was observed. The foregoing suggests that the average observed in the ABC period was about 330.03 percent less than that of BBC period. Apparently, this implies a significant decline in the average wholesale-retail trade (*WRT*) during the post-border closure regime for the given realization. Meanwhile, the standard deviations of *WRT* in the BBC and ABC eras (328.611 and 28692.97 respectively) suggest that the evidence of higher variability in the distribution of *WRT* during ABC era as compared with the distribution in the BBC era.

Meanwhile, the average *CPI* recorded in the BBC era was 219.45 while during the ABC era, an average of 347.42 was observed. The preceding observation suggests that the average recorded in the ABC period was about 58.32 percent above than that of BBC period. Apparently, this implies a significant rise in the average consumer price index (*CPI*) during the post-border closure era in Nigeria for the given realization. Meanwhile, the standard deviations of *CPI* in the BBC and ABC eras (28.89 and 57.94 respectively) suggest that the evidence of higher variability in the distribution of *CPI* during ABC era as compared with the distribution in the BBC era.

4.2 Tests of Hypotheses

Following the comparisons provided in the summary statistics of *WRT* and *CPI* between before- and after-border closure eras, this section provides the tests of the hypotheses to ascertain the statistical significance or otherwise of the differences in the averages of *WRT* and *CPI* between the BBC and ABC eras for each of the aforesaid domestic trade performance measures. Thus, independent-samples t-test was applied to test the hypotheses for *CPI* having met the normality assumption (*see* table 4.1). Conversely, the non-parametric testing technique, *i.e.* the independent-samples Mann-Whitney U test was utilized for hypothesis 2 (*WRT*) for demonstrating non-normality assumption.

4.2.1 Test of Hypothesis 1

H₀: There is no significant difference in the level of wholesale and retail trade performance before and after border closure in Nigeria.

Explicitly, the test of the hypothesis seeks to determine whether or not there is significance difference in wholesale and retail trade performance (*WRT*) between before-border closure and after-border closure eras in Nigeria. Thus, since the distribution of *WRT* does not demonstrate the assumption of normality (*see* tables 4.1) and thus, tested using the Mann-Whitney *U* Test.

Table 4.3 present the result of the independent-sample Mann-Whitney U test. The Mann-Whitney U test was conducted to evaluate effect of border closure on whole and retail trade performance in Nigeria. Evidently, there is a statistically significant difference ($U = 152.00$, $z = 2.481$, $p = 0.012 < 0.05$) in whole and retail trade performance (*WRT*) between BBC era ($M_d = 5278.958$, $n = 14$) and ABC era ($M_d = 5953.751$, $n = 14$). Thus, since the *p*-value of the test statistics is less than 5 percent level of significance, the null hypothesis that “there is no significant difference in the level of wholesale and retail trade performance before and after border closure in Nigeria” is rejected. Therefore, it could be inferred that the significant increase in the average whole and retail trade performance (*WRT*) by about 330.03 percent may be ascribed to the government policy on border closure in October, 2019.

Meanwhile, the effect size ($\eta = 0.088$) suggests that about 8.8 percent of the total variance in WTR is explained by the policy on border closure. Following the suggestion of Cohen (1988), an effect size of at least 0.14 is considered large.

Table 4.3-: Independent-Samples Mann Whitney *U* Test Result for Hypothesis 1 (WRT)
BBC Era: 2016Q1 – 2019Q2
ABC Era: 2019Q3 – 2022Q4

Median of <i>WRT</i> in BBC era	5278.958
Median of <i>WRT</i> in ABC era	5953.751
Mean Rank of BBC era	14.16
Mean Rank of ABC era	37.93
Mann-Whitney <i>U</i>	152.00
Wilcoxon <i>W</i>	257.00
<i>Z</i>	2.481
<i>p</i> -value	0.012
Effect Size (Eta Squared η):	0.088

Source: Author's computation, 2024.

4.2.2 Test of Hypothesis 2

H_0 : There is no significant change in consumer price index before and after border closure in Nigeria.

Specifically, the test of the hypothesis seeks to determine whether or not there is significance difference in the average consumer price index (*CPI*) between before-border closure and after-border closure eras in Nigeria.

Table 4.4-: Independent Sample *t*-test Result for Hypothesis 2 (*CPI*)
BBC Era: 2016Q1 – 2019Q2
ABC Era: 2019Q3 – 2022Q4

Group Statistics:	
Mean of <i>CPI</i> in BBC era	219.450
Mean of <i>CPI</i> in ABC era	347.424
Mean Difference	-127.974
Standard Deviation – BBC era	28.889
Standard Deviation – ABC era	57.938
Leven's Test for Equality of Variances:	
<i>F</i>	7.748**
<i>p</i> -value	0.010
Independent <i>t</i>-test – Equal Variances (student's <i>t</i>-test):	
<i>t</i> -statistic (<i>df</i> = 26)	-7.396***
<i>p</i> -value	0.000
95% confidence interval of the mean difference	Lower: -163.540

Upper: -92.408	
Independent t-test – Unequal Variances (Welch’s t-test):	
t-statistic (<i>df</i> = 19.088)	-7.396***
<i>p</i> -value	0.000
95% confidence interval of the mean difference	Lower: -164.177 Upper: -91.770
Effect Size (Eta Squared η):	0.677

Source: Author’s computation, 2024.

