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Relating Trade Openness, Import and Export to Exchange Rate in Nigeria

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ABSTRACT

The responsiveness of trade openness to exchange rate in Nigeria has remained an issue of frequent research interest. This study sought to measure the degree to which exchange rate drives trade openness. The study adopted the ex-post factor research design and the ordinary least square regression techniques. Annualized time series data for a 35-year-period 1981-2014, collected from the central bank of Nigeria statistical bulletins and World Bank Development indicators were used. The research findings show that Real exchange rate (REXR) has a significant and positive effect on volume of export in Nigeria as well as volume of imports in Nigeria. In addition, Real exchange rate (REXR) exerts a positively significant influence on trade openness in Nigeria. It is therefore recommended that the government should evolve exchange rate regimes and policies that positively drive trade activities because of the numerous advantages that the economy stands to gain. This is in addition to policies that will improve the macroeconomic and regulatory environment which would not only make the economy attractive, but would also build international trade competitiveness.

Keywords: Real Exchange Rate, Nominal Exchange Rate, Trade Openness, Regression Analyses.

INTRODUCTION

Foreign exchange rate is a rate or value of international currency. Exchange rate is decided on the supply and demand of international currency, that's why the demand and supply of foreign currency fluctuates with passage of time. Exchange rate facilitates foreign trade and financial transactions. It is crucial for international business to exchange one currency into another currency at the existing exchange rate [1].

[2], opine that Exchange rate is a vital macroeconomic variable, backbone of trade. The variations in exchange rate

play an important role in the determination of trade balance. Exchange rate instability directly affects the prices of imports, exports, their fluctuating rates, balance of payment and balance of trade. So exchange rate plays an important role in an economy. If currency is appreciated then it has negative effect on exports and on imports it has positive impact, otherwise if exchange rate is depreciated then it affects the above international trade variables in opposite direction.

It is a generally acknowledged fact that variations in exchange rate can influence longer-term decisions by moving the volume of exports and imports, the allocation of investment and government sales and procurement policies [3]. In medium term, it can affect the balance of payments and the level of economic activity and local consumers and the local trader can be affected as well.

Exchange rate instability gives chances to investors to invest in foreign currency to get higher returns and thus resulting in the strengthening the dollar against the home currency, which directly impacts the prices of exports and imports and their growth rates. Risk averter traders and investors always favour the system where the variance of the difference between actual and expected value of exchange rate is minimized, 1 while risk lover traders and investors prefer volatile exchange rate so that they can maximize their profits because of high risk premium. Therefore, exchange rate instability can have positive impact on exports and negative for imports for risk lover traders and vice versa for risk averter traders.

Foreign exchange rate drives the means of payment for international transaction. It puts a country's currency side by side with currencies of other countries of the world. It is quoted against convertible currencies that are generally accepted for the settlement of international financial obligations. Exchange rate system governs the interplay and the pricing of currencies in the cause of international transactions and settlements. [4].

Trade openness on the other hand looks at the degree of accessibility to a country in terms of international trade volume. For the proponents of trade openness, the main focus of the policy involves removal of tariff and non-tariffs obstacles alike to trade and a focus on the establishment of market mechanism as a medium of foreign exchange rate determination and removal of all forms of disincentives and regulatory measures that prevent exports [5].

Two principle policy issues in economic development today are (a) the degree and kind of openness to the world economy. Countries should seek and what should the government do or not in order to promote fast economic and industrial development. Overwhelming evidence

links international trade and economic growth. In recent years, many developing countries like Nigeria have attempted to liberalize their trade and investment regimes mostly through exchange rate liberalization. At the same time, a growing number of governments have begun to explore and participate in regional trading agreements to a great extent, these reform efforts have been consistent with the policy aimed at driving trade openness. Trade barriers, should be low, more or less uniformed across time, transparent and non-discretionary and should operate price mechanism [6].

In the last four decades, some developing countries were successful in narrow but important scenes of substantially raising their per capital income while others were not. The central analytical argument is that economic growth is determined essentially by the growth or total factor productivity (TFP) of capital and labour. The reports analysis came to the conclusion that the more open an economy, the greater the competition and the higher its overall economic growth.
[7] points out that in countries such as Japan, South Korea and Talrvan, the government has played a leading and a heavily interventionist role in the course of their economic development.

