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Effect of Macro-Economic Variables on Non-oil Exports Performance in Nigeria

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ABSTRACT
This study examined the effect of macro-economic variables on non-oil exports in Nigeria considering the dismal performance of the sector over the years as oil exports and consequent earnings of huge petrol dollars have relegated non-oil sector to insignificant economic value. The study adopted ex-post factor while validated data on non-oil exports was sourced from Central Bank of Nigeria (CBN) statistical bulletin on study variables over the period of 1985 to 2020 and also employed multiple regression techniques to analyze the data. Similarly, descriptive statistics and inferential statistics (unit root test, Johansen cointegration and error correction mechanism) were employed as the estimation techniques. The macro-economic variables were proxied by balance of payment, inflation and interest rate while time series data on non-oil export was employed. The study revealed that all the macro-economic variables were not significant factors that contribute to the performance of non-oil sector in the short-run but rather showed that there is long run relationship between total value of non-oil export and the explanatory variables. Therefore, it is urgently necessary for governments to pay more attention to these significant variables if non-oil sector is to improve in the long run and contribute positively to non-oil export development in Nigeria.

KEY WORDS: Balance of payments, interest rate, inflation, non-oil export.

I. Background

The contributions of non-oil exportable products in Nigeria have been dismal over the years as non-oil exports (NOE) earnings constitutes 33% of total exports in 2010, while oil exports earned 67% in the same year as against non-oil exports contribution of 67% and oil sector export's contribution of 33% in 1970 (CBN,2010). Furthermore, Igue and Ogunleye (2014) stated that discovery of oil in the early 1970s skewed the exports structure in favour of oil export as Non-oil export (NOE) which accounted for 97.4 % of the total exports in 1960 fell to 3.9% and 3.6% in 1980 and 2010 respectively. However Ewubare, Ajie, and Ojiya (2017), opined that export earnings capacity is a vital source of national revenues for both the developing and developed countries. Alguacil, (2002); Berg, (2012); Onodugo, (2013); and Sheridan, (2014) also posited that efforts made to boost productivity of non-oil sector in the long run have not yielded desired results due to instances of inconsistent policies implementation, misplacement of economic priorities; and inadequate patronage of home made goods have altogether led to poor performance of the non-oil sector.

Furthermore, Imoisi (2012) observed that BOP position have been underperforming due to relatively poor non-oil export receipts, high import bill, low agricultural productivity, high taste for foreign goods and services causing continuous fall in the country's foreign exchange reserves, inflationary pressure, and incidents of 'Dutch Disease' on account of improper handling of proceeds of oil boom in Nigeria. Further Augusto (2018) identified three (3) key prices in every economy namely; interest rate, inflation rate, and exchange rate but inflation is the most significant amongst the three because it drives both interest and exchange rates. Similarly, Stiglitz (2002) stated that it was hard to believe that bank interest on loans in Nigeria is going up from 30% to 40% in an environment that is not producing and further opined that it is obvious that not just high interest rates that should be addressed but issue of providing money to the private sectors to create jobs.

Ananwude and Okoye, (2017) posited that any change in the value of the US dollar threatens the Nigeria's economy due to its dependence on crude oil proceeds which account for over 95% of revenue earnings and the situation is further compounded by citizens who have patterned their consumption to foreign goods to the detriment of locally produced goods. Further Owolabi and Adegbite, (2012) stated that there are also problems created by conflicting and inconsistent macroeconomic policies causing massive depreciation of currency (naira) due to inflation couple with huge cost of borrowing (Interest Rate) in the money market. This has resulted in making non-oil exportable products becomes less competitive on the world markets while the oil industry has effectively crowded out other export industries thus reinforcing Nigeria's overdependence on oil. However, there has been some divergent views in this regard. Therefore, this study hypothesised that, H_{01}: Balance of payment has no significant relationship with the non-oil export performance in Nigeria; H_{02}: inflation has no significant relationship with non-oil export performance in Nigeria; Ho_3: Interest rate has no effect with non-oil export performance in Nigeria.

