

## Diversification and Economic Development in Emerging Economies: The Nigerian Experience

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### ABSTRACT

*This study seeks to investigate the relationship between diversification and economic development in emerging market economies, using the Nigerian scenario. The study employed annual time series data sourced from the Central Bank of Nigeria and World Development Indicators. Economic diversification was represented by diversification index while economic development was proxy by per capita GDP. Autoregressive Distributive Lag (ARDL) and granger causality estimation techniques were used for the analysis. It was revealed that long run relationship exists among the variables in the estimated model. The granger causality results showed that no bidirectional causality was found between diversification index and per capita GDP. The bound test results showed that a long run relationship exists among the variables in the estimated equation. This signifies the relevance of these variables in promoting economic development in Nigeria. The study recommends that; the government should diversify the economy from crude oil to overcome export instability or the negative impact of terms of trade; and there should be prudent government spending and conducive and enabling environment for both the growth of other important sectors and improved domestic investment, and exports from sectors such as agriculture, manufacturing, textile as well as minerals and steel should be encouraged; monetary authorities should enhance the formulation of appropriate monetary policies that will help to control inflation and exchange rate for sustainable economic development; and exchange rate should be stabilized through the use of appropriate monetary policy tools as well as support export diversification programmes in order to diversify into the core sectors of the economy and stem the tide of the mono-product syndrome.*

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**KEYWORDS:** *Diversification, Economic development, Emerging economies, Oil, Agriculture.*

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## INTRODUCTION

Economic diversification is one of the options left for development and growth in most oil-dependent countries like Nigeria. This is because the Nigerian economy continues to be over-reliant on oil, which accounts for 80 per cent of government's revenue and 90 per cent of foreign exchange earnings (Ndem, Unuafe & Egbe, 2019). Economic diversification which demands active participation in wide range of sectors, and firmly integrated into different regions, are better able to generate robust growth and great potentials to increase Africa's resilience and contribute to achieving and sustaining long term economic growth and development in the continent (Esu & Udonwa, 2015). Diversifying the Nigerian economy to address near total reliance on proceeds from the oil and gas sector is a policy that has been touted by successive governments in Nigeria. With the recent crash in oil price and consequent hardship engendered by this over-reliance on oil, it has become more compelling to Nigerian policy makers and all stakeholders that diversifying the economy is not optional but mandatory. It is however to be undertaken at this point as a response to the new economic reality. Diversification in the present Nigerian economic context simply means creating new avenues for economic growth and development. It involves using the right strategy to boost revenue generated from other sectors of the economy. That is, facilitating growth of other sectors of the economy and through this, reversing the effects of the economic crises and returning the economy to a path of sustained growth and development in this period of ravaging COVID-19 pandemic. It however will not necessitate a neglect of the oil and gas sector but accommodates maximizing revenue derivable from the sector. There must be substantial participation of the private sector in rapid investment for the Nigerian economy to become diversified (Odey, Effiong & Nwafor, 2017). The government needs to attract and facilitate private investment, particularly in selected areas, which will enhance the synergy between government policy and private investment.

As a matter of priority, Nigeria government must encourage the diversification of the economy. It is the only viable way to survive the current environment of global economic uncertainty with the volatility of oil price and endemic virus surge (CBN, 2021; Oti *et al.* 2017). It is crucial that government do not believe that oil provides an endless source of revenue. Nigerian economy is mono-product, depending only on oil. Good percentage of Nigerians live in abject poverty, unemployment is on the high and productivity is at its lowest level. The speed of economic diversification has been very slow, as indicated by diversification indices averaging 0.59 and 0.51 percent between 1970-1990 and 1991-2010, respectively. The average diversification index between 2011 and 2020 was abysmally 0.56 percent. The slow pace of diversification has led to widespread poverty and unemployment in the country. The rate of unemployment due to weak policy on diversification averaged 8.1 and 13.9 percent between 1970-1990 and 1991-2010, respectively. It has been trending upward averaging 14.1 percent between 2011 and 2020. The per capita consumption expenditure is grossly high in the country due to low savings propensity which averaged N545.4million and N52634.3million between 1970-1990 and 1991-2010, respectively. It was N446926.9million between 2011 and 2020, signaling stumpy trend of investment over the years. The overall economic performance has

grossly plummeted due to over-dependence on oil at the expense of other sectors like agriculture and manufacturing, as well as the recent corona virus pandemic that has engulfed the globe. The per capita GDP has been abysmally low, averaging 0.58 and 2.9 percent between 1970-1990 and 1991-2010. The Nigerian economy was plunged into recession in 2016 and 2020 with negative per capita GDP growth of -1.8 and -1.7 percent respectively (World Bank, 2020).

