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Effect of Trade Liberalization on the Economic Development of Nigeria at the Micro Level and Aggregate Output

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Abstract
This study investigated the effect of trade liberalization on the economic development of Nigeria at the micro level and aggregate output, from 1970 to 2020. Data were collected from Central Bank of Nigeria (CBN) statistical report bulletins, CBN online data base, National Bureau of Statistics, International Financial Statistics as well as World Development Indicators of World Bank for the period 1970-2020. The data were analyzed using the 2SLS regression technique with the help of Eview9 software. Unit root test was carried out using ADF to ensure the stationarity of data, Error Correction Model was used to stationalize the non-stationary data and finally co-integration test was carried out and a long-term relationship was ascertained to exist among the variables. The effect of trade liberalization on the economic development of Nigeria was determined by its effects on poverty, inequality of income distribution, per capita gross domestic product and employment. The study found that degree of openness has a negative and insignificant effect on poverty, a positive and significant effect on income inequality, negative and significant effect on per capita GDP and a positive and significant effect on employment. Trade openness has a negative but insignificant relationship with overall aggregate output at the long-run and a positive insignificant value at the short-run. The study recommends amongst others that the government and private sector engage in wealth generation programmes at the rural areas, to help close the income inequality gap.
Keywords: Trade Liberalization, Effect, Per capita gross domestic product, Poverty, Income distribution, Employment, Aggregate output.
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1. Introduction

The initial trends of trade liberalization can be traced to the periods between the 1820s and the 1840s of which, freer trade occurred according to a bilaterally agreed reciprocal tariff reductions where agreements with other nations on mutual tariff reductions were done. Although, late 1840s preceding the onset of the middle of twentieth century, nations initiated separate decisions and resolutions on decreasing hindrances and difficulties on buying and selling. Remarkably in view of this, there existed the abolishment of Britain's Corn Laws of the 1846 that terminated affected nation's utilization tariffs laid down to guard its agriculture and manufacturing sectors from foreign competition. Through that act and achievement, the nation operated autonomously and freely in lowering import levels. This resulted partially from the failure of Britain to attain satisfactory mutually beneficial contracts with other nations that were vigilant in protecting their national markets to be controlled and governed by its leading and prominent industries. Furthermore, the new opinion of rule was assumed to increase the nation's wealth owing to low imports as consumers gained and the costs of trade reduced (WTO, 2007).

Following dramatic World War II, bureaucratic and business-related joint efforts that search for fall - offs of buying and selling hurdles and difficulties throughout the nations, piloted the formation of the General Agreement on Tariffs and Trade (GATT) of the year 1947. The GATT existed as the official and recognised organization to supervise and govern trade among nations and provide solution to the possible barriers that may possibly arise (Alugbuo and Sebastian, 2020). The formation of GATT enhanced movement to the sizeable liberalization regarding global buying and selling as well as supported constant and stable growth and development of the worldwide buying and selling (WTO, 2013).

The GATT existed as a group regarding joint legal and equitable trade understandings and concords led to minimizing buying and selling hurdles via reducing tax levels as well as abolishing allocations amongst engaging nations across the globe. GATT pursued to guarantee that trade among participant countries were operated without bias and bigotry. Participant countries were to make their markets accessible freely to every other country participant. Under GATT, any contract and concord reached by any two participant nations of GATT towards lowering the tax levels certainly stretched to other country participants. In addition, the GATTs comprised lengthy memorandum had specific tax recognitions of each engaging country, denoting and

signifying tariff levels that each nation had concord to spread to participating countries. GATT also chose the usage of tariffs to import allocations or other quantifiable trade constraints for protection and guard; it constantly and continuously chased the eradication of the latter. GATT integrated other wide policies for instance, the standardization in customs rules and the prerequisite of each participating country to bargain reductions in tariffs levels on bid by another country. Despite that, at whatever time trade agreements result to too much deficits to national producers, GATT established precaution for avoidance article permitting concord countries to change the agreements and contracts through tariff adjustment (GATT, 1994; WTO, 2013)..

Trade dialogues between world trade organization participants involve persisted talks for decreases in tax rates, as well as the demolishing of non-tariff obstructions to buying and selling, for instance, permission, authorizations, allocations as well as high-tech stipulations (WTO, 2017). The major important objectives of the WTO include presenting a mode for bargaining and scrutinizing additional trade liberalization in the nations; ascertaining and executing policies for international trade; and settling trade disagreements.

