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The Impact of Diversifying Export Structure on the Reality of Human Development in Nigeria

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

Attempts by successive administrations in Nigeria to diversify the export base of the economy have largely been driven by the recognition of the importance of diversification in the attainment of the economic development. However, despite decades of experimenting with various policies, programs and approaches, revenue diversification of the economy has remained difficult. In this study, we examined the implications of this status quo on the economic development of the country. Specifically, the study sought to: examine the impact of export diversification on human development index in Nigeria. The scope of the study covered the period 1980 to 2019, while the analysis of data on the relevant variables was carried out through the use of the Auto-Regressive Distributed Lag (ARDL) model. The results derived from the study, which were evaluated on the basis of the 5 per cent level of significance, indicated that export diversification has a positive and statistically significant impact on human development index in Nigeria in the short-run. Other findings made by the study were that gross domestic investment has a positive and significant impact on human development index, government expenditure has a negative and significant impact on human development index, current value of foreign direct investment has a negative and insignificant impact on human development index, previous value of foreign direct investment has a

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negative and significant impact on human development index, current and previous values of inflation rate has a positive and insignificant impact on human development index, previous value of openness has a negative and insignificant impact on human development index while previous value of openness has a positive and significant impact on human development index. Based on the findings, the study recommended that: the government should carry out a review of its export diversification strategies and also horizontal and vertical export diversification strategies; the government should increase its efforts to promote the level of domestic investment by encouraging financial sector to give more loans to key sectors of the economy producing export commodities, among others.

Keywords: Export diversification; economic development; human development index; ARDL Nigeria.

1. INTRODUCTION

Global fall in oil price has caused significant external shocks to developing countries whose sole reliance on oil has seen a drastic fall in revenue that accrues from oil sales. With more than half of her revenue derived from oil exports, Nigeria's economic fortunes are tied to the boom and bust cycles of the oil market. Nigeria runs a mono-cultural economy as 85 percent of her revenue is derived from oil and gas export. Nigeria is well endowed with abundant natural and human resources. If these resources were properly harnessed and managed and the economy diversified, Nigeria could attain advanced country status. The Nigerian economy was largely dependent on agriculture since pre-independence and post-independence times, producing and exporting crops like cocoa, cotton, groundnut, timber, palm produce and rubber. At this time, agriculture was the main source of revenue and foreign exchange earnings to government. The country was able to feed herself and generate enough revenue to cater for other developmental needs. In fact, the three regional governments were able to sustain themselves and generate enough revenue for their regions without recourse to the federal government at the centre [1,2].

Nigeria's effort at diversification dates back to the 1960s when government tried to make the non-oil sector pivotal to Nigeria's future sustainable economic growth. Successive Nigerian administration have shown efforts in the past years to grow the non-oil export trade with different supportive policies. These policies include protectionism policy in the form of import substitution industrialization (ISI) in the 1960s as well as liberalization policies of export promotion and structural adjustment programme of mid 1980s [3-5]. Through the ISI policy, government made efforts to produce imported items locally. This policy was not quite successful nor was the policy of export promotion which was designed to increase the revenue generating capacity of the economy by producing goods for export. It was a policy that liberalized the economy by removing restraints to trade and making locally produced goods competitive with other global brands. Government unleashed various support to small and medium scale enterprises (SMEs), to boost productivity and export of local products [6,7,8].

The failure of these policies made successive governments to introduce other initiatives like Agricultural Development Projects (ADPs), National Accelerated Food Production Programme (NAFPP), River Basin Development Authorities, state farms, Operation Feed the Nation, Green Revolution, and of recent, the Agricultural Transformation Agenda. These programmes met with little success in diversifying the Nigerian economy [9-11].

Evidences abound both in advanced and non-advanced economies that economic diversification is the long-term solution to underdevelopment. Many developing countries especially the Gulf States of Qatar, United Arab Emirates and Saudi Arabia have embarked on economic diversification and have seen impressive results. Nigeria cannot continue to put her eggs in one basket and at the same time expect the economic development of the country [12-14].

Those resource rich countries (especially oil and minerals) have realized their mistakes and diversified their economies. They have escaped unusual fluctuations in the price of these resources and they can now withstand fluctuations since other developed sectors can still generate enough revenue to them [15]. Diversification of the Nigerian economy therefore means diversifying export revenue base to bring about development of the economy.

Evidently, the Nigerian economy is dominated by one sector whose fortunes are dictated by exogenous factors and therefore subject to instability and vulnerability. Even though the oil sector remains the highest revenue generator and foreign exchange earner to government (ERGP, 2017), the employment level is low since the sector employed mostly expatriate and used foreign materials in their operation.

Looking at various diversification programmes and policies of government over the years, it is evident that Nigeria has been more successful in diversifying sectoral composition of her Gross Domestic Product without positive effect on export earnings and foreign exchange earning for the country. Nigeria problem is therefore not diversification of various sectors of the economy and their contribution to GDP but export revenue diversification which remains a difficult objective for government to achieve.

In view of the above, this study will concentrate on exports diversification in Nigeria to show how Nigeria can diversify her exports base to increase her total exports earnings. Many resource rich (especially oil and minerals) countries have realized their mistake and diversified their exports base. They have escaped unusual fluctuations in the prices of these primary commodities and can now withstand fluctuations since they have diversified their export base which can still generate more revenue as well as foreign exchange [16]. Diversification of the Nigerian economy therefore means diversifying export base and not relying solely on oil to fast-track the development of the economy.

In the light of the above, this study seeks answers to the following question: Is there significant effect of export diversification on economic development in terms of human development index in Nigeria?