Hypotheses Development: Rasaq (2013) examined the impact of balance of payment on non-oil export performance variables in Nigeria and findings shows that balance of payment has a positive influence on non-oil export performance in the country while Dada and Oyeranti (2012) also examined balance of payment on non-oil export performance aggregates in Nigeria and found no evidence of a strong direction between changes in the exchange rate and GDP growth, rather the country's growth has been directly affected by fiscal and monetary policies and other economic variables which is majorly oil export. Enoma and Mustafa (2010) studied the impact of interest rate and non-oil export in Nigeria using multiple regression techniques and found that interest rate and non-oil export performance was equally significant at one (1%), while interest rate and exchange rate were significant at 5% and asserted that there exists a long run relationship between non-oil export supply and money supply, exchange rate, and interest rate.

II. Review of Literature

Balance of Payment (BOP) is defined as a systematic record of economic and financial transactions between residents of a country and non-residents for a given period usually a year. Makin (2014) stated that under the Bretton Woods system, balance of payments problems arose when there were persistent depletion of the foreign currency reserves of a Central Bank. This could occur when there is an increased demand for imports, or a fall in foreign exchange earnings due to low income coming from the sale of exports.

Inflation can be defined as a regime of persistent rise in price levels of goods and services. Thus a country with high inflationary rate will experience loss in value of currency when compared with other country's currency with low level of inflation. In other words, the annual rate of inflation is the rate at which the local currency losses purchasing power every year (Augusto, 2018). Thus Magaret Thatcher calls inflation 'the unseen robber of those who saved', and Augusto (2018) posited that knowledgeable investors always take expected inflation into account when making investment decision as they always want the returns on their investment (ROI) to beat expected inflation otherwise they will lose purchasing power. Also Greanidge and Dacosta, (2009) expressed the need to understand the link between inflation rate and non-oil export which is simply because rising price level impairs export growth through increase in cost of production, increase in interest rate, reduction in firms' profit, decline in investment, decline in production and the engendering of uncertainty of investment and resource allocation which ultimately retards productivity and a decline in the volume of non-oil export.

Interest: Ngure (2014) defined **interest rates** as the price a borrower pays for the use of the money they borrow from a lender or fee paid on borrowed assets. Irungu (2013) opined that interest rates are major economic factors that influence economic growth in any country while Keynes, (2006) asserted that inflation and inflationary expectations can push interest rate upward and its consequent effects on lending rates has the tendency to reduce the volume of credit demand, curtailed lending ability of commercial banks, and this may hurt non-oil export financing.

Non-oil Exports: Non-oil exports are those commodities excluding crude oil and its products which are sold in the international market to earn foreign exchange. The Nigeria's non exports sector is structured into four broad constituents such as agricultural exports, manufactured exports, solid mineral exports, and merchandise services exports (Akeem, 2011). This was corroborated by Abogan, Akinola, and Baruwa, (2014) which asserted that non-oil export products are numerous as they include agricultural crops, manufacturing goods, solid minerals, entertainment and tourism services. Similarly, Akeem (2011) defined the non-oil sector of the Nigerian economy as the whole of the economy less oil and gas sub-sector. Thus Owuru and Farayibi, (2016) also stated that the performance of export is seen as catalysts for overall development as it has the potentials to increase foreign exchange earnings thus creating pathways for growth through raising gross national income of the country while Balogun (2009) revealed the importance of non-oil exports especially agriculture and manufacturing on the continual growth of Nigerian economy and which cannot be ignored hence, there is the need to nurture the sector towards continuous productivity. Also, Okunade (2019) posited that the non-oil exports rose by over 30% in value between 2018 and 2019 and Central Bank of

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Nigeria had also affirmed that the total value of exports increased by 2.5% to reach ₦14.4 trillion as at the 3rd quarters of 2019. In addition, Familusi (2020) employed simple random sampling technique using structured questionnaire to analyse the challenges undermining the promotion of non-oil export in Nigeria and found that poor access to finance and that lack of capacity and sustainability of supply of exportable goods competitively to international market discourage the promotion of non-oil exportable product and services thereby undermining the performance of non-oil sector export in Nigeria.

Method of Data Analysis: This study adopted both descriptive and inferential statistical method of analysis. Diagnostic tests were carried out on the data to ascertain suitability of the models.

Model Specification: The value of non-oil export is affected by the following variables; balance of payment, inflation rate, and interest rate being proxy for macro-economic variables.