According to Hammouda (2004) before 1980, only some countries supported free trade policies, such countries include Japan, Hong Kong, Singapore, South Korea, as well as Taiwan. Mwaba, (2000) noted that by the year 1990 several countries joined and they include Chile, Ghana, Uganda, Kenya as well as Nigeria initiation of trade liberalization. As noted by Adenikinju (2005), Nigeria's trade policy since 1960 has passed through phases of extreme protectionism to its present liberal state. From 1960 until the middle 1980s methods like high import levels and quantitative restraints were applied to help trade policy which was proposed to safeguard and preserve the domestic agricultural and manufacturing sectors. This course of policy was informed by the Import Substitution Industrialization (ISI) as well as indigenization policy of the government with respect to advancing and growing agricultural and manufacturing sectors. The intention of the trade policy in this period was to boost domestic production by discriminating in favour of capital goods against consumer goods.

Between the year 1985 and the year 2000, Nigeria's trade policy moved considerably towards greater liberalization of trade and the pricing technique. This existed in the direction of diversifying export in addition to improving financial worth towards the export of agricultural products (Adenikinju, 2005).

The enactment of Structural Adjustment Programme (SAP) in 1986 resulted in the elimination of the import as well as export licensing system, bureaucratic controls on trade, as well as foreign exchange control on all current transactions. Also, to enhance link to foreign raw materials and intermediate goods for use by exporting firms in the manufacturing sector, the duty drawback/suspension scheme was introduced (Omoke, 2007). Also put in place was the Second-tier Foreign Exchange Market (SFEM) allowing market forces determine the exchange rate of the naira. This price determination mechanism ended the use of administrative discretion in the allocation of foreign exchange to end-users. Beginning in the year 2001 up till 2012, international trade was increasingly liberalized and targeted on private-enterprise led development and diversification of export, in an effort to improve non-oil export earnings. By deregulation, the Nigerian government tried to remove or simplify government rules and regulations that inhibit the operation of market forces, bringing about competition among key players in the market (Okezie and Amir, 2011). Therefore, the main purpose of Nigeria's trade policy was to corroborate and aid generation and delivery of goods and services for both domestic and international market, with the intention of attaining improved economic growth and development.

Prior to liberalization in Nigeria, administrative fiat rather than market forces determined product and input prices in the economy. The commodity boards were responsible for determining producer's prices for some agricultural commodities. Those prices were invariably, lower than world market price. There were internal and external imbalances, resulting from price distortions, thus constraining output levels and general economic developments. Farmers who received lower prices were discouraged from producing more. Distortions were in the form of fixed exchange rate system, which led to currency over-valuation and the necessitated foreign exchange rationing, restrictive trade and pricing policies, which offer considerable protection to domestic industries, fostering import dependence and imposition of heavy implicit taxation on farmers.

Nigeria adopted the more market-based policy measure in July, 1986. The policy instrument measure aimed at institutional reform in entailing the abolition of commodity boards and the adjustment of the exchange rate. Thus, a market determined exchange rate was adopted from September, 1986 and the interest rate from July, 1987. The desired structural change and growth of the Nigerian economy was anchored on the development of agricultural sector.

Despite their developmental planning, Nigeria economy still exhibit high rate of unemployment, low productivity, and low per capita and mono-cultural dependence on oil. However, these constitute distortions in the economy which has made natural economic liberalization imperative while liberalization took the form of structural adjustment program (SAP) in order to tackle the problem of economic imbalances in the economy. Therefore, this paper seeks to estimate the effectiveness of trade liberalization on the overall economy of Nigeria especially the micro-economic indicators and also the overall aggregate output.

2. Methodology

First, the effect of trade liberalization on the economic development of Nigeria at the micro level, was ascertained. This was done by using 2-Stage Least Square. The effect of trade liberalization on the economic development of Nigeria was measured by its effects on the level of per capita gross domestic product, poverty, inequality of income distribution and employment. These indicators are taken from the definition of development presented by Seers Dudley in 1972.