[8] and [9] observed that openness offers developing countries, like Nigeria the opportunity to create wealth through the export – led growth to expand international trade in goods and services and to gain access to new ideas, technologies and institutional designs. This means that openness affects all aspects of Nigeria's development including her economy. In essence, openness offers many opportunities to Nigeria and other developing countries as well as other actors in the open economy.
According to [10] openness has reduced barrier existing in international trade. The reduction in those barriers has opened the door for exports led growth. For instance, [11] notes that Nigerian economy has been mono – cultural since independence and has so much depended on the western countries for her survival.

[11] and [12] observed that in the 60's, Nigeria depended on agriculture for her revenue which in return was used to provide life sustaining goods for the citizenry. Nigeria and other developing economies exported raw – materials in form of cash crops such as cocoa, coffee, palm produce, groundnut etc. The discovery of petroleum by Nigeria, and by turn of 1970 agriculture has been pushed to distant background.

While trade openness, single handedly, may not generate the desired impact on long run growth, it should be noted that application of appropriate fiscal and monetary policies, intensive financial

reforms and control of domestic prices and these measures are expected to raise international competitiveness and this has been the target of the present governments including Nigeria [13].

Countries like Nigeria have lately been playing around exchange rates as a key driver of trade openness. The degree to which this policy direction fruitfully produces enhanced trade across the borders represents the focus of this study.

One of the important parts of the Structural Adjustment Program (SAP), which was introduced in 1986 in Nigeria, was the policy of trade openness. According to [14], the essence of the policy was to deregulate the local economy so as to compete with the rest of the world. The driving objective was to ensure efficiency in resource utilization, avoid wastage, removal of continued misalignment in the foreign and domestic sectors, which led to persistent balance of payment deficits and to move to a path of economic recovery and growth. It was a designed to remove non-tariffs obstacles to imports, the rationalization and lowering of tariffs, establishment of market mechanism as a medium of foreign exchange rate determination and removal fiscal disincentives and regulatory measures that prevent exports [15].

Trade openness appears a controversial policy in the international economics and finance. The advocates of the policy argue that the policy promotes free trade and remove obstacles that may inhibit free trade. They further believed that the policy if fully implemented, can promote economic growth of the countries involved.

The instability and continued depreciation of the naira in the foreign exchange market has resulted in increased cost of production and unattractiveness of Nigerian exports. This is in the light of ever increasing appetite for imported goods. This has also tended to undermine the international competitiveness of non-oil exports and make planning and projections difficult at both micro and macro levels of the economy [16]. Efforts over the years have been directed at reengineering the exchange rate systems and regimes to allow for greater and unrestricted flow of trade especially minimization of imports and promotion of exports.

Essentially, government has played around fixed and flexible exchange systems to see which places the Nigerian economy on a favourable threshold with emphasis on trade and international competitiveness. The movement of the exchange rate along the path of depreciation since 1986 has raised a lot of questions on the impact of exchange rate policies on the Nigerian economy in the area of trade openness.

It is in the light of this that this work is set out as an inquiry into the degree to which trade openness can be enhanced by

favourable exchange rate policy. This is driven along the line of evaluating how exchange rate drive export volume, import volume and cumulatively trade openness in the Nigerian economy. The rest of the work is divided into four sections with section two focusing on literature review, three handles methodology, four presents and analyses data and section five concludes.

Review of Literature

A review of previous studies on exchange rate and trade openness reveals the lack of consensus among researchers, and the debate lingers on. For instance, [17] focused on empirical analysis to find out the role of trade openness, inflation, imports, exports, real exchange rate and foreign direct investment in enhancing economic growth in Pakistan. The analysis based on time series data for the period 1980 to 2011. The Co-integration and DOLS (Dynamic Ordinary Least Square) techniques were used for the estimation. Co integration results indicated the long run relationship among the variables. However, negative impact of trade openness can be overcome by producing import substitutes and creating conditions for trade surplus. Furthermore, foreign direct investment and trade are considered vital elements that improve the influence of economic growth a similar assertion in [18].

