EFFECTS OF INTERNATIONAL TRADE IN PRIMARY PRODUCTS ON EXCHANGE RATE IN NIGERIA

FAGBEMI, Augusta Ideakheua
Department of Economics
Faculty of Arts and Social Sciences
Nile University of Nigeria.
augustafagbemi1@gmail.com

AHMED, Adamu
Department of Economics
Faculty of Arts and Social Sciences
Nile University of Nigeria
ahmed.adamu@nileuniversity.edu.ng

ABSTRACT

This study examined effects international trade in primary products (proxied by export and import in primary products) on exchange rate. The objectives of the study were to (i) evaluate impact of selected oil, gas and Cocoa export on exchange rate; and (ii) assess the effects of selected oil, gas and Cocoa import on exchange rate. The study used filter sampling technique to collect data. Secondary data was collected from the annual reports and statistical bulletin of the Central Bank of Nigeria (CBN) from 2005–2022; and analyzed using VAR models. Augmented Dickey-Fuller (ADF) tests were performed to examine the degree of integration of the time series data for stationarity tests, unit root test, Johansen Co-integration test, and Vector Error Correction Model were also performed as part of data pre-processing. The VECM estimate ($r = 0.1752$, $p = 0.0043$) showed that there was a significant relationship between selected oil and cocoa export and exchange rate. The estimate ($r = -0.1313$, $p = 0.0774$) shows that the relationship between selected import and exchange rate is not significant. The concluded that international trade (export and export) in primary products exert statistically significant effect on exchange rate. The study thus recommends that pragmatic policy formulation should be formulated and implemented on investments centered on international trade in primary products since it has the potential to strengthen exchange rate in Nigeria.
Keywords: Exchange rate, international trade, primary products export, primary products import

INTRODUCTION

The regime of economic integration has prompted many countries of the world to open up their economies for trade in goods and services; as well as ideas, information and technology. Capital mobility has been accelerated through financial globalization. Capital poor nations have been able to receive capital for domestic investment from capital rich nations. By this, the global economy has become better, since capital moves easily from redundant zones to where it is needed to boost economic activities. The movement of capital from capital surplus nations to capital shortage regions has aided the efficient use of global economic resources.

Exchange Rate (ER) is the price of one currency in relation to another. It expresses the national currency's quotation in respect to foreign ones (Akwe, 2014). Compared to nominal, Real Exchange Rate is often acknowledged as an important macroeconomic policy variable in the sense that it indicates a country's international competitiveness. Real Exchange Rate is the Nominal Exchange Rate (NER) adjusted for price changes (inflation) in the domestic market, relative to those of trading partners. NER management depends on the Real Exchange Rate, and the Real Exchange Rate is influenced, among others, by NER (Tarawalie, 2010). This is due to the close correlation between real and nominal exchange rates where NER often drives real exchange rate.

A stable long-term economic growth requires stable international trade and foreign exchange markets to ensure a stable exchange rate system and favorable terms of trade in addition to appropriate basic

physical capital stock. However, often (real) exchange rate misalignment affects economic growth. In developing countries, exchange rate misalignment has often taken the form of overvaluation which adversely affects the tradable goods by lowering producers' real prices. The real exchange rate misalignment, for instance, occurs in markets in which actual buyers are not allowed to adjust to changes in economic fundamentals (takumah, 2014),

Consequently, reducing incentives and profits, and leading to decline in investment and export volumes. Real exchange rate has a positive impact on output growth. Output growth would be promoted if real exchange rate is allowed to operate through aggregate supply channels and not aggregate demand. Nonetheless, real exchange rate instability generates risk and uncertainty towards investment, which in turn depresses economic growth and development.

Habib et al. (2016) states that Real exchange rate does matter for growth in developing economies, but substantially less so in advanced ones. Berg and Miao (2010) also noted positive effect of currency undervaluation on growth, particularly in developing countries. In Rodrik (2008), management of Real exchange rate is central to economic growth and tested that undervaluation of the currency stimulates economic growth for developing countries because it generates economic activity toward higher productivity and employment.