Theoretically, these indicators of development are assumed to affect and be affected by each other. For example, employment level and GDP per capita are mutually dependent on each other. Similarly, GDP per capita and the Gini coefficient, according to Kuznet's hypothesis, are interdependent. In econometric terms such interdependence among the endogenous variables gives rise to the problem of simultaneity across them. As such, simultaneity among the chosen variables necessitates the formulation of the model and its estimation in a way that the analysis yields valid results. To this end, a simultaneous equations model is specified as shown below, and was estimated by using the 2SLS regression technique. The model is adopted from Yasmin *et al.* (2006).

$$LnP_t = \alpha_0 + \alpha_1 LnG_t + \alpha_2 LnGDPC_t + \alpha_3 LnEMP_t + \alpha_4 LnDOPS_t + \alpha_5 \mathrm{DUM}_t + \mu_t \quad (1)$$

$$LnG_t = \beta_0 + \beta_1 LnGDPC_t + \beta_2 LnCPI_t + \beta_3 LnDOPS_t + \beta_4 \mathrm{DUM}_t + \mu_t \quad (2)$$

$$LnGDPC_t = \gamma_0 + \gamma_1 LnEMP_t + \gamma_2 LnHK_t + \gamma_3 LnINV_t + \gamma_4 LnDOPS_t + \gamma_5 TG + \gamma_6 \mathrm{DUM}_t + \mu_t \quad (3)$$

$$LnEMP_t = \lambda_0 + \lambda_1 LnGDPC_t + \lambda_2 LnW_t + \lambda_3 LnINV_t + \lambda_4 TG + \lambda_5 LnDOPS_t + \lambda_6 \mathrm{DUM}_t + \mu_t \quad (4)$$

Where;

P = Poverty (Poverty for the purpose of this study is measured by Head Count Ratio Index.

G = Household Gini coefficient (The Gini coefficient measures income inequality. It is based on the percentage share of income received by different proportions of the population).

GDPC = Per capita Gross Domestic Product (GDPC is determined by dividing the GDP by population of the country).

EMP = Employed labour force, (Employed labour force is that portion of the total labour force which is employed in paid jobs and self-employed).

CPI = Consumer price index that measures inflation (Inflation is defined as the annual rate of increase in prices and is represented by the Consumer Price Index).

HK = Human capital (Human capital is measured and represented by primary level enrolment rates (in thousands) for the whole economy).

W = Real wages (Real wages are the payment made by the employers to their employees for the work done. Real wages were constructed by dividing the annual nominal wages by the corresponding real CPI).

INV = Ratio of domestic investment to GDP (It accounts for both the public and private investment that has taken place in the economy over the study period).

TG = Type of government (represented by dummy variable with 1 for democratic government and 0 otherwise)

DOPS = Degree of Openness (the trade-GDP ratio or degree of openness that is obtained by dividing the sum of exports and imports by GDP).

DUM = Dummy (which took the value of 0 for periods before trade liberalization and 1 in the rest of the periods).

Secondly, the overall effect of the trade liberalization policy on Nigeria aggregate output, was also determined. This was realized by using Ordinary Least square as adopted from Etuk *et al.* (2017). The econometric forms of the model are specified thus:

Long run model:

$$LnGDP_t = \beta_0 + \beta_1 Ln\text{DOPS}_t + \beta_2 Ln\text{AGINV}_t + \beta_3 Ln\text{INT}_t + \beta_4 Ln\text{EXCR}_t + \beta_5 Ln\text{CPI}_t + \beta_6 Ln\text{DUM}_t + \mu_t \quad \ldots\ldots (5)$$

Where;

GDP = Gross Domestic Product (Naira)
DOPS = Degree of openness (Sum of export and import as a percentage of GDP)
AGINV = Aggregate investment (Naira)
(Government aggregate investment here is the sum of domestic and foreign direct investment inflow to the country. Domestic includes private and public investments)
INT = Interest rate (%)
EXCR = Real exchange rate (US dollar/naira)
CPI = Consumer price index (measured in points as a percentage of base year)
DUM = Dummy (which took the value of 0 for periods before trade liberalization and 1 in the rest of the periods)
Ln = the logarithm of the variables
β_0 = constant/intercept
$\beta_1 - \beta_6$ are the coefficients of the explanatory variables
μ_t = the error term

Short run Model:

$$LnGDP_{t-1} = \beta_0 + \beta_1 Ln\text{DOPS}_{t-1} + \beta_2 Ln\text{AGINV}_{t-1} + \beta_3 Ln\text{INT}_{t-1} + \beta_4 Ln\text{EXCR}_{t-1} + \beta_5 Ln\text{CPI}_{t-1} + \beta_6 Ln\text{DUM}_{t-1} + \text{ECM}_{t-1} + \mu_{t-1} \quad \ldots\ldots (6)$$

Where;

ECM_{t-1} = Error correction mechanism in period t-1.