[19], tested the effect of trade openness, exchange rate and oil price on the exports in Syria over the period 1970-2010. The cointegration test indicates that exports are positively related to trade openness and oil price, but negatively related to exchange rate. Exchange rate has the biggest effect on the exports. The Granger causality test indicates bidirectional causality relationships between trade openness, exchange rate, oil price and exports in the short and long run. The study result indicates that, in order to boost the Syrian exports, it is vital for the Syrian government to open up the Syrian economy to foreign trade, decline the Syrian pound exchange rate, improve the quality of the Syrian exports, and decline the crude oil exports.

[20] empirically examined whether trade openness makes sense, using Nigeria trade policy as measures. the study employed Autoregressive Conditional Heteroscedasticity (ARCH), Generalized Autoregressive Conditional Heteroscedasticity (GARCH) and Pairwise-Granger causality methodology using secondary data from 1984 to 2013. Results show that trade openness has a significant impact on economic growth. This implies that trade openness make sense in Nigeria given that most of the period under investigation ranged from when Nigeria adopted unrestricted trade policies. The control variables (interest rate and exchange rate) have significant positive effect on economic growth in

Nigeria. The pairwise Granger causality test shows that there is a unidirectional causality between economic growth and trade openness at lag one only.

[21] examined the impact of exchange rate volatility on macroeconomic variables in Pakistan. The study used the Ordinary Least Square technique and the GARCH model and found that exchange rate volatility have positive impact on GDP, growth rate and trade openness, but was negative on FDI. [22], using Johansen's method of estimation on Nigerian data between 1960 and 2000 found that the decisive trade libralisation programme of 1986-87 led to 13 percent depreciation in Nigerian real exchange rate and made the real rate more responsive to changes in its terms of trade.

[23], analyzed the long run relationship between trade openness and output growth for Pakistan using annual time series data for 1972-2010. The study follows the Engle and Granger co integration analysis and error correction approach to analyze the long run relationship between the two variables. The Error Correction Term (ECT) for output growth and trade openness was found to be significant at 5% level of significance and indicates a positive long run relation between the variables. This study has also analyzed the causality between trade openness and output growth by using granger causality test. The results of granger causality show that there is a bi-directional significant relationship between trade openness and economic growth.

In his paper, [24], paper demonstrated that trade liberalization does not have a simple and straightforward relationship with growth using a large number of openness measures for a cross section of countries over the last three decades. He found that the regression results for numerous trade intensity ratios are mostly consistent with the existing literature. However, contrary to the conventional view on the growth effects of trade barriers, the estimation results showed that trade barriers are positively and, in most specifications, significantly associated with growth, especially for developing countries and they are consistent with the findings of theoretical growth and development literature.

[25], explored the relationship between trade openness and economic growth using a sample of 71 developing countries over the period 1990 – 2005. Incorporating an augmented Solow growth model in a panel data analysis, both fixed and two-way fixed effects specifications indicated that trade liberalization has a positive and significant effect on economic growth. However, the Sub-Saharan Africa region does appear to be different; high natural barriers to trade, export dependence on primary commodities and poor overland infrastructures to distant large markets

can explain why increased trade openness does not contribute to economic growth.

[26], examined the relationships among economic growth, domestic investment, real exchange rate, and trade openness in Indonesia using the Johansen co-integration test and Granger causality test. The results suggest that there exists a long-run relationship among the variables. All the estimated coefficients of the long-run equation have the correct positive signs and significant at least at 5 percent level. Specifically in the long-run, a one percent increase in trade openness leads to about 26.5 percent increase in Indonesian real GDP, a one percent increase in domestic investment will spur GDP by 1.8 percent, and a depreciation of rupiah raises GDP by about 6.4 percent. The results from Granger causality test suggest that all the variables cause real GDP in the short-run. Both the trade openness and gross domestic investment cause growth uni-directionally in short-run, but feedback occurs between growth and real exchange rate. The evidences suggest that trade openness, gross domestic investment, and exchange rate are important determinant of economic growth and therefore policy makers should seriously take these variables into account in their policy construct in order to achieve a sustained economic growth in Indonesia.

[26] assessed the cross-country variation of the fiscal stimulus and the exchange rate adjustment propagated by the global crisis of 2008-9, identifying the role of economic structure in accounting for the heterogeneity of response. The results revealed that greater *de facto* fiscal space prior to the global crisis and lower trade openness were associated with a higher fiscal stimulus/GDP during 2009-2010. Joint estimation of fiscal stimuli and exchange rate depreciations indicates that higher trade openness was associated with a smaller fiscal stimulus *and* a higher depreciation rate during the crisis. Overall, the results are in line with the predictions of the neo- Keynesian open-economy model.