### **Statement of the problem**

Nigeria's economy crashed into recession as nation's per capita GDP growth rate trended negative between 2016 and 2017. For the nation that was declared Africa's biggest economy to sink into recession demand urgent attention. The nation's GDP report for the second quarter of 2016 and fourth quarter of 2020 released by National Bureau of Statistics (NBS) showed that the GDP declined by -1.8 and -1.7 per cent points from the growth of -0.36 per cent recorded in the first quarter of 2016. According to economic and political experts, the quick way out of this type of recession is to diversify the economy especially on the areas of non-oil sector, youth development and empowerment, improved and mechanized agriculture/farming as well as opening the economy to the world for the attraction of foreign direct investment. Also, with the recent release of the Nigerian economic recovery growth plan (ERGP), and government conscious of the over-dependence on oil which constitutes about 95% of generated revenue, has embarked on many measures and policies to give the Nigerian a new lease of life. Agricultural sector has been the leading provider of employment in Nigeria since the 1960s and 1970s, when the sector provided employment for more than 70 percent of the Nigerian population (Effiong, Odey & Nwafor, 2017; Oti *et al.* 2016). Unfortunately, in the wake of oil discovery, the attention on this sector was gradually shifted to the oil sector where employment opportunities were very low and the traditional agricultural exports have been on a progressive decline. The concerted efforts of the government in diversifying the economy have not yielded any positive results as it has reflected in the living standard of the people. The economic diversification index which indicates the level at which the nation is diversified into other critical sectors of the economy has been abysmally slow. It was 0.58, 0.57 and 0.59 percent in 2013, 2015, and 2020, respectively. With the low indices of economic diversification and negation growth rate in the economy, much need to be done for these challenges to be addressed and Nigeria's economy fully launch on the path of sustained growth and development.

## **REVIEW OF RELATED LITERATURE**

### **Benefits and costs of economic diversification**

The most evident advantage of diversification is to increase the resilience of an economy. As seen in Venezuela and Saudi Arabia, the 2016 plunge in global oil prices threw the economies of these oil-dependent nations into disarray. As such, economic diversification helps ease the effects of cyclical downturns, including cyclical unemployment.

Expanding into other sectors will open up a variety of new jobs as the demand increases, helping to alleviate structural unemployment by "future-proofing" economies. Particularly when the economy is trade-oriented, beckons foreign capital investment to flow into the country,

energizing businesses and governments to ramp up growth by spending on fixed capital, infrastructure and so on.

Economic diversification helps improve the economic well-being of citizens, especially when one transitions from primary to secondary or tertiary industries in the process of diversification. Primary industries like mining and agriculture are usually low value since they deal mainly with commodities without much value-adding done. Secondary industries such as manufacturing are higher up on the value chain since it takes expertise and infrastructure to create products in demand from raw materials. Following the same chain of thought, tertiary industries are usually the highest value ones since they require specialized infrastructure, highly skilled individuals that are hard to obtain. Diversification while moving up the value chain will result in higher incomes and further economic growth as an economy transition into high-value exports, evidently seen in the miraculous growth of the “4 Asian Tigers” in the 1960s and 1970s as they moved to manufacturing heavy industries.

### **Theoretical framework**

This study is rooted on Mun and Davenant theory of diversification. The Mun and Davenant theory was propounded by Thomas Mun (1621) and Charles Davenant (1697). Mun and Davenant’s concern had been the problem of weak industrial base, which resulted in exporting most of the outputs in their primary states. They argued that gold was not the only source of wealth that can be available to any nation, that a nation can create baskets of wealth, through diversification. As being explained by Oser and Blanchfield (1975), Davenant believed that eclectic approach to trade, which should include agricultural production and industrial revolution, could create more wealth, as these increase export, with finished and semi-finished goods as the major content. They believed that this approach to trade creates a more sustained wealth than a mono (gold) economy.