All the variables are lag values of the variables specified in equation 5.

3. Results

Effect of trade liberalization on the economic development of Nigeria at the micro level

The effect of trade liberalization on the economic development of Nigeria was determined by its effects on the level of per capita gross domestic product, poverty, inequality of income distribution and employment. Theoretically, these indicators of development are assumed to affect and be affected by each other. In econometric terms such interdependence among the endogenous variables gives rise to the problem of simultaneity across them. Being aware of the simultaneity problem in the equations, the next step was to identify the four equations that have been specified in (1) – (4). So, the results of the model identification based on order condition and rank condition are presented in Table 1.

Table 1: Identification results for order conditions and rank conditions

No	Equation	(K-M) ≥ (G-1)	Rank condition	Order Condition
1	LnP	5 > 3	Identified	Overidentified
2	LnG	6 > 3	Identified	Overidentified
3	LnGDPC	4 > 3	Identified	Overidentified
4	LnEMP	4 > 3	Identified	Overidentified

Source: Author's computation

From the result of the test as presented in Table 1, it can be seen that all the four equations are identified as overidentified equations. To this end, a simultaneous equations model as specified in Equations (1) – (4) were estimated by using the 2SLS regression technique. The empirical result of the estimation is presented in Table 2.

Table 2: Two-stage least squares estimation results of the effect of trade liberalization on the economic development of Nigeria at the micro level

Variables	LnP	LnG	LnGDPC	LnEMP
C	−11.077	5.195	0.875	−1.237
	(−1.874) *	(4.549) ***	(12.183) ***	(−2.914) ***
G_t	3964.413	-	-	-
	(0.67)			
$GDPC_t$	-2.0979	-0.660	-	0.711
	(-7.01) ***	(-5.33) ***		(10.105) ***
EMP_t	-0.1101	-	1.4578	-
	(-2.44) **		(2.12) **	
$DOPS_t$	-1.8862	0.095	-0.175	0.114
	(-1.2451)	(2.111) **	(-1.797) *	(2.412) **
CPI_t	-	0.5362	-	-
		(5.89) ***		
HK_t	-	-	-0.1022	-
			(-1.074)	
INV_t	-	-	0.1244	-0.126
			(2.012) *	(-0.850)
TG_t	-	-	0.655	-0.129
			(0.5514)	(-1.327)
W_t	-	-	-	-1.002
				(-1.143)
DUM_t	1.123	994.559	50.565	0.6541
	(0.4240)	(0.2720)	(0.5554)	(0.7845)
R^2	0.78	0.67	0.91	0.94
F-Statistic	212.444***	87.345***	114.378***	109.645***
DW	1.988	2.145	2.094	1.932

Source: Extract from Eviews9 Output. Note ***, ** and * represent 1%, 5% and 10% levels of significance respectively
(Figures in parentheses are t-values)

Result in Table 2 shows the two stage least squares estimates of the effect of trade liberalization on the economic development of Nigeria at the micro level. From Table 2, the first column showcases all the variables in the system of equation. The second column provides the estimates obtained from 1st equation (1). Column three (3) shows the results of the 2nd equation (2) whereas the fourth column reports equation three (3)'s result. On the other hand, column five (5) that is the last column provides the estimates of the 4th equation (4).
The result shows that the F – statistics is significant, confirming the significance of the entire model. The Durbin-Watson (DW) of statistic 2.135 indicated absence of serial correlation in the error terms, which implies that they are distributed as white noise. The R^2 value is also high in each case.

The result in Table 2 shows elasticity of Degree of openness (-1.8862) with respect to poverty is negative and insignificant. This implies that trade liberalization policy denoted by DOPs has not been able to reduce poverty in the country. By *a priori* expectation, poverty is meant to be negative as every effort of development is geared towards reducing poverty. But then it is statistically insignificant here, showing that poverty has continued to increase regardless of the effort of government in liberalizing trade in Nigeria. On the other hand, the coefficient of GDPC (-2.098) is negatively signed and significant at 1% alpha level. This means that GDP per capita (GDPC) has an elasticity of -2.09. However, this relation is positive and significant at the 1% significance level. This means that a percentage increase in real GDP per capita would result in a 2.1% decrease in poverty level and vice versa. This is in line with *a priori* expectation and supports the submission by Yasmin, *et al.,* (2006) who found a negative relationship between real GDPC and poverty in Nigeria.