Assuming that the manufacturing sector is characterized by higher productivity, Adaku (2008) argued that undervalued Real exchange rate would support a shift to the manufacturing sector by driving up prices of tradable goods, increasing economy-wide productivity and growth can be positively influenced by Real exchange rate depreciations. In Rewane (2007), only very high overvaluations appear to be associated with slow economic growth. While, moderate to high undervaluation appear to be associated with more rapid economic growth.

International trade allows countries to expand markets and access goods and services at reasonable prices that are not easily accessed domestically. The link between international trade and economic exchange rate has interested many researchers for a long time, wondering if international trade strengthens or stabilizes a domestic currency. As pointed out earlier, many scholars agree that countries that engage in foreign trade are more likely to experience a certain level of economic growth and stronger currency than countries that abstain from foreign trade (Carbaugh, 2022; Kraemer-Mbula, 2021). Many studies have been conducted on impact of international trade on exchange rate. However, studies focusing majorly on impact of international trade in primary products on exchange rate are scarce. Thus, the objective of this study was to determine the impact of international trade in primary products on Nigeria's exchange rate from 2006 to 2020. The specific objectives are:

1) To assess the effect of primary products export on exchange rate.
2) To assess effect of primary products import on exchange rate.

The following hypothesis were formulated and tested:

Ho_1: Primary product export has no effect on exchange rate.
Ho_2: Primary product import has no effect on exchange rate.

LITERATURE REVIEW

International Trade

International trade is synonymous with "foreign trade" or "global trade;" and has existed since early civilization in exchange goods and services between and among countries. In recent years international trade has become increasingly important with a larger share of GDP devoted to exports and imports. There is a need to exchange capital goods and services beyond the national level to international level because there is a need for such goods and services across international borders.

International trade allows countries to expand their markets and access goods and services that otherwise may not be available domestically. As a result of international trade, the market is more competitive. International trade is an important factor in raising living standards. Some countries are

naturally abundant in raw materials. For instance, Nigeria is blessed with crude oil and other natural resources, metals. Iceland is blessed with. Congo has surplus diamonds and New Zealand is rich with butter. International trade makes it possible for these countries to exchange the produce they have surplus of, with other countries; and in turn, obtain those that are in short supply.

International trade is mostly assessed using a countries volume of exports and imports. This study thus use exports and imports of primary products to represent international trade in primary products. Export describes a countries sales (at a national or individual level) of domestic products in foreign markets or countries. It is the practice of selling goods and services produced in a country, across its national frontiers. The terms "outward-oriented," "export promotion," and "export substitution" are used to define policies of countries that have been successful in developing their export markets.

Many developing and underdeveloped countries are inspired to engage in export orientation because it encourages specialization, which increases national output and decreases domestic price levels. Exports facilitate the utilization of resources in an economy to produce goods and services, and the surplus is sold abroad to satisfy foreign demand while expanding national output and generating foreign exchange revenue that can be used to further finance economic development (Krueger, 2005; Lal, 1992).

Imports on the other hand represents goods and services bought in one country, but which are produced in another country. Imports also describes the practice of bringing in goods and services from abroad for sale in a domestic markets. Countries import goods or services that are not available domestically or which domestic industries cannot produce as efficiently as the exporting country. Countries may also import raw materials or commodities that are not available within their borders. Many countries import crude-oil because they do not have enough of it, or cannot produce it in sufficient quantity to demand.

Economic and policy analysts disagree on the positives and negatives of imports. Some argue that reliance on imports reduces demand for domestic products, hence, weaken entrepreneurship and development of business enterprises. However, others argue that imports enhance the quality of life by providing consumers with more choice and cheaper goods; hence, prevent rampant inflation.

Exchange Rate

Exchange rate is the price of a domestic currency in terms of another currency (Olufayo & Fagite, 2014). It represents the relative price for the exchange of domestic and foreign goods and services in international trade. Exchange rate is also the ratio at which a unit of currency of one country is expressed in terms of another currency. Exchange rate between the Naira and the Dollar refers to the number of naira required to buying one dollar. The rates are generally determined by the foreign exchange market. The foreign exchange market is a market where currencies of different countries are sold and bought. It is a market where the prices of local and foreign currencies are determined.