Ekpo and Umoh (2014) agreed that it is safe to say that Nigeria tried Davenant’s approach and it worked (though with some institutional defects) in the pre-oil era. According to them, raw materials, comprising agricultural produce and minerals were exported to the industrialized nations. The industrial sector continued on the pioneer industries schemes of the 1950s. Import Substitution Industrialization (ISI) strategy was adopted. Consequently, various consumer items, which were hitherto imported, were produced domestically. Protective measures like tariffs, quotas, etc. were in place to ensure that domestic industries were allowed to grow. In the short run, jobs were created. It is important to mention that, though Mun was not a core bullionist, according to Oser and Blanchfield (1975), he aligned with Davenant on the issue of industrialization, which agrees with Ekpo and Umoh (2014).

### **Empirical studies**

Uzonwanne (2015) investigated economic diversification in Nigeria in the face of dwindling oil revenue. The descriptive method was employed. The paper attempted to seek out how diversification of the economy will enhance stable and viable economic growth in Nigeria. It was concluded from the study that there is no doubt that petroleum has contributed substantially to Nigerian revenue since its discovery in 1956 and more especially, since 1970

when its price was on the upward trend. However, it is a known fact across the globe that for a country to attain growth and development, its economy has to be diversified.

Esu and Udonwa (2015) examined the extent to which diversification impact on economic development in Nigeria. The study employed time series data spanning about thirty-one years (1980-2011). Using the error correction mechanism (ECM), the result points to the fact that, Nigeria could tap from her largely untapped trade potentials for sustained gains, both in the short run and long run. The findings indicate the fact that this can greatly be achieved through conscious efforts at diversifying the economy, encouraging large-scale industrialization of the non-oil (real) sector of the economy, emphasizing deepening technology in every trade and investment discourse, and sustaining the recent improvements in the agricultural sub-sector, amongst other factors.

Ogbonna (2018) studied empirically the relationship between private sector development and economic diversification from 1999Q1-2016Q4. Employing time series analysis with data drawn from Nigeria, the results indicate that the level of private sector investment is a significant determinant of economic diversification both in the short- and long-run. Equivalently, quality of infrastructure, violent conflicts, quality of governance, and openness are also important determinants of economic diversification in the short- and long-run.

Adeyemi and Adewole (2017) examined the relationship between export diversification and economic growth in Nigeria using an augmented Cobb-Douglas production function using time-series data from 1981-2014. The results reveal that labour force participation rate has a negative but significant relationship with economic growth. The ratio of oil exports to total exports also has a negative and insignificant relationship with economic growth. It is also seen that gross fixed capital formation has a positive and significant relationship with economic growth whilst export diversification index has a positive but insignificant relationship with economic growth. In terms of elasticity, it was seen that on average, a percentage rise in the ratio of oil exports to total exports results in a 0.83% fall in per-capita GDP. This could be as a result of ineffective value chains linking the oil and gas industry to the real economy. Hence this suggests that the exports from the oil sector are not linked to economic growth in the country.

Hamed et al. (2014) employed the use of GMM to investigate the role played by export diversification in the growth of the economy of twenty-seven selected developing countries, using cross sectional and time series data for the periods 2000-2009. It was concluded that reducing export specialization and embracing export diversification has a significantly positive relationship with the state of economic growth of the countries used as case study.

Agosin (2007) examined export diversification and growth in emerging economies, focusing on countries that are well within the global technology frontier and depend for growth on adapting existing products to their economic environment. It was seen that export diversification is highly significant in explaining per-capita GDP growth.

De-Pineros and Ferrantino (1997), investigated the long run relationship between growth and export diversification and made a conclusion that export diversification may occur in the long run, but in Chile it only happened at the times of rigorous structural change based on tests carried out using Granger-Sims tests. The authors noted that the process of growth process in Chile is accredited to some other factors like upturns in business cycles, real exchange rate appreciation and stability of export composition.