The elasticity of Employment (-0.1101) is inelastic and statistically significant at 5%. This result is suggestive of an inverse relationship between poverty level and employment level. This implies that a 1% increase in employment opportunities would decrease poverty level in Nigeria by 0.1%. The implication of this result is that employment is the most important macroeconomic variable in poverty reduction in Nigeria and by extension enhances economic development in the country.

With respect to the second economic development parameter (income distribution) proxied by Gini coefficient (G), trade liberalization (DOPS) coefficient is statistically and positively significant at the 5%level of significance. This implies that a unit increase in degree of openness (trade liberalization policy) would result to increasing income inequality by 0.095. This also suggests that with liberalization, the rich are getting richer while the poor are getting poorer. Wealth or income distribution is getting concentrated more in favor of capital owners (the wealthy) in the country.

The elasticity of GDPC (0.660) is also less than unity and statistically significant at 1% significant level. This implies that GDP per capita growth exerts a positive influence on income inequality and as such, would significantly reduce inequality of income distribution in Nigeria *ceteris paribus*. Specifically expressed, a 1% increase in GDP per capita (GDPC) would be associated with 0.7% decline in income inequality and vice versa.

Conversely, the coefficient of Consumer Price Index CPI (0.5362) is positively signed and is significant at 1% significant level. This implies that inflation (CPI) influences income distribution very adversely. Inflation exerted a negative influence on inequality in Nigeria during the study period. The effect of inflation on income distribution observed in this study is in agreement with that of Yasmin, *et al.,* (2006).

The effect of trade liberalization on GDPC, as reflected in the third equation of the system of models is negative and significant as reflected on the elasticity (-0.175). The elasticity is significant and less than unity. This implies that increase in liberalization (degree of openness) decreased GDP per capita (GDPC) growth in Nigeria during the period under study. This is at variance with *a priori* expectation. It may be due to the introduction of certain policies concerning investment and import substitution, which could not lead to higher economic growth and increased level of GDP per capita as a result of liberalization of trade (Yasmin *et al*., 2006). Another plausible reason according to Yasmin, *et al.* (2006) could be the increased use of technologies which are capital intensive rather than labor-intensive methods of production. Since a large proportion of the national labor force is semi-skilled or unskilled, its productivity under the use of high tech capital method of production may not have increased significantly.

Employment opportunities exerted a positive influence on the GDP per capita in Nigeria during the period under study. This implies that a 1% increase in employment opportunities would be associated with a 1.5% increase in GDP per capita (GDPC). Similarly, the coefficient of Public and Private Investment (public and private investment that have taken place in the economy over the study period) is positive and significant at 10% level of significance. This implies that a unit increase in Public and Private investment would lead to 0.12% in GDP per

capita (GDPC). This is as expected because capital investment in infrastructure and the likes enhances production which promotes GDP per capita (GDPC) growth.

As regards the relationship between degree of openness and employment, the result in Table 2 shows that employment has been affected significantly and positively by trade liberalization (Degree of Openness). This might basically be due to increases in imports as a result of flexible import tariffs and the likes which made it possible for people to engage in international trade. GDPC has also affected employment positively given the significant elasticity of 0.711. This implies that 1% increase in GDP per capita (GDPC) would increase employment by 0.71% and vice versa provided that all other factors are held constant.
In all, this study shows that trade liberalization has not quite exerted the much-expected significant effects on the economic development of Nigeria at the micro level judging from its effects on the level poverty, inequality of income distribution and per capita gross domestic product.

Overall effect of the trade liberalization policy on Nigeria aggregate output
The estimated multiple regression result of the response of Nigeria GDP) to changes in some trade liberalization variables in the long – run is presented in Table 3.

Table 3: Regression result of the response of aggregate GDP to changes in trade liberalization in a long-run (1970 – 2020).