[11], investigated the effects of excessive fluctuations in the exchange rate on economic growth in Ghana. The results showed that while shocks to the exchange rate are mean reverting, misalignments tend to correct very sluggishly, with painful consequences in the short run as economic agents recalibrate their consumption and investment choices. About three quarters of shocks to the real exchange rate are self-driven, and the remaining one quarter or so is attributed to factors such as government expenditure and money supply growth, terms of trade and output shocks. Excessive volatility is found to be detrimental to economic growth; however, this is only up to a point as growth-enhancing effect can also emanate from innovation, and more efficient resource allocation.

[6] examined the effects of trade openness on macroeconomic volatility using two data sets: one of 56 countries over 1951-1998, and another of 105 countries over 1960-1997. It is shown that, when their effects are jointly estimated, both economic size and trade openness have a sizable, negative, and generally statistically significant effect on the variability of output, consumption, investment, and the exchange rate. It was also found that depreciation rates are inversely related to both economic size and openness. These effects are robust across the two data sets and three different detrending methods.

[7], related the volatility of the effective real exchange rate to the degree of trade openness of an economy. The theoretical part presented an inter-temporal monetary model with nominal labor (factor) market rigidities. Both monetary and aggregate supply shocks were shown to imply a (non-linear) inverse relationship between the import share of an economy and the volatility of its real exchange rate. Empirical evidence on a cross-section of 54 countries confirmed this relationship: Difference in trade openness explain a large part of the cross-country variation in the volatility of the effective real exchange rate.

[16] used structural vector autoregression (SVAR) to explore the impact of trade openness and financial openness to Indonesian economy. The Findings showed that the trade openness and financial openness have negative impact on output. The result of trade openness appear be robust since lack of preparation to anticipate trade openness lead to weak competitiveness of Indonesian products relative to foreign products and finally lower output.

[12], explain the real exchange rate volatility by positing a structural relationship between volatility and its determinants. To perform our task we collected information on exchange rates, output, terms of trade, government spending, monetary aggregates, exchange rate regimes, trade and financial openness for a sample of industrial and developing countries for the 1974-2003 period and We will used GMM-IV methods for panel data to test the stated hypotheses. It was found that higher volatility of shocks to output, money and terms of trade generate more volatile real exchange rate fluctuations. The results also revealed a robust negative relationship between the volatility of real exchange rate fluctuations and the degree of openness -regardless of using an outcome or a policy measure. Furthermore, the results indicated that real exchange rate volatility is higher if the monetary arrangement is more flexible. According to the regressions results, real exchange rate fluctuations under fixed regimes are between 4 and 7.5% less volatile than under floating regimes, while real exchange rate (RER) fluctuations under intermediate regimes

are between 1 and 4% less volatile than under floats

[17] argue that real exchange rate movements are important drivers of the reallocation of resources between sectors of an economy. They explain that economic theory suggests that the impact of exchange rates should vary with the degree of exposure to international competition and with the technology level. There paper brought together these two views, both theoretically and empirically. They showed that both the degree of openness and the technology level mediate the impact of exchange rate movements on labour market developments. According to their estimations, whereas employment in high-technology sectors seems to be relatively immune to changes in real exchange rates, these appear to have sizable and significant effects on highly open low-technology sectors.

[22] investigated the trade openness and exchange rate fluctuations Nexus in Nigeria using time series data covering from1984 to 2013. The study employed the Ordinary Least Square (OLS) method and pairwise correlation matrix technique. Our findings showed that trade openness impact positively on the exchange rate fluctuations or volatility in Nigeria. The causality test conducted using Granger causality procedure shows that there exist unidirectional causality between trade openness and exchange rate fluctuations without a feedback response.

[13] investigated the importance of exchange rates on international trade by analysing the impact that exchange rate volatility and misalignment have on trade and then by exploring whether exchange rate misalignments affect governments' decisions regarding trade policies. The methodology consists of estimating fixed effects models on a detailed panel dataset comprising about 100 countries and covering 10 years (2000-2009). The findings were generally in line with those of the recent literature in supporting the importance of exchange rate misalignment while disregarding that of exchange rate volatility. In magnitude, exchange rate misalignments result in trade diversion quantifiable in about one per cent of world trade. The paper also showed evidence supporting the argument that trade policy is used to compensate for some of the consequences of an overvalued currency, especially with regard to anti-dumping interventions.