Several researchers have worked on export diversification and economic growth in Nigeria, majoring on economic growth, increased export earnings and stability in foreign exchange earnings. This work is specifically on export diversification and economic development Nigeria and we want to find out the impact of export diversification so far on three major indicators of economic development, namely, GDP per capita, poverty and unemployment.

The research gap in the study is that since many researchers have done several works on export diversification looking at increased export earnings and stability in foreign exchange earnings, we will investigate actual impact of various export diversification strategies carry out by government on economic development using human development index as a measure of economic development.

The main objective of the study is to determine the significant effect of economic diversification on economic development in terms of human development index in Nigeria. The paper is structured into five sections. After this introductory section, section two reviews related literature. The methodology is discussed in the third section. Section four comprises results and discussion of findings, and finally, section five draws conclusions based on the findings and recommends the way forward.

2. LITERATURE REVIEW

2.1 Conceptual Literature

2.1.1 Economic diversification

“Economic diversification is generally taken as the process in which a growing range of economic output is produced. It can also refer to the diversification of markets for exports or the diversification of income sources away from domestic economic activities” [17]. “In another definition, economic diversification exists when an economy (in this case the economy of a country) is composed of many parts instead of being limited to one sector. Economic diversification refers to the process whereby a growing range of economic outputs are produced. Economic diversification is part of, but distinguished from, economic development, as the latter implies not only different output, but also changes in the technical and institutional arrangements by which output is produced and distributed” (Henrick & Kindleburger, 1983).

2.1.2 Export diversification

Export diversification may be defined as a change in the composition of the existing export structure of an economy. It is a process of widening the range of products – that a country exports. Export diversification also means the spread of a country’s production and exports over many sectors. We have two dimensions of export diversification from the supply side that can take place in Nigeria and developing

countries at large, namely, horizontal and vertical diversification. Horizontal diversification can be realized through a larger mix of diverse and complementary activities within agriculture and a movement of resources from low value agriculture to high value agriculture. On the other hand, economy is said to be vertically diversified if that country starts to process and export value added products that would have previously been exported in raw forms – moving away from agricultural commodities to semi-manufactured commodities or fully manufactured commodities. Therefore, vertical diversification involves a radical change in export structure and further uses of existing and new innovative export products by means of value-added ventures such as processing and marketing.

2.1.3 Economic development

"Economic development in addition to being concerned with the efficient allocation of existing scarce or idle resources and with their sustained growth over time, also deals with the economic, social, political and institutional mechanisms, both public and private, necessary to bring about rapid and large-scale improvements in levels of living. It is concerned with the economic, cultural and political requirements for effecting rapid structural and institutional transformations of entire societies in a manner that will most efficiently bring the fruits of economic progress to the broadest segments of their populations" [18]. It focuses on strategies that will help the people, families, regions and even entire nations in breaking away from poverty traps.

Meir defines economic development as "the process whereby the real per capita income of a country increases over a long period of time – subject to the stipulations that the number of people below an 'absolute poverty line' does not increase, and that the distribution of income does not become more unequal". This means that for economic development, the rate of increase in real per capita income should be higher than the growth rate of population.

2.2 Empirical Literature

Aditya and Acharyya [18] examined "Export diversification, composition and economic growth: Evidence from cross-country analysis. They investigated the export-growth relationship at disaggregate levels – disaggregation both at the country level and at the level of exports-focusing on the diversification and the composition of exports of countries. The result reveals that both diversification and composition of exports are important determinants of economic growth".

Olaleye, Edun and Taiwo (2013) examined "export diversification and economic growth in Nigeria for thirty years dataset of manufacturing, agricultural and oil share of total exports of Nigeria using the granger causality test. The study confirmed the assertion of relationship between export diversification and economic growth in Nigeria".

Samassee, Seetanah and Lamport (2014) investigated "export diversification and economic growth in Mauritius using error correction terms, the findings form the empirical exercise reveal a positive relationship between export diversification and economic development in Mauritius".

Odeleye and Chidi [19] investigated "the relationship between export diversification and economic growth in Nigeria. They employed ordinary least square (OLS) methods involving error correction mechanism (ECM), co-integration, over-parametization and parsimonious model. The result shows export diversification has negative effects on Nigeria economic growth and development".

Doki and Tyokohol [20] examined "export diversification and economic growth in Nigeria using Bounds Co-integration test and the error correction model (ECM) under the autoregressive distribution lags (ARDL) model framework and found that indeed, export diversification has positive, though insignificant, effect on economic growth in Nigeria in the long and the short run. The relative insignificance is however attributed to the low level of diversity of exports at the moment".

Mudenda, Choga and Chigamba (2014) investigated "the role of export diversification on economic growth in South Africa using a vector error correction model. Results of the study reveal that export diversification and trade openness are positively related to economic growth".

Kaulich [21] examined "Diversification versus Specialization as alternative strategies for economic development: Can we settle a debate by looking at the empirical evidence? The paper attempted to synthesize the vast literature on the

pros and cons of diversification vs specialization as well as the policy positions that emerge from such literature. The empirical analysis identifies a positive relation between diversification of an economy and its income at low levels of income per capita".

Basile, Parteka and Pittiglio (2015) examined "export diversification and economic development using different econometric techniques. The result confirms the relevance of spatial network effects: Indirect effects (spatial spillovers) strongly reinforce direct effects, while spatial proximity to large countries accelerates the diversification process".

Agosin, Alvarez and Ortega [22] examined "determinants of export diversification around the world: 1962 to 2000. They use generalized method of moments (GMM) estimators to deal with the endogeneity of most of their explanatory variables. The result suggests the existence of robust evidence across specification and indicators that trade openness induces higher specialization".

