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Impact of Environmental Factors on the International Trade of Nigeria

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ABSTRACT Environmental factors' influence on the exchange of goods and services across countries cannot be quantified. The study examined the effect of environmental factors on international trade by viewing of political, economic, social, and technological forces on global trade flow in Nigeria. The uniqueness of the study was the concentration on the trend of political factors such as tariff and government expenditure, economic factors such as exchange rate and inflation rate, social factors such as population rate and education level and technological elements such as electricity consumption and their impact on international trade in Nigerian economy from the period of 1997 to 2017. This quantitative method was adopted using secondary data and Regression Analysis, and Granger Causality Walds Test was used to explore the relationship among identifiable. At a significance level of 0.05, the F-statistics is 8.18 while the p-value of the F-statistics is 0.0002, which is less than 0.05. This implies that the combination of the independent variables significantly influences the balance of payment.

INTRODUCTION

In most countries, international trade represents a significant share of Gross Domestic Product (GDP), which has made it an area of interest to policymakers as well as economists. It also enables nations to sell their domestically produced good to other countries of the world (Castilho et al. 2019). Nigerian economic growth depends mainly on her trade with other nations. International trade is the engine of growth that leads to steady improvement in social status by increasing people's standard and preferences (Bilancini and Boncinelli 2019).

Prior to the introduction of the Structural Adjustment Program (SAP) in 1986, Naira enjoyed considerable increase value against the US dollar, a factor that creates an opportunity for rapid economic growth and stability. The country began to suffer an unstable exchange rate that caused a high degree of uncertainty in the Nigerian business environment after the introduction of the new economic program (Oloba and Abogan 2013). Domestic investors face enormous risk as no one, no matter how intelligent, can predict the likelihood of the foreign exchange market performance. The situation must equally affect importation level of the country. There is an ongoing debate by policymakers and scholars on the appropriate exchange rate regime to achieve macroeconomic objectives of developing and emerging economies. The choice of exchange rate regime has as a wide range of effects on macroeconomic performance and balance of payment position of a country. Deliberate exchange rate appreciation by the monetary authority in an economy with less export could have a detrimental effect on the real sector, general price level, and trade (Olanipekun and Ogunsola 2017). They further posited that in the mid-1980, when Nigeria started recording a vast balance of payments deficits and depletion of the foreign reserve, policymakers were in favour of the devaluation of the Naira. The naira depreciation was expected to reduce pressure on external reserve as well as the balance of trade but the economy did not get better. Available statistics from the Central bank of Nigeria (CBN) show that both the current and capital account recorded deficits for three consecutive years (1987-1989).

Hence, the exchange rate devaluation did not significantly improve external reserve, trade, and economic performance in the country. Due to

the continuous exchange rate volatility and deficits in the balance of payment in Nigeria, the investigation on exchange rate dynamics and balance of payment in Nigeria are still subject to further findings because the persistent changes in the exchange rate have increased uncertainty in international trade transactions in the country.

A study by Abdullahi et al. (2017) focused on the effect of exchange rate on the aggregate balance of payments without considering the various components of the balance of payments. Consequently, nations in the pursuit of macroeconomic goals of healthy external balances as reflected in their BOP find it imperative to enunciate an exchange rate policy (Abdullahi et al. 2017). Exchange rate, therefore, is an essential macroeconomic variable that aids speculators on the ideal approach to find some harmony between their trading partners (Odili 2014). The political, economic, social, and technological forces have a remarkable impact on Nigerian international trade and a resultant effect on the balance of payment. International trade is necessary to take advantage of comparative cost.

Yakubu and Akanegbu (2015) believes promotion of economic growth is one of the significant objectives of international trade, has not been fulfilled in the Nigerian economy because the country as a whole is still experiencing some elements of economic instability such as: high level of unemployment, price instability and adverse balance of payments. The advantages of international trade had not been seen in the economic growth and development in Nigeria.

Objective of the Study

This research, therefore, aims to investigate and analyse the relationship of politics, economy, society and technology with international trade in Nigeria economy. The study concentrates on the trend of political factors such as tariff and government expenditure, economic factors such as exchange rate and inflation rate, social factors such as population rate and education level and technological elements such as electricity consumption and their impact on international trade in Nigerian economy from the period of 1997 to 2017.