[20] explored the impact of trade openness on Malaysian exchange rate. The findings showed that most of the variables are statistically significant and carried the expected signs. The results further indicated that the rise of the income level and stock market index in Malaysia lead to the appreciation of domestic currency. On the other hand, the increase in trade openness and interest

rate can lead to depreciation of Malaysian currency. In addition, the results suggested that a rise in money supply differential caused the currency to appreciate. However, increase in trade balance caused the depreciation in local currency.

[5] and [7] investigated the impact of trade openness on the relationship between current account and real exchange rates, during episodes of sudden stops and of abrupt exchange rate depreciations. Using data for developed and emerging economies for the period 1970-2011, It was found that more open economies are associated with lower exchange rate depreciations during sudden stops. The results further revealed that improvements in current account and trade balance are accompanied by a smaller exchange rate depreciation in more open economies.

[17] investigated the determinants of exchange rate volatility in South Africa. The main focus of the paper was to test the hypothesis that economic openness decreases Rand (ZAR) volatility. Employing monthly time series data, GARCH models are estimated. The study found that switching to a floating exchange rate regime has a significant positive effect on ZAR volatility. The results also showed that trade openness significantly reduce ZAR volatility only when bilateral exchange rates are used, but found the opposite when multilateral exchange rates are used.

Theoretical Underpinning and Methodology

The data for the work is annualized time series drawn from World Bank databank and the Statistical Bulletin of the Central Bank of Nigeria. The study covers 1981 to 2015. The data by source is secondary in nature since it is drawn from already published works and existing sources. The choice of the period 1981 to 2015 is informed by the availability of data in a form detailed enough to allow for robust analyses.

The model for this work is specified following the Classical Linear Regression Model according to [14]

Where

??=?? +?1??+?2??+?3?3?+…….. ?????+ ??

Y = Dependent variable

$X_1, X_2, X_3 \ldots X_n$ = the explanatory or independent variables

??

= intercept

?1

,

?2, ?3, ??

= the coefficient of the parameter estimates or the slope.

??

= error or disturbance term.

In relating this to the work,

TO = f(Exr)

Where: TO = Trade Openness, Exr = Exchange

Restating it in econometric form and the variables log linearised, it will appear thus:

$LNXP = b_0 + b_1 LREXR + b_2 LTGDP + \varepsilon_t$

$LMP = b_0 + b_1 LREXR + b_2 LTGDP + \varepsilon_t$

$TO = b_0 + b_1 LREXR + b_2 LTGDP + \varepsilon_t$

Where

LNTO = Trade Openness

LMP = import

LXP = export

LEXR= exchange rate

LTGDP = Ratio of trade to Gross Domestic Product

b_1, b_2 *are coefficients of the parameter estimates or the slope*

b_0 = intercept

$_t$ = error or disturbance term.

b_1, b_2 *>0, (apriori expectation)*

The Classical Linear Regression Model (CLRM) which represents the foundational model for most econometric analyses form the most fundamental technique of data analyses for this work. In specific terms, regression analyses explains the variation in an outcome (dependent variable) Y, as it depends on a predictor (independent explanatory) variable, X. In this work therefore, the variation in trade

openness will be explained on the basis of Real Exchange rate which is the predictor. To analyse the basic descriptive statistical properties of the dataset under study, by way of a preliminary test attention would be given to the following:

Mean and median of the distribution, Standard deviation, Minimum and maximum, Skewness (degree of symmetry or departure from symmetry), Kurtosis (degree of peakedness of the datasets) and Jacque Bera Test (a combined test for normal skewness and kurtosis)

Unit root test following the type developed by [7] test will be used to determine the stationarity properties of the series under study. In the real test, the Augmented Dickey Fuller (ADF) may be augmented by the test form developed [8]. The essence of stationarity testing is to avoid getting spurious result which is a common feature of using non-stationary data or time series in regression analyses.