Herzer and Nowak-Lehman (2006) investigated the long-run relationship between export diversification and growth of Chile. They concluded that export diversification plays a significant role in the growth of Chile using Johansen trace test, multivariate error correction model and the dynamic OLS procedure based on the Augmented Cobb-Douglas production function.

From the above studies, the diversification index estimates for individual developing countries were obtained from cross-sectional data and hence countries were analyzed as random observations. The uniqueness and peculiarities of individual developing countries were given little or no attention. Again, the researchers are unaware of any empirical studies that utilized time series data and specifically examined the relationship between diversification and economic development in an emerging economy like Nigeria in a post COVID-19 era. This work is, thus, to the best of my knowledge a pioneer empirical effort to fill this gap in economic literature.

## METHODOLOGY

The design adopted in this study was an *ex post facto* (after the fact) design. This is because the events had already taken place before the investigation is carried out. A multiple regression analysis is used which is predicated on various econometric techniques such as Augmented Dickey-Fuller (ADF) unit root test, granger causality test and autoregressive distributive lag model also known as bound testing co-integration test.

### Model specification

This model is rooted on Mun and Davenant theory of diversification. As being explained by Oser and Blanchfield (1975), Mun and Davenant hypothesis believed on the eclectic approach to trade, which should include agricultural production and industrial revolution in the form of diversification. The model is specified as follows:

$$PCGDP = f(DIVINDEX, EXR, GOVEXP, INFL, INV) \quad (1)$$

The above equation can therefore be rewritten econometrically as:

$$PCGDP = \alpha_0 + \alpha_1 DIVINDEX_t + \alpha_2 EXR_t + \alpha_3 GOVEXP_t + \alpha_4 INFL_t + \alpha_5 INV + V \quad (2)$$

Thus  $\alpha_1 \dots \alpha_5$  are the coefficients of the equation. The a priori expectation is that  $\alpha_1 > 0$ ,  $\alpha_2 > 0$ ,  $\alpha_3 > 0$ ,  $\alpha_4 < 0$ ,  $\alpha_5 > 0$ . Where; PCGDP = Per capita gross domestic product growth rate, DIVINDEX = Diversification index (The diversification index signals whether the structure of exports by product of a given country or group of countries differ from the structure of product of the world. Diversification index is computed by measuring absolute deviation of the country share from world structure. Diversification index ranges from 0 to 1 revealing the extent of the differences between the structure of trade of the country or group of countries and the world average. The index value closer to 1 indicates a bigger difference from the world average. It is constructed as the inverse of a Herfindahl index, using disaggregated exports.) GOVEXP =

Government expenditure (in billion naira), INV = Investment (proxy by gross fixed capital formation) in million naira, EXR = Exchange rate (%), INFL= Inflation rate (%) and V = Stochastic error term