Literature Review

The concept of international trade in Nigeria and other countries is not new in the field of research. Previous scholars and numerous researchers have researched the concept of international trade without considering the environmental factors (PEST analysis) as a whole. The crux of the study is to determine or reveal how the flow of political, economic, social, and technological factors affect the international trade in Nigerian environment.

Measure of Variables

The dependent variable International Trade is proxied by Balance of Payment as measure in previous studies (Connolly and Swoboda 2018; Robinson 2018). However, the Independent variables in this study are measured as follows: Political Factors is proxied by Democratic Rule and Change in Government as reviewed in earlier studies (Haggard and Kaufman 2018; Onoja 2015); Inflation rate and exchange rate were respectively used to measure Economic factors as observed in previous studies (Oloba and Abogan 2013; Akinyede et al. 2017); Social Factors was proxied as Population and Educational Level in line with the study of Samir and Lutz 2017; Technological Factors was however measured by the rate of Electricity Consumption and Oil Production/Consumption during the study period, in line with the works of Salahuddin and Alam (2016) and Okoro (2013).

METHODOLOGY

The researchers adopted a quantitative method only because the research variables can be measured and quantified with figures. This study relies only on secondary data obtained from the Economic and Financial Review and Annual Reports and Statement of Accounts of the Central Bank of Nigeria (CBN) and the World Data Bank (WDI). Regression Analysis and Granger Causality Walds Test were used as experimental research analysis that explore whether a relationship exists or not among some identifiable variables and what is or is not the nature of the relationship.

Model Specification

The researchers formulated the following model in order to show the relationship between BOP and DMR, CIG, FEM, OER, ELC, ICP, PGR, UER. This was formulated based on variables used in formulating research hypotheses.

DMR	=	Democratic rule binary variable which is unity if the country is on a democratic rule at time t,
CIG	=	change in government binary variable which is unity if there is a change in the country government at time t
FEM	=	Fuel exports (% of merchandise exports)
ELC	=	Electricity consumption % of population
OER	=	Official exchange rate (LCU per US$, period average)
ICP	=	Inflation, consumer prices (annual %)
PGR	=	Population growth (annual %)
UER	=	Unemployment, total (% of total labor force) (modeled ILO estimate)
BOP	=	Balance of payment

RESULT S AND DISCUSSION

The regression results observed that the constant parameter ($\beta 0$) has a negative coefficient. Democratic rule (DMR) and fuel export (FEM) have a positive effect on the dependent variable (BOP) while change in government (CIG), official exchange rate (OER), inflation, consumer price (ICP) and unemployment rate (UER) have a negative effect on the dependent variable (BOP).

The coefficient of democratic rule (DMR) shows that a unit increase in democratic rule (DMR) will cause an increase of 2089.614 in balance of payment (BOP). A unit change in government (CIG) will create a fall of 1943.497 in balance of payment (BOP), a unit change in fuel export (FEM) will cause an increase of 85.05667 in balance of payment (BOP), a unit change in change in official exchange rate (OER) will create a fall of 45.72739 in balance of payment (BOP).

Also, a unit change in a shift in inflation, consumer price (ICP) will cause a fall of a 28.80095 in the balance of payment (BOP), a unit change in the change in unemployment (EUR) will create a fall of 4313.222 in the balance of payment (BOP).

$BOP = \beta_0 + \beta_1 DMR + \beta_2 CIG + \beta_3 FEM + \beta_4 OER + \beta_5 ICP + \beta_6 UER + \beta_7 GCE + \beta_8 GNC + e$ BOP = -186046.8 + 2089.614DMR + (-1943.497) CIG +85.05667FEM+(-45.72739)OER+(-28.80095) ICP+(-4313.222) UER+ e

A critical examination of the results as reported above shows that about 69.7 percent of the total variation in the dependent variable (balance of payment) can be explained by the explanatory variables (DMR, CIG, FEM, OER, ICP, and EUR). This is indicated by the coefficient of determination adjusted (R2) value of 0.6968. This implies that (DMR, CIG, FEM, OER, ICP, and EUR) account for 69.7 percent of the variation in the balance of payment (BOP). The remaining balance of 30.3 percent variation in the dependent variables (BOP) can be explained by other factors outside the variables studied.

At a significance level of 0.05, the F-statistics is 8.18 while the p-value of the F-statistics is 0.0002 which is less than 0.05. This implies that the combination of the independent variables (DMR, CIG, FEM, OER, ICP, and UER) significantly influence the balance of payment.