Cadot, Lawere and Kahn (2011) investigated "export diversification: What's behind the hump? They used a large database with 156 countries over 19 years at the HS6 level of disaggregation (4,991 product lines). The result shows a hump-shaped pattern of export diversification similar to what Imbs and Waczlarg [23] found for production".

Iyoboyi [24] examined "macroeconomic analysis of export diversification in Nigeria. He used the bounds test approach to cointegration on data generated from secondary sources. Cointegration was found to exist between the economic diversification indicators and associated variables".

Heredia and Cabral (2010) investigated "Determinants of Export Diversification and Sophistication in Sub-Saharan Africa. They ran separate regressions for determinants of export diversification and export sophistication, using disaggregated data of 48 SSA countries, from 1960 to 2005. The results suggest that better governance is an important determinant for the success of diversification and sophistication strategies in sub-Saharan African countries".

Imbs and Walziarg [23] examined "stages of diversification. Their paper studies the evolution of sectoral labour concentration in relation to the level of per capita income. They used model with endogenous costs of trading internationally that provides an explanation for the new empirical fact. The result shows that countries first diversify, but there exists relatively late in the development process, a point at which they start to specialize again".

Adesoji and Sotuko [25] studied "non-oil exports and economic growth in Nigeria focusing on agricultural sector and mineral resources. He used ordinary least squares and co-integration analyses. The research work shows that non-oil exports have performed below expectations giving reason to doubt the effectiveness of the export promotion strategies that have been adopted in the Nigeria economy".

Omodugo, Ikpe and Anowor (2013) studied "the effect of non-oil export on economic growth and development in Nigeria. They used the Augmented Production Function (APT) and endogenous growth model (EGM). The study affirms that there is a very weak and insignificant impact of non-oil export in the economic growth of Nigeria. Nwachukwu [26] investigated the significant impact of non-oil export on economic growth in Nigeria from the year 1970 to 2013. He used Regression Analysis. He discovered that critical infrastructure bears a negative relationship with GDP while credit from commercial banks and tariffs has positive impact on economic growth in Nigeria".

Abogan, Akinola and Baniwa [27] examined "the impact of non-oil export on economic growth in Nigeria using Ordinary Least Square and error correction model. The study confirms that the non-oil export impacted positively by 26% on the Nigerian economy during the period".

Ebi and Eke [28] examined "impact of institutional quality and economic diversification in oil-rich economies: A case study of Nigeria using a reduced form equation and error correction technique. The result shows that effectiveness of government, strong rules of law, political stability and less corruption are associated with greater GDP and export diversification away from oil".

Oyelami and Alege [29] sought "to examine the effects of trade diversification on macroeconomic performance in Nigeria. They employed bound test of ARDL to determine the existence of cointegration between trade diversification and key macroeconomic variables. The results

confirm cointegration between trade diversification and economic growth on one hand and trade diversification and exchange rate movements on the other hand".

Lee and Zhan [30] explored "the potential linkages between export structure and economic growth and its volatility in LICs and small states, using a range of indices of export concentration differing in the coverage of industries. The results show that export diversification may promote economic growth and reduce economic volatility in these countries".

2.3 Theoretical framework

The theoretical underpinnings that are relevant to this study are as follows:

- **Prebisch-Singer Theory**

There is empirical evidence related to the fact that the terms of trade have been continuously moving against the developing countries. On the basis of export statistics concerning the United Kingdom between 1870 and 1840, Raul Prebisch demonstrated that the terms of trade had secular tendency to move against the primary products and in favour of the manufactured and capital goods.

This view point has been strongly supported by H. U. Singer. The essence of Prebisch-Singer Thesis is that the peripheral or LDC's had to export large amounts of their primary products in order to import manufacture foods from the industrially advanced countries. The deterioration of terms of trade has been a major inhibitory factor in the growth of the LDC's.

The Prebisch-Singer Thesis assumes that as income rises in the advanced countries, the pattern of demand shifts from primary products to the manufactured products due to Engel's law. There is slow rise in demand for products in the developed countries. The export market for product of LDGs is competitive. The export market for products of developed countries is monopolistic. Wages and prices are low in LDCs. The appearance of substitutes for products of LDCs reduces demand for them.

- **Big Push Theory**

This theory was developed by Paul Rosenstein-Rodan in 1943. It was latter elaborated upon by Murphy, Shleifer and Robert Vishny in 1989. The model emphasizes that underdeveloped countries need large amounts of investments to be undertaken in order to launch the country on the path of economic development from their present state of underdevelopment, This theory argued that a 'bit by bit' investment programme will not have significant impact on the process of growth as much as is required for developing countries.

The theory therefore advocated for an increasing role of the state in making such large- scale investment in an economy. The large-scale programme of industrialization advocated by this model requires huge investments which are usually beyond the means of the private sector of the economy. For this reason, the role of the state in this theory is therefore critical for investment in infrastructures such as transport, electricity (power) and communication.

According to the theory, the reason for government's investment in infrastructure investment is necessary and also critical for the purpose of stimulation of industrialization; since (he private sector would not be able to provide such huge resources required for that purpose. Moreover, even when the private sector had the requisite resources to invest in such a programme, it would not be able do so since it is driven by profit motives.

This theory is applicable to this study in that for informal sector to grow and contribute significantly to economic development, there is need for the government to invest heavily on critical infrastructures such as electricity, transport and communication. The provision of steady electricity for instance will strongly enhance the growth and development of informal sector businesses, thereby contributing to economic growth and development of Nigeria.