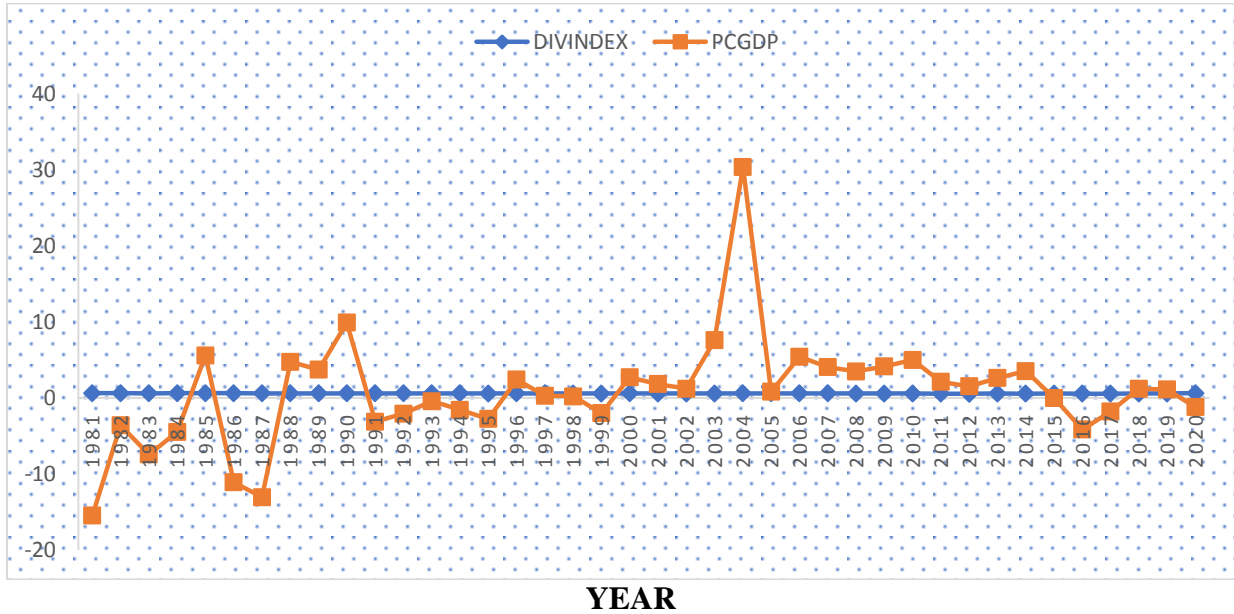
## ANALYSIS AND DISCUSSION OF RESULTS

Economic diversification is generally taken as the process in which a growing range of economic outputs is produced. It can also refer to the diversification of markets for exports or the diversification of income sources away from domestic economic activities (i.e., income from overseas investment). Economic diversification in its standard usage, either in terms of the diversity of economic activities or markets, is a significant issue for many developing countries, as their economies are generally characterized by the lack of it. They have traditionally relied heavily on the production of primary commodities that are predominantly vulnerable to climate variability and change.

A diversified economy is an economy that has a number of different revenue streams and provides nations with the ability for sustainable growth because there is no reliance on one particular type of revenue. This diversification provides nations with the security and reliability that they need so that if one economic revenue stream should fail; the nation knows that they have several other options for revenue. Economic diversification refers to the expansion of economic activity into different sectors, often through government directives.

In Nigeria, between 1981 and 1990, diversification index for the country averaged about 0.61 percent. The index decreases between 1991 and 2000, averaging 0.59 percent. This had an inverse effect on the level of Nigerian economic development. Subsequently, the annual diversification index remained stable on the average between 2001 and 2010, before reducing to 0.57 percent between 2011 and 2020. A cursory look at the per capita GDP growth rate figures revealed that the figures have hovered on the negative trend averaging 3.1 percent and 0.6 percent between 1981 and 1990, and 1991 and 2000 compared to the positive trend exhibited between 2001 and 2014. The growth rate of per capita GDP further became negative in 2015, 2016 and 2017 with recession experienced within this period.

### **Fig.1: The trend of Nigeria's Diversification Index and Per Capita GDP, 1981-2020**



Source: World Development Indicators, 2021

**Unit root test results**

The Augmented Dickey Fuller unit root test was conducted to examine the stationarity condition of the variables. As indicated in table 1, PCGDPR, DIVINDEX and INFLA were stationary at levels in ADF test. In other words, the variables are integrated of order zero (i.e., I (0)). Conversely, INV, INTR, EXR and GOVEXP became stationary after first difference using both criteria. The aforementioned variables are therefore integrated of order one i.e., they are I (1). Where some of the variables are I (0) while others are I (1), one suggests the problem of unit root in the equations. It becomes imperative to perform co-integration tests to determine the presence of equilibrium relationship amongst the variables in each equation. The study adopts the ARDL bound testing technique for co-integration, as the variables are integrated of diverse orders (i.e., order zero and order one).

**TABLE 1**

**ADF unit root test results**

Variables	ADF		Order of integration
	Level	1 <sup>st</sup> Difference	
PCGDPR	-6.026553**	-	I(0)



DIVINDEX	-5.333362**	-	I(0)
INV	3.031830	-4.928676**	I(1)
INTR	-1.680101	-10.90576**	I(1)
INFLA	-3.428189**	-	I(0)
EXR	2.493804	-4.653988**	I(1)
GOVEXP	4.819199	-5.099107**	I(1)

Source: Researchers' computation, 2021

The efficiency and validity of an error correction model depends on the lag structure. The study used VAR lag order selection criteria to determine the lag lengths. The study employed the Akaike Information Criterion (AIC) and Schwarz Criterion (SC) and the result shows four optimal lag lengths in the estimated model as shown in table 2. In order to reduce the possibility of underestimation whilst maximizing the likelihood of recovering the true lag, the study used four as the maximum lag lengths.