Table 4.4 presents the independent-samples t-test result for hypothesis 1. The Leven’s test for the equality (homogeneity) of variance ($F = 7.748, p = 0.010 < 0.05$) suggests that there is no evidence of equal variance in consumer price index (*CPI*) between before-border closure and after-border closure eras in Nigeria, thus, the assumption of equal variance is discarded. The foregoing suggests that Welch’s *t*-test for unequal variance is considered suitable for the test of this hypothesis. Thus, the Welch’s *t*-test or unequal variance test ($t(19.088) = -7.396, p = 0.000 < 0.05$) reveals the evidence of statistically significant difference in *CPI* between BBC regime ($Mean = 219.450, SD = 28.889$) and ABC era ($Mean = 347.424, SD = 57.938$) in Nigeria. Therefore, the null hypothesis that “there is no significant change in consumer price index before and after border closure in Nigeria.” is rejected. The foregoing infers that the significant rise in *CPI* by about 58.32 percent may be ascribed to the government policy on border closure in October, 2019, and thus, adversely affecting the cost of living of households in Nigeria.

Meanwhile, the effect size¹ (eta squared = 0.677) suggests that about 67.7 percent of the total variance in consumer price index (*CPI*) may be attributed to the border closure policy of the government implemented in October, 2019. Thus, the border closure policy exerted significant adverse impact on cost of living arising from the significant rise in *CPI*.

Discussion of Findings

Results from above analysis revealed that there is a significant difference in the level of wholesale and retail trade performance before and after border closure in Nigeria. This implies that the border

¹ The effect size measures the magnitude of the total variances in the continuous dependent variables (WRT and *CPI*) explained by the categorical independent variable (border closure).

closure has a significant effect on wholesale and retail trade performance before and after border closure in Nigeria. Additional findings showed that there is a significant change in consumer price index before and after border closure in Nigeria, suggesting that the border closure has contributed to inflationary pressure in Nigeria. In all, these results indicated that this government policy geared at trade restriction drives domestic trade performance of Nigeria, findings of which agree with that of Busari, et al (2024) Babalola and Olasupo (2021), Omodunbi, et al (2024) and Nwogu (2023). However, it contradicts that of Ola and Fabiyi (2020).

Conclusion

This study examined the effect of border closure on domestic trade performance in Nigeria using a before and after closure analysis approach. Two objectives were specified, in respect of which who questions were asked, premised upon which two hypotheses were formulated. *Ex post facto* research design was employed. Quarterly secondary data were collected between 2016 and 2022 from World Development Indicator (WDI, 2022) and Central of Bank of Nigeria (CBN) Statistical Bulletin (2022). Domestic trade performance was proxied using wholesale and retail trade (using contribution of trade to GDP) and consumer price index. Findings revealed a significant difference between wholesale and retail trade between before and after border closure in Nigeria ($Z = 2.481$, $p\text{-value} = .012$) Further results showed that consumer price index between before and after border closure in Nigeria is significantly different. Therefore, the study concluded that border closure has a significant influence on domestic trade performance in Nigeria. These results have implications for the effectiveness of the Nigerian trade policy geared at encouraging local production. While the volume of local trade have been empirically shown to have improved, inflationary pressure is however, mounting.

Recommendations

Based on the above results, the following recommendations were made:

- i. that the Nigerian government should, in the light of the current inflationary pressure, relax the border closure to spur economic growth in real terms.
- ii. Nigerian government should provide more incentives to boost wholesale and retail trades, as doing this will drive local production and increase prospects for exports.
- iii. Government should formulate policies to increase purchasing power of its citizenry to drive wholesale and retail trade in the country.
- iv. A combination of monetary and fiscal measures should be taken to also rein in inflation.

Contribution to knowledge

This paper makes a significant contribution to the literature by analysing the impact of border closure on domestic trade performance in Nigeria, both before and after the event. Distinct from previous research, it utilised a blend of parametric and non-parametric methods to assess changes in wholesale and retail trade, as well as the consumer price index, across the two periods. The findings provide robust evidence of significant differences in both wholesale and retail trade, and in the consumer price index, the two proxies of domestic trade performance, following the border closure. Furthermore, the empirical results not only reinforce the relevance of the hegemonic stability theory—by demonstrating that border closure stimulated domestic trade—but also support the economic integration theory, as evidenced by the persistent rise in average consumer prices post-closure. These insights extend the theoretical and practical understanding of trade policy effects within the Nigerian context.

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