2.5 Measurement of Export Diversification

This study adopted export product diversification index as a measurement of export diversification in this study because countries that are commodity dependent or have a narrow export basket usually faces export instability which arises from inelastic and unstable global demand. This can consequently have a significant adverse impact on the macro economy of these developing countries in terms

of investment and employment. Thus, export product diversification is one means to alleviate these constraints. It will also help them to overcome export instability. Diversifying the export portfolio could intensify and accelerate the economic growth. Export product diversification could therefore help stabilized export earnings in long run.

3. METHODOLOGY

3.1 Research Design

The purpose of this study is to examine economic diversification and Nigeria's economic development. To accomplish this aim, the study adopted the ex post facto research design. Ex post facto research design means a method of teasing out possible antecedent of events that have already occurred which cannot be manipulated by the investigator [31].

The study conducted pre-estimation test such as the unit root test. The unit root test was carried out by employing two test statistics, namely the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. Lastly, the auto regressive distributed lag model (ARDL) was estimated ascertain the existence of the long-run relationship amongst the variables in the study.

3.2 Model Specification

The models for this study adopted an eclectic approach. It was based on the Precbisch-Singer theory and the Big Push theory. According to Prebisch-Singer theory, export diversification can prevent weakening of exchange relationships in the developing countries.

On the other hand, the big push theory advocate for an increasing role of the state in making such large scale investment in an economy. In this regard, government heavy investment in non-oil sectors like agriculture, manufacturing, and non-oil minerals can lead to increased economic development. This equation expresses human development index (HDI) as a function of gross domestic investment (GDI), trade openness (OPEN), Export Diversification (DIV), Foreign Direct Investment (FDI), government expenditure (GOVEX) and Inflation (INFL), specified as:

$$HDI = f(GDI, DIV, FDI, OPEN, INFL, GOVEX) \quad 3.1$$

The econometric forms of equation 3.1 can be written as follows:

$$HDI = \alpha_0 + \alpha_1 GDI + \alpha_2 DIV + \alpha_3 FDI + \alpha_4 OPEN + \alpha_5 INFL + \alpha_6 GOVEX + U_1 \quad 3.2$$

The semi-logarithmic form of the equations in 3.2 is specified as:

$$HDI = \alpha_0 + \alpha_1 LOG(GDI) + \alpha_2 (DIV) + \alpha_3 LOG(FDI) + \alpha_4 (OPEN) + \alpha_5 (INFL) + \alpha_6 LOG(GOVEX) + U_1 \quad 3.3$$

Where:

HDI = human development index. It is a composite of three social indicators: life expectancy, adult literacy and years of schooling. It also takes into account GDP per capita.
GDI = Gross domestic investment, represented by gross fixed capital formation in Nigeria (in billion naira).
DIV = Export diversification index for Nigeria (expressed in percentage).
GOVEX = Federal government expenditure (in Naira billions).
FDI = Foreign direct investment (the ratio of investment capital from abroad to GDP).
OPEN = Trade openness, measured as the sum of imports and exports divided by the GDP.
INFL = Inflation rate in Nigeria (in percent).
U_1 = Error term $\alpha_1>0$; $\alpha_2 >$; $\alpha_3>0$;$\alpha_4>0$; $\alpha_5<0$; $\alpha_6 >0$

3.4 Sources of Data

This study was based on the use of time series data collected on an annual basis from 1980 to 2019. The data was derived from the annual statistical bulletin of the Central Bank of Nigeria CBN), the publications of the National Bureau of Statistics and the World Bank World Development Index and United Nations Commission for Trade and Development [UNCTAD].

3.5 Estimation Procedures

3.5.1 Auto regressive Distributed Lag Model (ARDL) Bounds test approach

This study employed the autoregressive distributed (ARDL) bounds test approach proposed by Pesaran, Shin and Smith (2001), based on unrestricted error correction model to estimate the equation. Compared to other cointegration procedures such as Engle and Granger (1987) and Johansen and Juselius (1990), the bounds test approach appears to have gained popularity in recent times for a

number of reasons. First, the endogeneity problems and inability to test hypotheses on the limited coefficients in the long run associated with Engle-Granger method are avoided, that is, it has superior statistical properties on small samples as it is relatively more efficient in small sample data sizes evident in most developing countries. Second, the long run and short run parameters of the model are estimated simultaneously. Third, all the variables are assumed to be endogenous. Fourth, it does not require unit root testing usually employed to determine the order of integration of variables. Lastly, whereas all the other methods require that the variables in a time series regression are integrated of order one, 1(1), only that of Pesaran et al. (2001) could be used regardless of whether the underlying variables are 1(0), 1(1) or fractionally integrated. Nonetheless, to apply the bounds test, it is important to ensure that the variables under consideration are not integrated at an order higher than one. In the presence of 1(2) variables, the critical values provided by Pesaran et al. (2001) are no longer valid.

3.6 Limitations of the Study

There were some limitations encountered in the course of this study. The research of this magnitude needs ample time and enough financial resources. However, we worked within the limited time frame and available resources. There was also problem of lack of consensus and acceptable measure of export diversification. The use of several measures as representative of economic development has been criticized for not taking into account inter-sectoral interdependence. Another limitation is the limited nature and unavailability of data since Nigeria and most African countries have problem of data storage.

4. RESULTS AND DISCUSSION

4.1 Presentation and Analysis of Descriptive Data

This section focuses on the presentation and analysis of the time series data.