$Y = f(X)$; Y_t = Dependent; X_t = Independent; Where:Y_t = Non-Oil Export; X_t = Macro-economic variables; $X_t = (x_1, x_2, x_3,)$; Where:x_{1t} = Balance of Payment (BOP_t); x_{2t} = Inflation (INF_t); x_{3t} = Interest Rate ($INTR_t$); and Y_t = Non –Oil Export (NOE_t)Y_t= f (X). The variables in Equation 1-3 are the working equations to be evaluated in this study. $NOE_t = a_0 + \beta_{1BOPt} + e_t$----- (1) ; $NOE_t = a_0 + \beta_{2INFLt} + e_t$---- (2). $NOE_t = a_0 + \beta_3 INTR_t + e_t$-------- (3) ; $NOE_{t=} a_0 + \beta_{1BOPt} + \beta_2 INF_t + \beta_3 INTR_t + e_t$

4.3. Descriptive Analysis: Descriptive analysis of the study provides an overview on the data set while attempt was also made to describe the main features of the data.

Table 4.1: Descriptive Statistics

Statistics	BOP	Inflation	Interest Rate	Non-Oil Export
Mean	30.80226	20.01871	1.268484	3.870968
Median	5.582000	12.00000	4.700000	3.070000
Maximum	543.1000	73.00000	26.40000	8.840000
Minimum	-155.2000	5.300000	-44.00000	1.280000
Standard deviation	114.2988	18.94519	17.72839	2.134383
Skewness	3.398318	1.528981	-1.042523	0.684578
Kurtosis	15.40329	3.903545	3.744247	2.275300
Jarque-Bera	258.3798	13.13305	6.330872	3.099715
Probability	0.000000	0.001407	0.042196	0.212278

Source: E-View Output

Table 4.1 presents information on the descriptive statistics for the series as indicated.

4.2 Stationarity Tests for the Time Series

In this study, all variables went through the ADF and PP tests. The results are presented in Table 4.2.**Table 4.2: Unit Root Test Results**

	Augmented Dickey Fuller					Phillip Perron Test				
Variables	**Test Statistic**	**1% Critical Value**	**5% Critical Value**	**10% Critical Value**	**Order**	**Test Statistic**	**1% Critical Value**	**5% Critical Value**	**10% Critical Value**	**Order**
BOP	-5.166	-3.639	2.951	-2.614	I(0)	-4.489	-3.632	-2.948	-2.612	I(0)
Non-oil Export	-5.923	-3.639	-2.951	-2.614	I(1)	-5.199	-3.639	-2.951	-2.614	I(1)
Interest Rate	-7.558	-3.639	-2.951	-2.614	I(1)	-7.850	-3.639	-2.951	-2.614	I(1)
Inflation	-5.452	-3.632	-2.948	-2.612	I(0)	-5.489	-3.632	-2.948	-2.612	I(0)

Source: Computation by the Author

The ADF test results suggest that balance of payment (BOP) and inflation rate were the only stationary variables in level form. The result from the Table 4.2 indicates that all other variables (non-oil export and interest rate) are not stationary at the level form, but became stationary after the first difference. The Phillips-Perron test also confirmed that BOP and inflation rate are stationary at the level form, while non-oil export and interest rate are stationary at first difference. The study concluded that non-oil export and interest rate was non stationary in level form while the rest of the variables were stationary in their levels. The estimation of the model is done in the form at which the variables are stationary.

Co-integration Test

Eigen value	Likelihood ratio	5% percentage Critical value	Hypothesizes No of CE(s)
0.667886	65.74259	47.85613	None *
0.546474	33.77659	29.79707	At most 1 *
0.311753	10.84618	15.49471	At most 2
0.000399	0.011571	3.841466	At most 3

The result shows that there exists one (1) cointegrating equation at 5% level of significance. This is because the likelihood ratio is greater than the critical value at 5%. This shows that there is long run relationship between total value of non-oil export and the explanatory variables. In other words, they possess the characteristics that would cause the variables to converge in the long-run.