The Granger causality result shows BOP and DMR (0.559); BOP and CIG (0.122); BOP and FEM (0.346); BOP and OER (0.105) and BOP and ICP (0.152). This indicates that a unidirectional relationship exists between BOP, DMR, CIG, FEM, OER, and ICP. This implies that only BOP can cause a change in DMR, CIG, FEM, OER and ICP and not vice versa. The combination of all the variables exert a bi-directional causality with BOP.

The result of the analysis shows that democratic rule (DMR) and fuel export (FEM) have a positive effect on the balance of payment (BOP). The implication of this result is a change in democratic rule (DMR). This result is in line with apriori expectation because political stability triggers economic growth (Alper 2018). The result of the study was consistent with Chen and Li's (2018) who examined the effects of democracy on tariff barrier, trade facilitation and trade openness using panel data of about 150 developed and developing countries in the period from 1974 to 2014. Result showed no evidence that de-

mocracy increases a country's trade openness. An increase in fuel export (FEM) will positively influence the balance of payment (BOP). Nigerians' primary source of foreign trade is crude oil. The result of this study is in line with Nagy et al. (2017) and Omitogun et al.'s (2018) studies.

Aidi et al. (2018) studied the relationship between exchange rate, inflation, and balance of payment in Nigeria (1986 to 2015). Results of this study have indicated a statistically significant negative correlation between the exchange rate, inflation, and balance of payment. They concluded that since exchange rate appreciation will hurt exports, thus reducing overall receivable payments from abroad. Rate of inflation is found to be statistically significant and negatively related to the BOP. Shafi et al. (2015) conducted a comparative study on the fluctuation of the inflation rate, interest rate and foreign exchange rate on BOP and concluded that inflation and the foreign exchange rate has positive effect while interest rate hurts BOP in both Pakistan and India. They wrote that "Inflation rises then the required interest rate also increases. The high-interest rate prefers the investors to invest in those countries."

Furthermore, the finding also shows that change in government (CIG), official exchange rate (OER), inflation, and consumer price (ICP) and unemployment (UER) hurt the dependent variable (BOP). The implication of this finding is that an increase in change in government (CIG), official exchange rate (OER), inflation, consumer price (ICP) and unemployment (UER) will cause a decrease in the balance of payment (BOP). This result is identical with Bahmani-Oskooee and Gelan's (2018) study who researched exchange-rate volatility and international trade performance (12 African countries), based on the short-run and long-run effect with restrictions to the exports of five countries and the imports of only one country. They concluded that the major determinant of international trade is the level of economic activity.

CONCLUSION

The study examined the effect of environmental factors on international trade by assessing the impact of political, economic, social, and technological forces on global trade flow in Nigeria. The study contributed to knowledge determining the concentration on the trend of political factors (tariff and government expenditure), economic factors (exchange rate and inflation rate), social factors (population rate and education level) and technological factors (electricity consumption) and their impact on international trade in Nigerian economy from the period of 1997 to 2017.

Using the regression analysis and Granger Causality Walds Test to explores relationship among variables, at a significance level of 0.05, it can be concluded that the combination of the independent variables (DMR, CIG, FEM, OER, ICP, and UER) significantly influence balance of payment (F-statistics is 8.18 while the p-value of the F-statistics is 0.0002). The Granger causality result shows that the combination of all variables have a bi-directional causality with BOP while a unidirectional relationship exists between BOP, DMR, CIG, FEM, OER, and ICP. This implies that only BOP can cause a change in DMR, CIG, FEM, OER, and ICP and not vice versa.

RECOMMENDATIONS

Based on the findings, this study comes up with the following recommendations.

Nigeria should adopt more policies on trade liberalization, like growing of global trade. The result concerning exchange rate implies that policymakers should take long term policies because, in the long term, a stable currency depends on economic fundamentals. To have a stronger exchange rate, Nigeria will need a combination of low inflation, productivity growth, economic and political stability.

The research also reveals that technological factors have a significant effect on the international trade of Nigeria. Therefore, the Federal Government should invest more resources in the research and development segment of the country for technological advancement. Investors should also ensure that they adopt the latest technology to have a higher competitive advantage. There is a need for political stability and effective political policy which would nurture investor's willingness to come to Nigeria to invest.

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