4.2 Presentation and Analysis of Econometric Data

4.2.1 Unit root test

Two sets of unit root test results are presented in this section. These are with respect to the Augmented Dickey-Fuller (ADF) unit root test, Phillips-Perron (PP) unit root test, and Kwaitkowski-Phillips-Schmidt-Shin (KPSS) unit root test. The results are presented in Tables 1 and 2 The results of the ADF and PP test for unit root, presented in Table 1 reveal that the variables included in the respective study equations are of mixed order of integration. For instance, the ADF and PP unit root test results reveal that while export diversification index is stationary at level, the other variables such as trade openness, inflation, investment, human capital, institutional quality, poverty measured as household consumption expenditure, federal government expenditure, domestic investment, financial inclusion, and foreign direct investment are stationary after first differencing.

Table 1. Augmented dickey-fuller and phillip-perron unit root test result

Variable	At Level		After First Difference		Remark
	ADF	PP	ADF	PP	
DIV	-4.1686	-41686	NE	NE	I(0)
	(0.0111)	(0.0111)			
HDI	-2.3903	-1.9954	-7.7625	-14.8076	I (1)
	(0.3786)	(0.5855)	(0.0000)	(0.0000)	
FIN	-1.8604	-2.0536	-7.6271	-7.4773	I(1)
	(0.6556)	(0.5545)	(0.0000)	(0.0000)	
GDI	-2.1773	-2.3811	-5.4312	-5.6677	1(1)
	(0.4884)	(0.3832)	(0.0004)	(0.0002)	
GOVEX	-2.4489	-4.0075	-1.8884	-3.6988	I(1)
	(0.3502)	(0.0168)	(0.6414)	(0.0346)	
INFL	-3.7231	-3.0003	NE	-11.8021	I(0) after KPSS confirmatory
	(0.0328)	(0.1451)		(0.0000)	test
OPEN	-3.2821	-3.5492	-3.1179	NE	I(1) after KPSS confirmatory
	(0.0843)	(0.0479)	(0.1205)		test

NE = not estimated, because the individual unit root test results were stationary at level at five percent confidence level

() = values in parentheses are the corresponding asymptotic critical values.

Source: Author`s computation (2023)

The KPSS unit root test result, presented in Table 2, also reveals that the study variables are of mixed order of integration. From the result, it can be seen that financial inclusion and inflation are stationary at level, while trade openness and unemployment rate are stationary after first differencing.

4.2.2 Lag selection criteria

Having examined the unit root properties of the study variables, the study concludes that the Auto-Regressive Distributed Lag (ARDL) model is the best technique for the estimation of the three-study equation. However, before this is done, the study first attempts to determine the optimal number of lags to be utilized for the estimation of each equation. This is achieved through the use of the Vector Auto-Regression (VAR) lag selection criteria. From the result of this criteria, presented in table 3, it can be seen that based on the Akaike information criterion, the optimal number of lags of each variable to be included in the estimation of the equation is three lags.

4.2.3 Bounds test for cointegration

The test for cointegration among the variables included in the equation is carried out through the Bounds test. The result of this test is presented in Table 4. Two variables are cointegrated if there is a long run relationship between them. From the Bounds test result in Table 4, it can be seen that the calculated value for human development index equation Bounds test is 2.3798, as shown in Table 4, this is less than the critical lower Bound value and this means that there is no long run relationship between HDI and the other independent variables in the equation.

4.2.4 Auto-Regressive Distributed Lag (ARDL) model estimates

The short run ARDL estimates of the Human Development Index equation are presented in Table 5. From the short-run ARDL estimates of the human development index equation are presented in Table 5, it can be seen that the short run lag one period coefficient of HDI is 1.0770 with a corresponding probability of 0.0002 and the lag two period coefficient of HDI is 0.5784 with a corresponding probability of 0.0063. These are statistically significant at 5 percent level of significance. This means that the values of previous periods of human development index has a positive effect of the current human development index.

Table 2. Kwaitkowski-Phillips-Schmidt-Shin (KPSS) Unit root test result

Variable	At Level	After First Difference	Remark
INFL	0.1124 (0.1460)	NE	I (0)
OPEN	0.1560 (0.1460)	0.0933 (0.1460)	I (1)

NE = not estimated, because the individual unit root test results were stationary at level at five percent confidence level
( ) = values in parentheses are the corresponding asymptotic critical values.

Source: Author`s computation (2021)

Table 3. Vector Auto-Regression (VAR) Optimal Lag Selection Criteria

Model	Lags	Criterion
Human development index equation	3	Akaike information criterion

Source: Author`s computation (2021)

Table 4. Bounds test for cointegration

Model	Number of parameters (K)	F-statistic	Critical value bound	
			Lower bound I(0)	Upper bound I(1)
Human development index equation	6	2.3798	2.45	3.61

Source: Author`s computation (2023)

Table 5. Auto Regressive distributed lag model short-run estimates

Dependent variable: HDI

Variable	Coefficient	Standard Error	t-Statistic	Probability
D (HDI (-1))	-1.0770	0.2373	-4.5394	0.0002
D (HDI (-2))	-0.5784	0.1894	-3.0541	0.0063
DLOG(GDI)	0.0307	0.0119	2.5889	0.0175
D(DIV)	0.0369	0.0126	-2.9430	0.0080
DLOG(FDI)	-0.0025	0.0032	-0.7829	0.4429
DLOG (FDI (-1))	-0.0084	0.0033	-2.5728	0.0182
D(INFL)	0.0000	0.0001	-0.4095	0.6865
D (INFL (-1))	0.0002	0.0001	1.4156	0.1723
DLOG(GOVEX)	-0.0269	0.0115	-2.3457	0.0294
D(OPEN)	-0.0055	0.0252	-0.2188	0.8290
D (OPEN (-1))	0.0399	0.0215	1.8531	0.0787
Diagnostic tests results				
Adjusted R-squared	0.9756	Serial Correlation LM test		1.6226 (0.1175)
Durbin-Watson statistic	2.5528	Heteroskedasticity test		1.5199 (0.1863)
F-statistic	90.9110 (0.0000)	Jargue-Bera		3.6081 (0.1646)

Source: Author`s computation (2023)

The short run coefficient of log (GDI) is 0.0307 with a corresponding probability of 0.0175. This means that there is a positive and statistically significant impact of gross domestic investment on human development index. This means that one percent increase in GDI will lead to 0.0307 percent increase in HDI in the short run.