Variables	**Coefficients**	**Std. Error**	**t-Statistic**
Constant	68.79266	28.98220	2.373618**
$DOPS_t$	-0.024250	0.121992	-0.198779
AGINV	3.60E-06	3.28E-06	1.098769
$EXCR_t$	1.375367	0.145314	9.464792***
CPI_t	-0.039079	0.008851	-4.414963***
INT_t	1.735256	1.158233	1.498192
DUM_t	88.28940	35.46521	2.489400**
R^2	0.782868		
R^{-2}	0.752571		
F- statistic	25.83944***		
Durbin-Watson statistic	2.101606		

Source: Extract from Eviews9 Output. Note: *** and ** represent 1% and 5% significance levels respectively.

The results showed that the coefficient of multiple determinations (R^2) for aggregate GDP was 0.782868. This indicates that the independent variables included in the model explained about 78.3% of the variations in Nigeria GDP in the long – run while the remaining 21.7% was due to error of estimation and other factors affecting GDP in the long-run that are not included in the model. The F–statistics was significant, confirming the significance of the entire model. The Durbin-Watson (DW) statistic of 2.101606 indicated absence of serial correlation in the error terms, which implies that they are distributed as white noise.

The coefficient of degree of trade openness is negatively signed but statistically insignificant. The negative and insignificant coefficient of trade openness may also be indicative of the low ratio of total trade to GDP recorded by Nigeria during the period under study. Available data shows 20% contribution of trade to aggregate GDP in 1970, 21% in 2016 and 34% in 2019 (WB, 2022).

Another plausible reason for this negative and insignificant relationship between trade openness and Nigeria GDP may be attributed to Nigeria's inability to export products that are diversified critical for trade liberalization to exert the desired impact on the overall economy. From the findings, agricultural sector doing well cannot take the place of manufacturing sector not performing neither can it take the place of all other sectors of the economy not contributing positively to international trade. The data above of 34% contribution of trade to aggregate GDP

gives credence to this point, therefore there is need to develop and diversify Nigeria's export base. The dominance of crude oil export in Nigeria's foreign trade is a thing of concern as price of crude oil is susceptible to the fluctuations of international oil price. Again, the production quota is determined by the Organization of the Petroleum Exporting Countries (OPEC) so, quantity traded and income generatable changes. This finding aligns with the submissions of Moyo and Khobai (2018) that found a negative relationship between trade openness and economic output. This implies that trade liberalization policy has not enhanced Nigerian aggregate output (GDP) at the long-run.

The coefficient of exchange rate (1.375367) is positively signed and statistically significant at 1% alpha level. The result implies that exchange rate has a positive influence on the overall Nigerian economic growth (GDP). This also implies that exchange rate appreciation impacts Nigeria aggregate output (GDP) favourably. This may be due to the nature of Nigeria's trade where the country exports crude steadily and earns foreign exchange. The positive relationship between exchange rate and GDP is contrary to the findings of Anowor *et al.* (2013) that posited that because Nigeria is import dependent with a negative balance of payment, negative relationship is imminent.

The long run elasticity of consumer price index (inflation) is negative and statically significant at 1% risk level. This implies that increase in inflation exerts a negative influence on Nigeria economic growth (aggregate GDP) and vice versa.

The adoption of trade liberalization policy (DUM) shows a positive and significant value at 5% alpha level (88.28940). This means that the difference between the aggregate GDP of the period before liberalization (1970-1985) and the period of liberalization (1986-2020) is 88.28940. It should be noted that adoption of SAP in 1985 marked the beginning of trade liberalization in Nigeria. GDP aggregate output after SAP was better than aggregate output before SAP.

The estimated multiple regression result of the response of Nigeria GDP) to changes in trade liberalization variables in the short – run is presented in Table 4.

Table 4: Regression result of the response of aggregate GDP to changes in trade liberalization in a short-run (1970 – 2020)

Variables	**Coefficients**	**Std. Error**	**t-Statistic**
Constant	69.71018	2.157870	32.30509***
$DOPS_{t-1}$	0.004827	0.007980	0.604937
$AGINV_{t-1}$	0.026120	0.008659	3.016424***
$EXCR_{t-1}$	1.378960	0.026844	51.36886***
CPI_{t-1}	-0.038029	0.000802	-47.41145***
INT_{t-1}	1.622375	0.998768	1.624376
DUM_{t-1}	-2.125857	30.95868	-0.068668
ECM_t-1	-0.991678	0.013224	-74.99141***
R^2	0.842424		
R^{-2}	0.816161		
F- statistic	32.07678***		
Durbin-Watson statistic	1.714728		

Source: Extract from Eviews9 Output. Note: *** represent 1% significance level.