Error Correction Model

Variables	Coefficient	Std error	t-statistics	Probability
C	431.0560	1340.340	0.32160	
D(BOP)	-0.191463	0.19145	-1.00006	
D(INF)	-0.000959	0.00053	-1.79659	
D(INT_RATE)	-0.001176	0.00049	-2.40784	

$R^{2=}$ 0.424337; $R^{-2=}$0.136503, and F-Statistics=1.474254

From table, it could be seen that balance of payment D(BOP) accept its apriori predicted sign of negative. This shows that a change in D(BOP) variable will lead to a negative change in the performance of non-oil sector in Nigeria. Precisely, one per cent increase in D(LBOP) will lead to -0.191463 decrease in non-oil exportation in Nigeria. The estimated coefficient of Inflation D(INF) was found to be -0.000959. Thus, a direct relationship with non-oil export was not established. Interest rate D(INT_RATE) has a non-significant negative impact on non-oil exportation in Nigeria such that 1% increase in D(INT_RATE) will leads to -0.001176 decrease in non-oil export.

4.5 Summary of Findings

Analysis of data was conducted and first model of the study showed that p-value of 0.442955 of the F-statistics associated with the coefficient of balance of payment at the acceptable level of 5%, which indicated that balance of payment had no significant relationship with the non-oil export sector in Nigeria; Second model revealed that the p-value of 0.6844 of the F-statistics associated with the coefficient of inflation at the acceptable level of 5%, which indicated that inflation had no significant relationship with non-oil export in Nigeria; and thirdly, the p-value of 0.884882 of the F-statistics associated with the coefficient of interest rate at the acceptable level of 5%, indicated that interest rate does not have effect on non-oil export in Nigeria.

4.5. Discussion of Findings

The findings of this study indicated that balance of payment had no significant relationship with the non-oil export sector in Nigeria. Udude, (2015) posited that Nigeria's balance of payments recorded remarkable improvement during the period 2004/2005 but became worsened in 2008 as a result of the global financial and economic meltdown coupled with the falling prices of crude oil in the international oil market. Gbosi (2009) observed that the non-oil sub-sector has continuously faced BOPs deficits notwithstanding federal government's efforts to embrace incentives aimed at encouraging non-oil exports. This observation would suggest alternative implementable strategies that would diversify the economy away from oil to non-oil exports. Similarly, result of the second model indicated that inflation had no significant relationship with non-oil export in Nigeria. Similarly Iya and Aminu (2014) found that money supply and interest rate influenced inflation positively but government expenditure and exchange rate influenced inflation negatively and however, reduction in money supply and interest rate while increasing government expenditure and exchange rate in the country can only impact the development of the non-oil export sector in the long run.

Furthermore the third model result also indicated that interest rate has no significant effect on non-oil export in Nigeria. This confirmed the findings of Enoma and Mustafa (2010) that interest rate and non-oil export performance was equally significant at 1%. While interest rate and exchange rate were significant at 5% and there exists a long run relationships between non-oil export supply and money supply, exchange rate and interest rate. Meanwhile, Onwe (2013) asserted that statistics indicate that the Nigerian non-oil exports have not had significant contributions to international trade. However, Awolowo (2016) stated that recent fluctuations in the world oil prices has yet presented government economic authorities the opportunity to have a rethink and identify positive things non-oil exports could add to our economy as the present situation could be a blessing in disguise because it offers Nigeria an opportunity to diversify her economy away from its monolithic oil dominated economy and boost non-oil export sector.

4.6 Recommendation

- There is need for huge attention to the level of funding of non-oil exports in terms of credits availability and affordability to improve production activities of manufacturing exporters; while also intentionally promoting production of non-oil exports more than marketing promotion as presently being done to boost balance of payment;
- Monetary authority is expected to streamline the monetary and fiscal policies towards reducing excessive consumption of foreign goods while encouraging patronage of home made goods;
- Governments and financial institutions should improve funding of agri-business especially food production to reduce import bill. It is also obvious that, when bumper harvests of food production is achieved, cost of house hold items is expected to fall and this is likely to cause reduction in the rate of inflation to barest minimum;
- There is the need to accelerate bio-metric capturing of borrowers to resolve issues of identity management in order to encourage banks to grant more credits at low interest rate for export financing;
- Governments must deliberately invest to ensure radical improvement in transportation system and energy sector diversification towards embracing solar power, bio-gas, coal and greening of the environment to boost production of non-oil exportable goods in order to improve the nation's gross domestic products (GDP);
- There is also the need to address all the significant factors affecting non- oil export production to ensure sustainability of production levels, international competitiveness, and to induce high demand for our products in the international market.

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