The short run coefficient of DIV is 0.0369 with a corresponding probability of 0.0080. This means that there is a positive and statistically significant impact of diversification index on human development index. This means that one percent increase in DIV will lead to 0.0369 percent increase in HDI in the short run.

The short run coefficient of log (FDI) is 0.0025 with a corresponding probability of 0.4429. This means that there is a positive but not statistically significant impact of foreign direct investment on human development index. This means that one percent increase in FDI will lead to 0.0025 percent increase in HDI in the short run. The short run coefficient of lag one period of log (FDI) is 0.0084 with a corresponding probability of 0.0182. This means that there is a positive and statistically significant impact of lag one period of foreign direct investment on human development index. This means that one percent increase in the previous period of FDI will lead to 0.0084 percent increase in HDI in the short run.

The short run coefficient of INFL is -0.000047 with a corresponding probability of 0.6865. This means that there is a negative but not statistically significant impact of inflation on human development index. This means that one percent increase in INFL will lead to 0.000047 percent decrease in HDI in the short run. The short run coefficient of lag one period of INFL is 0.0002 with a corresponding probability of 0.1723. This means that there is a positive but not statistically significant impact of lag one period of inflation on human development index. This means that one percent increase in the previous period of INFL will lead to 0.0002 percent increase in HDI in the short run.

The short run coefficient of log (GOVEX) is 0.0269 with a corresponding probability of 0.0294. This means that there is a positive and statistically significant impact of government expenditure on human development index. This means that one percent increase in GOVEX will lead to 0.0269 percent increase in HDI in the short run.

The short run coefficient of OPEN is -0.0055 with a corresponding probability of 0.8290. This means that there is a negative but not statistically significant impact of trade openness on human development index. This means that one percent increase in OPEN will lead to 0.0055 percent decrease in HDI in the short run. The short run coefficient of lag one period of OPEN is 0.0399 with a corresponding probability of 0.0787. This means that there is a positive but not statistically significant impact of lag one period of trade openness on human development

index. This means that one percent increase in the previous period of OPEN will lead to 0.0399 percent increase in HDI in the short run.

The error correction coefficient [ECT (-1)] from the estimated short-run human development index equation has a positive sign and is not statistically significant at the 5 per cent level of significance. This is not in line with theoretical expectations regarding the sign and significance of the coefficient. The error correction coefficient means that there is convergence from short-run to long-run equilibrium position.

Table 5, also contains results with respect to the diagnostic tests performed on the estimated human development index equation, the adjusted coefficient of determination reveals that the estimated equation has a good fit because 97.56 per cent of the short-run variation in human development index is explained by the statistically significant variables in the equation. The result of the second diagnostic test, the Durbin-Watson statistic and Serial Correlation LM test indicate that the errors from the estimated per capita income equation are not auto-correlated, while the test for heteroskedasticity indicates that the errors are homoscedastic. Finally, the F-statistic result indicates that the per capita income equation is statistically significant, while the Jarque-Bera test result indicates that the errors from the estimated human development index equation are normally distributed.

The result of the final diagnostic test carried out on the estimated human development index equation is the CUSUM test for parameter stability. The results of this test which is presented in Figs 1 reveals that the parameters of the estimated equation are structurally stable. This is because the CUSUM graphs falls within the critical plus 0.05 and minus 0.05 boundaries.

4.3 Test of Hypotheses

H_0: There is no significant effect of export diversification on human development index in Nigeria.

Decision

The test of the first hypothesis in this study is based on the assessment of the t-statistic of the estimated coefficient of the current year export diversification index in the short-run human development index equation. The alternative hypothesis is accepted where the probability value associated with the t-statistic is less than 0.05. From the result in table 5, it can be seen that the probability value associated with the t-statistic of the estimated coefficient of current year diversification index in the human development index equation is less than 0.05. On the basis of this, the study accepts the alternative hypothesis. The study therefore concludes that export diversification has a positive and significant impact on human development index in Nigeria.

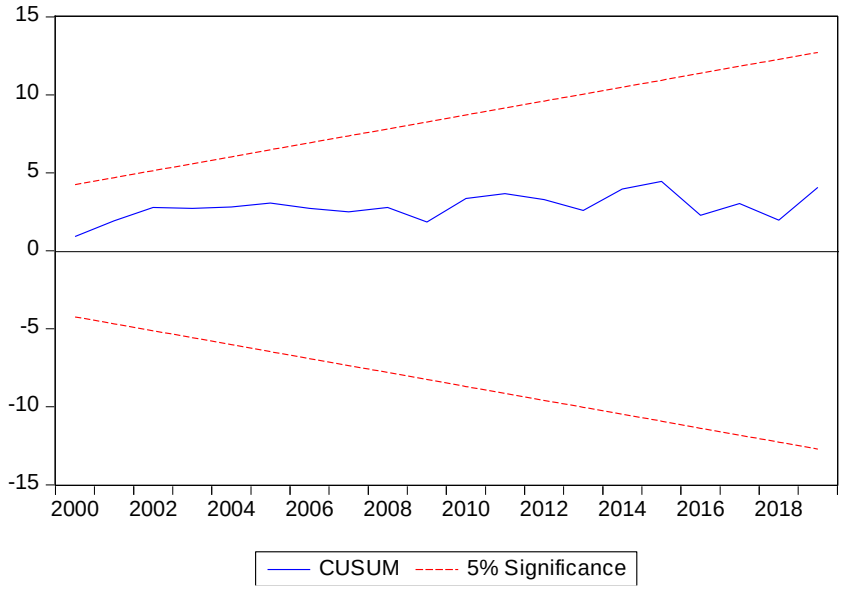


Fig. 1. CUSUM test for parameter stability
Source: Author`s computation (2021)