Idowu (2016) assert that exchange rate plays a central role in public debate around trade and trade policy, with widespread calls for appreciation, depreciation, or simple stabilization. Rodrick (2007) concurs that economists have long known that poorly managed exchange rates undermine economic growth. Real exchange rate thus, serves as an international price for determining the competitiveness of a country. Takaendesa (2006) explains that the Real exchange rate plays a crucial role in guiding the broad allocation of production and spending in the domestic economy between foreign and domestic goods.

Currencies of all countries are the stock in trade of the foreign exchange market, and as such, it is the largest market to be found around the world which functions in every country (Jhingan, 2022). Consequently, exchange rate levels and movements have far reaching implications for international capital flow competitiveness and business confidence. Exchange rate plays a crucial role in a small open economy, it bears on trade by determining relationship between international and domestic prices. A rise in Naira raises the price of Nigerian goods in the international market, while a fall in Naira lowers these prices. The fluctuation of exchange rates makes exports/imports costlier or cheaper and also the

unstable tendency of this variable attaches a level of uncertainty or risk to trade (Olufayo & Fagite, 2014).

Theoretical framework: Purchasing Power Parity Theory

Purchasing power parity (PPP) theory simplifies the concept of currency exchange by stating that to achieve parity in purchasing power between two countries, the nominal exchange rate should be equal to the ratio of their aggregate price levels (Krugman & Obstfeld, 2009). This theory compares the cost of a universal commodity, which is identical in both countries, to determine the purchasing power parity.

If a disparity exists, there will be a movement of demand from one country to another, thereby reducing the price gap. The theory suggests that when priced in the same currency, goods in one country should have the same price in another. However, if the product is more affordable in one coutry, demand will increase there while decreasing in the where it is more expensive (Abuaf, 2015).

The basic principle of purchasing power parity states that a basket of goods should have the same value after the exchange of two currencies. Purchasing power parity may be absolute or relative (Koustas & Serletis, 2015). Despite its flaws, this PPP theory remains the only rational explanation for long-term variations in exchange values across various monetary contexts, including the gold standard (Abuaf, 2015); and is particularly relevant when price changes have a significant impact on exchange rates.

International Trade and Exchange Rate

Literature is replete with reports on international (exports and imports) and exchange rate. Tsegaye (2015) observed that exports has long run unidirectional causal relationship with economic growth, and by extension exchange rate. The study concluded that international trades (imports and exports) play important roles in accelerating economic growth.

Oyovwi and Ukavwe (2013) investigated the relationship between exchange rate volatility and international trade in Nigeria using time series data from 1970-2010. The resulted indicated that exchange rate has insignificant influence import trade while the result with export is positive and significant. In another study, Nicita (2013) affirmed a positive relationship between exchange rate and international trade using data from 100 countries from 2000 to 2009. In line with economic theory, devaluation of currency can promote exports and restricted imports. The implication is that exchange rate policy on depreciation of currency can be geared towards promoting export and discouragement of imports.

METHODOLOGY

This study adopted a historical research design. The study used secondary data from various editions of the Central Bank of Nigeria (CBN) statistical bulletin, 2022, and National Bureau of Statistics (NBS), annual report 2022. The study employed filter sampling technique to determine data that is qualified to be part of the analyses. The filtration criteria are that (1) the data should be sourced from CBN statistical bulletin, NBS data or World Bank fact data, (2) there should be no change in the fiscal year during the period, (3) the required data should be available, and (4) the required data should be accessible. The application of the criteria resulted to the selection of oil revenue, non-oil revenue, oil price volatility, per capita income, GDP and GNP from 2005–2022 (a period of 17 years) as sample size of the study. The time series data are Net export estimated as the difference between exports and imports, Real Exchange Rate of the naira to the dollar, trade openness and growth rate of the real gross domestic product was estimated as shown in the model specification, interest rate in percentage and foreign direct investment in naira terms.