The results show that the coefficient of multiple determinations (R^2) for GDP was 0.842. This indicates that the independent variables included in the model explained about 84.2% of the variations in Nigeria GDP in the short – run while the remaining 15.8% was due to error of estimation and other factors affecting GDP in the short-run that are not included in the model. The F – statistics was significant, confirming the significance of the entire

model. The Durbin-Watson (DW) statistic of 1.714728 indicated absence of serial correlation in the error terms, which implies that they are distributed as white noise.

The coefficient of degree of trade openness is positively signed but statistically insignificant, giving credence to the same issues found at the long.-run. This also may be indicative of the low ratio of total trade to GDP recorded by Nigeria during the period under study. This result implies that trade openness could not impact the Nigeria economic growth (GDP) significantly both in the short-run and long-run.

The short-run elasticity of aggregate investment (AGINV) is less than unity (0.026120) and is appropriately signed (positively signed). This means that a 10% rise in government investment evokes a less than proportionate increase (about 0.26%) in the aggregate output (GDP) in the country. An increase in government capital expenditure in the economy will create an enabling environment for production to strive through a reduced cost of production. As a result, production increases as Foreign Direct Investment on productive sectors of the economy increases (Umechukwu, 2018). It also increases as private and public investments increase and vice versa.

The coefficient of exchange rate (1.378960) is positively signed and statistically significant at 1% alpha level. The result implies that exchange rate has a positive influence on the overall Nigerian economic growth (GDP) and tallies with what was obtained at long-run. This may be due to the nature of Nigeria's trade where the country exports crude steadily and earns foreign exchange.

The results also show that there is a negative relationship between CPI (inflation) and economic growth (aggregate GDP) as seen from the short run elasticity (-0.038029) which is highly significant. This implies that high inflation is an anti-economic growth variable.

The adoption of trade liberalization policy (DUM) is not significant. This means that there is no significant difference between the aggregate GDP of the period before liberalization (1970-1985) and the period of liberalization (1986-2020). It should be noted that adoption of SAP in 1985 marked the beginning of trade liberalization in Nigeria.

The result from this study has shown that adoption of trade liberalization policy within the SAP period has not significantly changed the nature of trade in Nigeria at the short-run but only has significant influence at long-run. This also implies that the adoption of SAP (trade liberalization policy) has only brought about expected outcomes in terms of economic growth in Nigeria at long-run.

From the results, it can be noticed that the coefficient of the error-correction term, ECM in the model, that is, the error- correction mechanism, is appropriately signed. The error-correction mechanism indicates a feedback of about 99.2% of the previous year's disequilibrium from long-run elasticity of the trade liberalization variables. The strong significant value of the ECM coefficient supports cointegration and also suggests the existence of a long-run equilibrium relationship between Nigerian economic growth (GDP) and the aforementioned variables, which influence it. Put more explicitly, the coefficient of the error correction term shows the speed at which Nigerian economic growth (GDP) adjusts to changes in trade liberalization policy in the long-run.

4. Conclusion

In conclusion, it is worthy of note that the degree of openness or trade liberalization has a negative and insignificant effect on poverty, a positive and significant effect on income inequality, negative and significant effect on per capita GDP and a positive and significant effect on employment. Also trade liberalization policy has a negative but insignificant relationship with overall aggregate output at the long-run and a positive insignificant effect at the short-run.

Based on these findings therefore, the following recommendations are made:

It is clear that the negative relationship between trade openness and per capita GDP is as a result of the policies of the government which favour import more than export. Trade policies should be introduced to help diversify the economy so that various sectors can partake in trade instead of oil sector and a few others doing most of it. With this, trade contribution to GDP will increase, adding to the aggregate GDP and eliminating the negative effect of trade on GDP per capita.

Income inequality, which is one of the economic development indicators analyzed, can be reduced to the barest minimum if wealth generation is easy for those at the far end of the income distribution line. Firms and individuals can build industries for agro-processing at the rural areas to employ these people and help them generate enough funds and earn better living. We can also have food processing plants built through government programmes for value addition to farm produce at several locations in the rural areas. This will help greatly in creating wealth for a greater majority of the people.

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