4.4 Discussion

Several important findings were made in this study. However, the most important of such findings was that export diversification has a statistically significant positive impact on human development index in Nigeria in the short-run. The finding with respect to the impact of export diversification on human development index in Nigeria does conform with the findings made in the study by Abogan et al. [16], their study confirm that the non-oil export impacted positively on the Nigerian economy during the period and Mudenda et. al. (2014). Results of their study reveal that export diversification and trade openness are positively and significantly related to economic growth. However, it does not conform with the findings made by Doki and Tyokohol (2019). Their study found that export diversification has positive, though insignificant, effect on economic growth in Nigeria in the long and the short run. The implication of this result is that while overall export diversification affects per capita income in Nigeria, such effects is adverse in the short-run, reducing per capita income, but positive in the long-run.

This difference in the nature of the short run effect of export diversification on human development index in Nigeria may be explained by the existence of asymmetric information in Nigeria with respect to the opportunities provided by some government diversification incentives such as the provision of low interest loans, skill acquisition programs which mean that initially, only a small percentage of the country`s population usually benefit from such schemes which are usually also geared at improving income levels and reducing poverty. It may also be explained by the corrupt and nepotistic way in which such opportunities are allocated. However, in the long-run, the asymmetries are usually smaller, leading to more persons benefiting from such opportunities.

The study also found that domestic investment and inflation have a positive and statistically significant effect on per capita income in both short and long-run. The positive impact of domestic investment on per capita income in Nigeria is in line with theoretical expectations because an increase in domestic investment will usually be associated with an increase in employment and hence income. On the other hand, the positive and statistically significant effect of inflation on per capita income may be explained by the fact that increases in the rate of inflation, which may be demand-pull driven, provide the incentive for increased investment and hence, increased employment and per capita income.

Another finding made with respect to the per capita income equation was that foreign direct investment has a negative and statistically significant effect on per capita income in the short-run but a positive and statistically insignificant impact in the long-run. This finding may be explained by potential negative externalities associated with foreign direct investment in sectors such as the petroleum and mining sectors in Nigeria such as environmental pollution and degradation. (ERGP 2017).

5. CONCLUSION AND RECOMMENDA-TIONS

5.1 Conclusion

This study was carried out to examine the impact of export diversification on economic development in Nigeria. This was done with the objective of view to providing evidence of the effects of past efforts at export diversification on the indices of economic development such as human development index. Based on the results of derived, the study concludes that export diversification in Nigeria has a significant impact on economic development in Nigeria measured by human development index.

5.2 Policy Recommendations

Based on the findings of the study, the following recommendations are offered:

- The study recommends that the government should carry out a review of its export diversification strategies. In this regard, government can adopt both horizontal export diversification (widening agricultural export products basket) and vertical export diversification (moving from agricultural products to manufacturing goods). This will have direct positive effect on per capital income, reduce unemployment as well as poverty level. The government should also carry out an assessment of the framework for the implementation of such strategies.

- The study further recommends that the government should increase its efforts to promote the level of domestic investment.

This could be done through improvements in the implementation of the current financial inclusion strategy to ensure increased financial inclusion.

- The study recommends that the Central Bank of Nigeria (CBN) carry out a reassessment of its financial inclusion strategy with a view to ensuring that banks adhere to the guidelines of this strategy. This can be achieved through improvements in the quality of supervision of banks as well as the use of heavy penalties and fines, as well as other non-punitive incentives to ensure bank, especially deposit money bank, adherence to such guidelines..

COMPETING INTERESTS

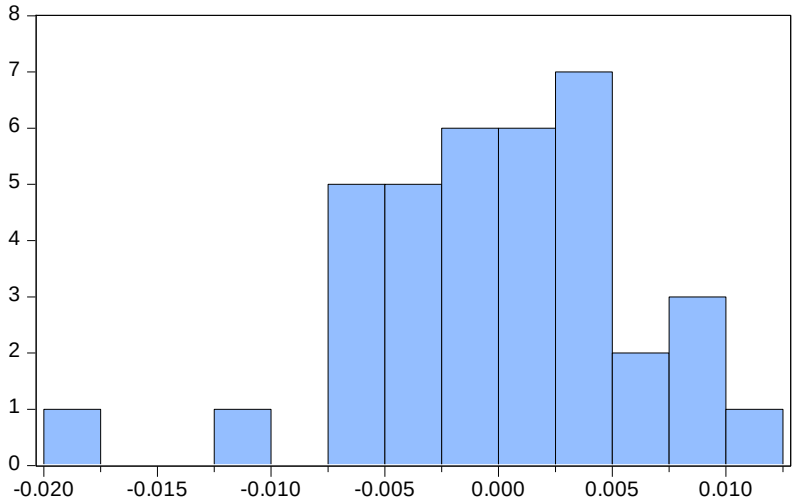
Author has declared that no competing interests exist.