Augmented Dickey-Fuller (ADF) tests were performed to examine the degree of integration of the time series data for stationarity tests because many macroeconomic series are non-stationary at level, and this can lead to spurious results if OLS technique is applied. The dependent variable in this study is exchange rate (EXR) while the independent variable is international trade. International trade in primary

products is proxied by selected oil export denoted by ECG, selected gas export denoted by EXR, selected cocoa export denoted by DCEX, selected oil import denoted by DOGIM, selected gas import denoted by DOGEX, selected cocoa import denoted by DCIM.

Data collected was analyzed using VAR models which Sun and Heshmati (2012) describe as powerful tools for investigating inter-relationships among non-stationary time-series variables and for obtaining reliable forecasts. VAR models are good techniques in terms of addressing the relative importance and the dynamic effects of various shocks on macroeconomic variables (Jhingan, 2009). Using econometric method of analysis the study examined the impact of import, export, on exchange rate in Nigeria. The study also employed unit root test, Johansen Co-integration test, and Vector Error Correction Model.

RESULTS

Table 1: Descriptive Statistics of all Variables

	ECG	EXR	DCEX	DCIM	DOGEX	DOGIM
Mean	10.45235	0.921770	2.574352	0.834261	21.47224	0.260402
Median	11.36470	0.361642	2.474100	0.974321	21.23634	0.261945
Maximum	13.28010	7.268343	6.685800	1.097658	36.02327	1.081326
Minimum	-13.90000	0.005900	0.207200	0.003755	8.829530	0.002844
Std. Dev.	4.813046	1.682560	1.915573	0.316122	6.730126	0.217211
Jarque-Bera	594.1615	110.4935	2.720695	47.31027	0.279674	44.31108
Probability	0.0000	0.0000	0.256572	0.0000	0.869500	0.0000
Observations	31	31	31	31	31	31

Source: E-views Output (2022)

Table 1 above reveals the individual characteristics of the variables used in the study and highlights the values of their respective median, mean, maximum and minimum as well as their standard deviation and Jarque-Bera Statistics (normality tests). For examples, the ECG Variables recorded a mean value of 10.45235 with a maximum value of 13.28010 and a minimum value -13.90000. It also recorded a standard deviation value of 4.813046 which is lower than its mean value.

The DCEX variable appeared with a mean value of 2.574352 with a maximum value of 6.685800 and a minimum value of 0.207200. It also recorded a standard deviation value of 1.915573 which is the lower than its mean. These statistical results portend that DCEX experienced a slow growth rate during the period being studied. The variable also recorded a Jarque-Bera statistic of 2.720695 and a probability value of 0.25672. Thus, these statistical results suggest that DCEX is not normally distributed as it is not significant at either 1%, 5% or 10% levels of significance.

Table 2: Correlation Matrix for all Study Variables

Pair View	ECG	EXR	DCEX	DCIM	DOGEX	DOGIM
ECG	1.000000					
EXR	0.179186	1.000000				
DCEX	-0.627982	0.258486	1.000000			
DOGIM	-0.778506	0.179463	0.529976			1.000000
DOGEX	-0.565689	0.013888	-0.259513		1.000000	-0.162949
DCIM	-0.650679	0.197343	0.4326781	1.000000	1.000000	1.000000

Source: E-views Output (2022)

The correlation coefficient for all the variables of the study revealed that selected agricultural and manufacturing product export is directly (positively) correlated with real economic growth though they reported weak correlation. This is because its correlation value which stood at 0.179186 and 0.627982 are positively signed and less than 30%. However, both cocoa and oil and exports exerted negative high correlation with real economic growth and exchange rate. This is because their correlation values which stood at -0.627982 and -0.565689 respectively are negatively signed and higher than 60%. The result

further revealed that none of the independent variables reported high correlation with each other. This suggests the possibility of no multi-collinearity problem. As such, we further subjected the test to diagnostic test to reaffirm the claims raised by the statistical procedures.