**TABLE 2**  
**Optimal lag selection criteria for the model**

Models	Lag	LR	AIC	SC
Per capita GDP and Diversification model	0	NA	87.25751	87.53855
	1	394.4645	78.77409	84.03621
	2	66.82723	78.72429	82.93984
	3	66.93015	77.99206	84.17486
	4	68.53895*	75.88615*	81.02238*

Source: Researchers' computation (2021)

**Co-integration test results**

From the bound testing result reported in Table 3, long run relationship exists amongst the variables in the three estimated equations, given that the values of the F-statistic are greater than the critical values at five per cent level in both the upper and the lower bounds. Therefore, the null hypothesis of absence of co-integration is rejected, while the study proceeds to estimate the long run coefficient of each of the equations.

**TABLE 3**  
**Co-integration test results**

Equations	K	F-Stat.	5% critical value		Outcome
			I (0)	I (1)	

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PCGDP (DIVINDEX, EXR, GOVEXP, INFLA, INV) 6	4.72	2.27	3.28	Co-integration
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Note: K =number of parameters  
 Source: Researchers' computation, 2021.

**Granger causality test results**

From table 4, no bidirectional causality was found between diversification index and per capita GDP.

**TABLE 4**  
**Pair wise granger causality test results**

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<b>Variable</b>	<b>Variable</b>	<b>Direction of causality</b>
<i>DIVINDEX</i>	<i>PCGDP</i>	<i>No bidirectional</i>

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Source: Researchers' computation, 2022

**ARDL Co-integration Results**

The long run equation of the development and diversification model using the Autoregressive Distributed Lag technique is reported in table 5a. From the results and in contravention of theoretical expectation, the diversification index (DIVINDEX) is wrongly signed and is statistically insignificant. According to the result, an increase in diversification index has an indirect long run relationship with PCGDP growth in Nigeria. The magnitude of the coefficient of the variable shows that a 1 percent increase in diversification index in the long run will lead to a decrease in per capita GDP growth (PCGDP) by 9.64 percent.

The long run effect of exchange rate (EXR) on per capita income is positive and statistically significant. From the result of the study, an increase in exchange rate by 1 percent will instigate an increase in per capita GDP growth by 0.14 percent. The result from the table reveals that a positive relationship exists between government expenditure (GOVEXP) and per capita GDP growth (PCGDP) but statistically insignificant in the long run. This is consistent with the a priori expectations. The outcome established that in the long run, a 1 percent increase in government expenditure (GOVEXP) in Nigeria will bring about 0.0015 percent increase in per capita GDP growth. Inflation rate (INFLA) was found to have positive relationship with per capita GDP growth and statistically significant, which is inconsistent with theory. A 1 percent increase in inflation rate will lead to an increase in per capita GDP growth by 0.12 percent in the long run. Investment (INV) was found to have indirect relationship with per capita GDP growth but statistically insignificant, which is inconsistent with theory. A 1 percent increase in domestic investment will lead to a decrease in per capita GDP growth by 1.7 percent in the long run, ceteris paribus.

The short run dynamic results of per capita income and diversification equation is as reported in table 5b. From the results and in consonance with theoretical expectation, a positive

relationship exists between diversification index (DIVINDEX) and per capita income at current, first and second period lags which is in consonance with theoretical expectations and statistically significant. The magnitude of the coefficients of diversification index at the current, first and second period lags showed that a 1 percent increase in diversification index in the short run will lead to an increase of 356.6, 175.8 and 196.0 percent in per capita GDP growth, respectively.