To prove the reliability and validity of the OLS results, a set of diagnostic tests will be carried out. These will include among other things the following; Goodness of Fit using the R^2 and adjusted R^2 , Autocorrelation using the DW statistic (by rule of thumb, the DW stat should be approximately equal to 2, to remove any evidence of autocorrelation and F test to confirm the significance of the overall regression.

Data Analysis

Summary Statistics

The descriptive statistics describes the variables under study. It presents the mean and standard deviations of the variables under study. It also presents the measures of distribution such as the skewness and kurtosis and the Jarque-Bera statistics testing for normality of the data set. The descriptive statistics was used to showcase the descriptive information and the distribution of the variables under study. The results are presented in table 1.

Table 1 Descriptive Statistics of the study variables

Variable	Mean	Std dev.	Skewness	Kurtosis	JB	Prob. (JB)	No of obs.
LMP	28.70	0.72	0.17	1.82	2.13	0.345	34
NEXR	67.96	63.77	0.22	1.24	4.64	0.098	34
REXR	155.16	128.51	1.67	4.83	20.58	0.000	34
TGDP	51.99	16.01	-0.23	2.13	1.37	0.504	34
TOPN	6.10E+09	1.31E+10	3.05	11.99	167.35	0.000	34
LXP	27.15	2.64	-0.34	1.77	2.79	0.247	34

The descriptive result in Table 1 presents the measures of central tendency as well as spread of the variables under study. The combined result of the Skewness and Kurtosis which is reported in Jarque-Bera goodness-of-fit test shows that the dataset of the study variables with exception of real exchange rate (REXR) and trade openness (TOPN) come from a normal population.

Stationarity Test

The Augmented Dickey-Fuller (ADF) unit root test was performed to ascertain the stationarity properties of the variables under study. This is to avoid running a nonsense regression and drawing a non-meaningful inference. This test was judged at 95% confidence level.

Table 2: Summary of Results of ADF unit root test

Variable	ADF-Stat	Critical value @5%	p-value	Order of Integration
LMP	-5.12	-1.95**	0.0000	I(1)
NEXR	-5.32	-3.56**	0.0007	I(1)
REXR	-3.92	-1.95**	0.0003	I(1)
TGDP	-8.06	-1.95**	0.0000	I(1)
TOPN	-3.91	-1.96**	0.0004	I(1)
LXP	-5.29	-1.95**	0.0000	I(1)

** Indicates stationarity at 5% level of significance

The result above shows that the variables were stationary at order 1 because the ADF-statistic values were more negative than the critical value at 5% level of significance. This calls for ordinary least squares (OLS) regression analysis.

EXPORT VERSUS EXCHANGE RATE

Regression Result

LXP = 18.30 + 1.48LOG(NEXR)+ 0.88LOG(REXR)

SE (0.11) (0.23)

t* = [13.80] [3.88]

F- stat. = 320.0129; Prob(F-stat) = 0.000000;

R^2 = 0.978; Adj. R-square = 0.975

Nominal exchange rate (NEXR) exert a significant positive relationship with volume of exports in Nigeria. The ordinary least squares multiple regression result shown above indicates that volume of export respond positively and significantly to exchange rate in Nigeria. This implies the rejection of the null hypothesis. The result shows that real exchange rate (REXR) with a coefficient value of 0.88; t-statistic value of 3.88 and associated probability value of 0.005 indicates that controlling for nominal exchange rate in the model, REXR has a significant positive effect on the volume of export in Nigeria. While the nominal exchange rate (NEXR) with a coefficient value of 1.48; t-statistic value of 13.80 and corresponding probability value of 0.000 0.05 indicates that controlling for real exchange rate in the model, NEXR has a significant positive effect on the volume of export in Nigeria. The collective (F-stat) result revealed that exchange rate which is an aggregation of nominal and real exchange rate exerts a joint significant effect on volume of export in Nigeria while the adjusted R-square value of 97.5% indicates that after series of adjustment, the Nigerian exchange rate could explain about 97.5% of the total variations in volume of export. The remaining 2.5% is attributed to other extraneous variables not included in the model. The inclusion of the autoregressive of order 1 was to wipe out the problem of serial correlation in the model.