REFERENCES

1. Ndebbio JU, Akpan HE. Periscoping the Nigerian economy. In Ndebbio, JU, & Ekpo HE. (Ed.). The Nigerian Economy at the Crossroads: Policies and their effectiveness. Calabar: Unical press. 1991;3-7.
2. Anyaehie MC, Areji AC. Economic diversification for sustainable development in Nigeria, in Open Journal of Political Science. 2015;87-94.
3. Central Bank of Nigeria. Annual economic report; 2012.
4. Rosenstein R. Notes on the theory of big push in Economic Development of Latin America; 1961.
5. Sachs DJ. The end of poverty: Economic possibilities for our time. New York: The Pengiun Press; 2005.
6. Onodugo VA, Manus I, Anowor OF. Non-oil export and economic growth in Nigeria: A time series econometric model. International Journal of Business Management & Research (IJBMR), 2013;3 (2):115-124.
7. Whelan K. Computers, obsolescence and productivity. Federal Reserve Board, Finance and Economics Discussion Series Paper No. 20; 2000.
8. World Bank. World development indicators; 2007.
9. Sannassee RV, Seetanah B, Lamport MJ. Export diversification and economic growth: The case of Mauritius. World Trade Organization Geneva; 2014.
10. United Nations and Framework Convention on Climate Change. The concept of economic diversification in the context of response measures. Technical paper by the Secretariat; 2016.
11. United Nations Development Programme. Human poverty report, 2000-2006; 2006.
12. Wundt, BD. Revaluating alternative measures of industrial diversity as indicators of regional cyclical variations. Review of Regional Studies. 1992;22 (1):59-73.
13. Yokoyama K, Alemu MA. The impacts of vertical and horizontal export diversification on growth: An empirical study on factors explaining the gap between sub-Saharan Africa and East Asia's performances. Ritsumeikan International Affairs. 2009;17(41).
14. Young A. The tyranny of numbers: Confronting the statistical reality of the East Asian growth experience. Quarterly Journal of Economics. 1995;110:641-680.
15. Alsharif N, Bhattacharrya S, Intertagha M. Economic diversification in resource rich countries. Uncovering the state of knowledge. CSAE Working Paper; 2016.
16. Zhang L. Economic diversification in the context of climate change. Paper presented at the UNFCCC Workshop on Economic Diversification, Teheran, Islamic Republic of Iran. 2003;18-19. Available:WWW:http://unfccc.int/files/meetings/workshops/other_meetings/application/pdf/bgpaper.pdf
17. Todaro MP, Smith SC. *Economic development*. Essex, England: Pearson Education Limited; 2009.
18. Aditya A, Acharyya R. Export diversification, composition and economic growth: Evidence from cross country analysis. The Journal of International Trade and Economic Development: AN International and Comparative Review. 2011;22(7):959-992.
19. Odeleye AT, Otunkwa CN. Export diversification and economic growth in Nigeria. Conference Paper; 2016.
20. Dok NO, Tyokohol MY. Export diversification and economic growth in Nigeria. International Journal of Economics and Financial Management. 2019;4(2).

21. Kaulich F. 2012 Diversification vs specialization as alternative strategies for economic development: Can we settle a debate by looking at the empirical evidence? United Nations Industrial Development Organization, Working Paper 3.
22. Agosin MR, Alvarez R, Ortega CB. Determinants of export diversification around the world: 1962-2000. The World Economy; 2012.
DOI: 10.1111/j.1467-9701.2011.01395.x
23. Imbs J, Wacziarg R. Stages of diversification. Graduate School of Business, Stanford University, Research paper No. 1653; 2000.
24. Iyoboyi M. Macroeconomic analysis of export diversification in Nigeria. Empirical Economic Review. 2019;2(1),83-116.
25. Adesoji AA, Sotubo OD. Non-oil export in the economic growth of Nigeria. Journal of Education and Social Research. 2013;3(2): 403-418.
26. Nwachukwu PO. The impact of non-oil export strategies on economic +growth in Nigeria (1970-2013). Journal of Economic and Sustainable Development. 2014;5(24): 37-57.
27. Abogan OP, Akinola EB, Bamwa OI. Non-oil export and economic growth in Nigeria (1980-2011). Journal of Research in Economics and International Finance (JREIF). 2014;3(1):1-11.
28. Ebi B, Eke F. Institutional quality and economic diversification in oil-rich economies: A case study of Nigeria. Journal of Economics and Sustainable Development. 2018;9(14).
29. Oyelami LO, Alege PO. Macroeconomic implications of trade diversification in Nigeria. Central Bank of Nigeria Journal of Applied Statistics, 2018;9(1).
30. Lee D, Zhang H. Export diversification in low-income countries and small states: Do country size and income level matter? International Monetary Fund (IMF) Working Paper, International Monetary Fund; 2019
31. Cohen L, Manion L, Morison K. Research methods in education. London: Routledge Falmer; 2000.

APPENDICES



Series: Residuals	
Sample 1983 2019	
Observations 37	
Mean	2.42e-16
Median	0.000199
Maximum	0.010488
Minimum	-0.017617
Std. Dev.	0.005901
Skewness	-0.629595
Kurtosis	3.868807
Jarque-Bera	3.608095
Probability	0.164631

Breusch-Gobndfrey Serial Correlation LM Test:			
Bn			
Nbn			
F-statisticb	1.622568	Prob. F(2,6)	0.1175
Obs*R-squbnbnared	4.67168	Prob. Chi-Square(2)	0.0710
Bn			
Bn			
bn			
bn			
Heteroskedbnasticity Test: Breusch-Pagan-Godfrey			
Bn			
Bn			
F-statisticnbn	0.552742	Prob. F(26,9)	0.8854
Obs*R-squarednb	22.13684	Prob. Chi-Square(26)	0.6812
Scaled explbnbained SS	2.112251	Prob. Chi-Square(26)	1.0000
Bn			
Bn			

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