Table 3: Ramsey RESET Test

Ramsey RESET Test **Equation: UNTITLED** **Omitted Variables: Squares of fitted values** **Specification: ECG C EXR DCEX _ DOGIM DOGEX DCIM**			
	Value	**Df**	**Probability**
t-statistic	0.133154	25	0.8951
F-statistic	0.017730	(1, 25)	0.8951
Likelihood ratio	0.021977	1	0.8821

Omitted Variables: Squares of fitted values
Source: Eviews Output (2022)

The Ramsey RESET Test in Table 3 above reported that the model is correctly specified since it p-values are greater than that 5% significant level. VEC Residual Heteroskedasticity Tests The VEC Heteroskedasticity test is used to check if the model has constant (equal) variances among the residuals given that the null hypothesis of homoskedasticity at the 5% significance level. The Heteroskedasticity test is presented thus in Table 3:

The VECM estimate in Table 3 revealed that past values of selected oil, gas and Cocoa export exerted negative statistically significant effect on exchange rate in Nigeria. This is justified on the ground that, its beta coefficient value which stood at -0.175229 is negatively signed and at the same time its p-value which stood at 0.0043 is less than 5% significant level but higher than 95% confidence level. This reveals that there is enough evidence to reject the null hypothesis.

The VECM estimate in Table 3 also revealed that past values of selected oil, gas and Cocoa import exerted negative statistical insignificant effect on exchange rate Nigerian. This is justified on the ground that, its beta coefficient value which stood at –0.131300 is negatively signed and at the same time its p-value which stood at 0.0774 is greater than 5% significant level but less than 95% confidence level. This revealed that, there is no sufficient evidence to reject the null hypothesis.

DISCUSSION OF FINDINGS

The study revealed that select oil, gas and Cocoa export has impact on exchange rate. The VECM estimate revealed that past values of select oil, gas and Cocoa export exerted negative statistically significant effect on exchange rate in Nigeria. This is justified on the ground that, its beta coefficient value which stood at -0.175229 is negatively signed and at the same time its p-value which stood at 0.0043 is less than 5% significant level but higher than 95% confidence level. These finding concurs with the finding of Adesina and Daodu (2011) that international trade affect exchange rate in Nigeria.

The study revealed that exchange rate is significantly affected by oil export in Nigeria. It implies devaluation of naira improve the revenue from oil export. The also study revealed that selected oil, gas and Cocoa import has no effect on exchange rate. This finding negates the report of Saleem and Sial (2015) that exports and exchange rate has unidirectional causation, and that a unidirectional causal relationship exists between financial development and exchange rate, confirming the theory of growth-driven exports. The finding concurs with the finding of Adesina and Daodu (2011) that Exchange rate movements is affected by import and export trade in Nigeria.

In addition, the study revealed that Exchange rate has positive and significant effect on oil export in Nigeria. This report is not in line with that of Olusola and Akinola (2003) the export-led growth hypothesis is valid for Nigeria. The results of the study indicated that a bidirectional relationship exists

between exports and exchange in Nigeria. The implication of this result is that oil, gas and Cocoa import has no effect on exchange rate which is a major determinant of economic growth in Nigeria. This finding supports the findings of Zoramawa et al. (2020) but deviated from the findings of Abdulrahman (2021), Zayone et al. (2020); Nelson et al. (2020); Iwuoha and Awoke (2019) and Nwanne (2014).

CONCLUSION AND RECOMMENDATIONS

With the current slow-down of economic activities caused by severe fiscal imbalances coupled with the mono-cultural nature of the Nigerian economy which forced the Nigerian economy into unplanned economic recession in 2015. The present study investigated the effect of international trade (import and export) in primary products on the exchange rate in Nigerian. The study found significant effect of international trade on exchange rate. The study thus recommends as follows:

1) Pragmatic policy formulation on investment should be centered on the agro-allied subsector since it has the potential to better the Nigerian economy.
2) The federal government should give preference and palliative measures to investors who desire to invest in the cocoa, oil, and gas sector since it has the potential to increase the Nigerian economy.
3) The federal government should re-visit existing policies on the solid mineral sector since neglect of the solid mineral sub-sector as made Nigerian economy to experience untold financial crises.
4) The federal government of Nigeria as a matter of urgency must address the various challenges inhibits the service sub-sector from contributing positively to the growth of the Nigerian economy.