IMPORT VERSUS EXCHANGE RATE

Regression Result

LMP = 28.14 + 0.002LOG(NEXR) + 0.001LOG(REXR)+ 0.010LOG(TGDP)

SE	(0.004)	(0.001)	(0.005)
t* =	[0.66]	[2.25]	[1.83]

F- stat. = 38.07533; Prob(F-stat) = 0.000000;

R^2 = 0.872; Adj. R-square = 0.849

Real exchange rate (REXR) exert a non-significant negative relationship with volume of imports in Nigeria. The ordinary least squares multiple regression result as shown above indicates that volume of imports respond positively and significantly to exchange rate in Nigeria. This implies the rejection of the null hypothesis. Individually, the result shows that real exchange rate (REXR) with the t-statistic value of 2.25 and associated probability value of 0.03250.05 indicates that controlling for nominal exchange rate in the model, REXR has a significant positive effect on the volume of imports in Nigeria. While the nominal exchange rate (NEXR) with a t-statistic value of 0.66 and associated probability value of 0.5149 0.05 indicates that controlling for real exchange rate in the model, NEXR has a non-significant positive effect on the volume of imports in Nigeria. The joint (F-stat) result revealed that exchange rate exerts a joint significant effect on volume of imports in Nigeria while the adjusted R-square value of 84.9% indicates that after adjusting for degrees of freedom, the Nigerian exchange rate could explain about 84.9% of the total variations in volume of Nigerian imports. The remaining 15.1% is attributed to other relevant variables not included in the model. The GDP was included in the model as a control variable hence, less attention was paid to GDP. Also, the analysis incorporated the AR(1) to wipe out the problem of autocorrelation in the model.

TRADE OPENNESS VERSUS EXCHANGE RATE

Regression Result

LMP = 26.38

0.465LOG(REXR)

0.898LOG(NEXR)

SE	(0.115)	(0.111)
t* =	[-4.041]	[-8.061]

F- stat. = 250.8896; Prob(F-stat) = 0.000000;

R^2 = 0.972; Adj. R-square = 0.968; D-W = 1.81

Real exchange rate (REXR) exert a significant positive relationship with trade openness in Nigeria. The ordinary least squares multiple regression result as shown above indicates that trade openness respond negatively and significantly to exchange rate in Nigeria. Hence, we reject the null hypothesis. Individually, the result shows that real exchange rate (REXR) with the t-statistic value of -4.04 and associated probability value of 0.0004

0.05 indicates that controlling for nominal exchange rate in the model, REXR has a significant negative effect on the trade openness in Nigeria. While the nominal exchange rate (NEXR) with a t-statistic value of -8.06 and associated probability value of 0.0000

0.05 indicates that controlling for real exchange rate in the model, NEXR has a significant negative effect on the trade openness in Nigeria. The joint (F-stat) result revealed that exchange rate exerts a joint significant effect on trade openness in Nigeria while the adjusted R-square value of 96.8% indicates that after adjusting for degrees of freedom, the Nigerian exchange rate could explain about 96.8% of the total variations in trade openness in Nigeria. The remaining 3.2% of unexplained variations is attributed to other relevant variables not included in the model. The inclusion of the AR(1) in the model was to wipe out the problem of autocorrelation in the model.

CONCLUSION

This work is set out as inquiry into the degree to which trade openness can be enhanced by favourable exchange rate policy. This is driven along the line of evaluating how exchange rate drive export volume, import volume and cumulatively

trade openness in the Nigerian economy. This essentially underscores the position of Nigeria as a country driven by excessive importation and dependence on foreign goods. It is in the light of this that an examination into why and how the country's trade activities depend on the changes in openness to exchange rate in Nigeria.

The results recorded from the study are in conformity with preexisting findings and theoretical evidence and they all unanimously agree that not only trade openness but import and export responds to changes in exchange rate.

The policy implication of this study is that the government should evolve exchange rate regimes and policies that positively drive trade activities because of the numerous advantages that the economy stands to gain. More so, efficient policies should be made in the areas of improved macroeconomic and regulatory environment which would not only make the economy attractive, but would also build international trade competitiveness.

This research work adds a voice to earlier works in this area of international finance in the area measuring the responsiveness of trade openness to exchange rate using empirical evidence from Nigeria. This in effect means that this work is Nigerian based and its findings add to existing body of literature in the Nigerian economic space. However, it is believed that it can be used for generalization for economies in the shape and size of Nigeria and can also provoke further enquiry on the depth and direction of the nexus between trade openness and exchange rate.

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