REFERENCE

Abuaf, N. (2015). Global investing: An efficient frontier approach.

Abuaf, N., & Jorion, P. (2014). Purchasing power parity in the long run. *The Journal of Finance*, *45*(1), 157-174.

Adaku A. (2003). Effect of exchange rate volatility on GDP. *Journal of Social Sciences*, *1*(3).

Akpan, E. O., & Atan, J. A. (2010). Effects of exchange rate movements on economic growth in *Nigeria's Journal of Applied Statistics*, *2*(2), 1-14.

Akpan, P. L. (2008). Foreign Exchange market and economic growth in an emerging petroleum based economy: Evidence from Nigeria (1970-2003). *African Economic and Business Review*, *6*(2).

Akwe, J. A. (2014). Impact of non-oil tax revenue on economic growth: The Nigerian perspective. *Internal Journal of Finance and Accounting*, *3*(5), 303-309.

Biza, R. A., Kapingura, F. M., & Tsegaye, A. (2015). Do budget deficits crowd out private investment? An analysis of the South African economy. *International Journal of Economic Policy in Emerging Economies*, *8*(1), 52-76.

Carbaugh, R. (2022). *International economics*. Cengage Learning.

Ebo, B. (2019). Export and economic growth: The Nigerian perspective.

Export Import Bank (2009) Nigeria: Brief profile, export import bank. Retrieved from http://www.gnexid. org/country/Nigeria.pdf.

Habib M. M., Mileva, E. and Stracca, L. (2017). The Real exchange rate and economic growth: Revisiting the case using external instruments. *Journal of International Money and Finance, 73,* 386–398.

Hassan, M. H., & Afaf, K. E. (2015). Quality evaluation of coffee-like beverage from date seeds. *Journal of Food Processing and Technology*, *6*(12).

Idowu, B. O. (2016). The influence of foreign direct investment for Nigeria economic growth. A *Dissertation submitted* to Kauno technologijos universitetas.

Jhingan, M. L. (2022). *The economics of development and planning*. Vrinda Publications Ltd.

Koustas and Serletis. (2015). On the Fisher effect. *Journal of Monetary Economics*.

Kraemer-Mbula, E. (2021). *The African development bank. Regional Development Banks in the World Economy*. Oxford University Press.

Krugman, P. R., & Obstfeld, M. (2009). *Internationale Wirtschaft: Theorie und Politik der Außenwirtschaft*. Pearson Deutschland GmbH.

Li, Y., Chen, Z., & San, C. (2010). Research on the relationship between foreign trade and the GDP growth of East China: Empirical analysis based on causality. *Modern Economy*, *1*(02), 118.

Matoka, W., & Chaampita, M. (2022). A theoretical review of the relationship between financial inclusion and human development.

Nicita, A. (2013). Exchange rates, international trade and trade policies. *International Economics*, *135*, 47-61.

Nwanne, T. F. I. (2014). Assessing the relationship between diversification of non-oil export product and economic growth in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, *2*(10), 136-146.

Olufayo, M. B., & Fagite Babafemi, A. (2014). Exchange rate volatility and sectoral export of Nigeria: Case of oil and non-oil sectors. *Exchange*, *5*(10).

Rodrik, D. (2008). The real exchange rate and economic growth. *Brookings papers on economic activity*, *2008*(2), 365-412.

Takaendesa, P. (2006). The behaviour and fundamental determinants of the real exchange rate in South Africa. *Doctoral Dissertation* submitted to Rhodes University.

Takumah, W. (2014). Tax revenue and economic growth in Ghana: An integration approach.

Tarawalie, A. B. (2010). Real exchange rate behavior and economic growth: Evidence from Sierra Leone. *South African Journal of Economic and Management Sciences*, *13*(1), 8-23.