The short run effect of exchange rate (EXR) on per capita income is positive at current period. From the result of the study, an increase in exchange rate by 1 percent will instigate an increase in per capita GDP growth by 0.19 percent. The statistical significance of the variable at current period indicates that exchange rate is an essential variable that affects per capita GDP growth in the short run. The variable became negatively related with per capita income after first, second and third period lags with the coefficients of 0.31, 1.32 and 0.24, respectively. Hence, an increase in exchange rate by 1 percent will lead to 0.31, 1.32 and 0.24 percent decrease in per capita GDP growth, respectively. The result from the table also revealed a negative relationship between government expenditure (GOVEXP) and per capita GDP growth (PCGDP) at the current period. The outcome established that in the short run, a 1 percent increase in government expenditure in Nigeria will bring about 0.012 percent decrease in per capita income at current period. A positive relationship was observed after first and second period lags and statistically significant. Inflation rate (INFLA) was found to have positive relationship with per capita GDP growth at the current period, which is inconsistent with theory. A 1 percent increase in inflation rate will lead to an increase in per capita GDP growth by 0.028 percent. The variable became negatively related with per capita income after first and second period lags with coefficients of 0.32 and 0.14, respectively. Hence, an increase in inflation rate by 1 percent will lead to 0.32 and 0.14 percent decrease in per capita GDP growth, respectively. The result from the table also revealed a positive relationship between investment (INV) and per capita GDP growth (PCGDP) at the current, first and second period lags. The outcome established that in the short run, a 1 percent increase in investment in Nigeria will bring about 2.79, 5.97 and 7.65 percent increase in per capita income at current, first and second period lags, respectively.

The error correction mechanism (ECM) has the correct sign and size. The ECM coefficient of -3.82 indicates that, it takes about 38 percent for the short run disequilibrium to adjust to the long run equilibrium within the year. The t-statistic of -7.44 showed that the error correction term is statistically significant at 5 percent level of significance.

R-squared value of 0.875 and the value of R-squared adjusted of 0.751 indicates that about 75 percent of the total variations in per capita GDP growth is explained by the independent variables, and about 25 percent was unexplained which may be accounted for by other factors not included in the model. The Durbin-Watson (D-W) statistic of 2.094 indicates no autocorrelation in the model. Therefore, the results can be used for economic forecast and policy simulation.

The stability test using the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) in fig. 1a and 1b, respectively, further shows that the variables included in the per capita GDP growth equation were stable within the period of the study. This is evidenced by the swing of the trends within the CUSUM and CUSUMSQ bound at the  $\pm$  five percent significance level. The study, therefore, infers that the equation is stable and consistent to be adopted for economic policies and forecasts.

**TABLE 5a**

**Dependent variable: PCGDP**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIVINDEX	-9.648123	43.22411	-0.223212	0.8264
EXR	0.138707	0.021798	6.363184	0.0000
GOVEXP	0.001522	0.002899	0.524834	0.6074
INFL	0.121275	0.051613	2.349687	0.0329
INV	-1.71E-09	8.20E-10	-2.086151	0.0545
C	15.33475	24.71719	0.620409	0.5443

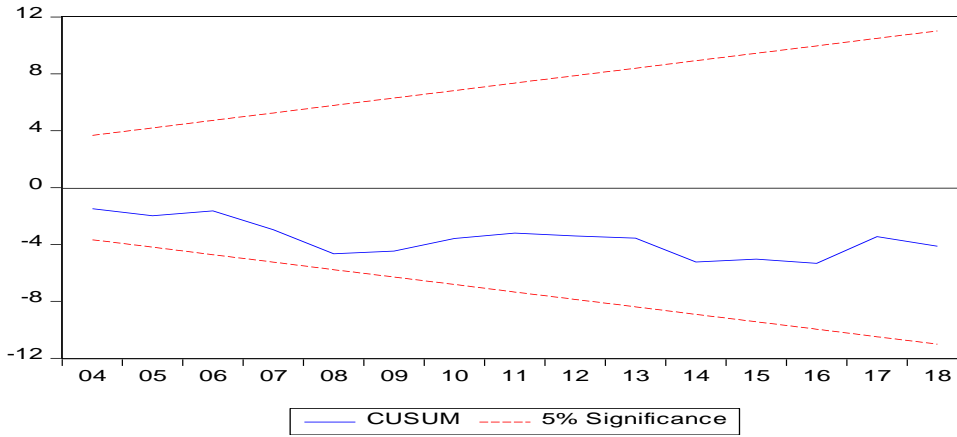
**TABLE 5b**

**Dependent Variable: D (PCGDP)**

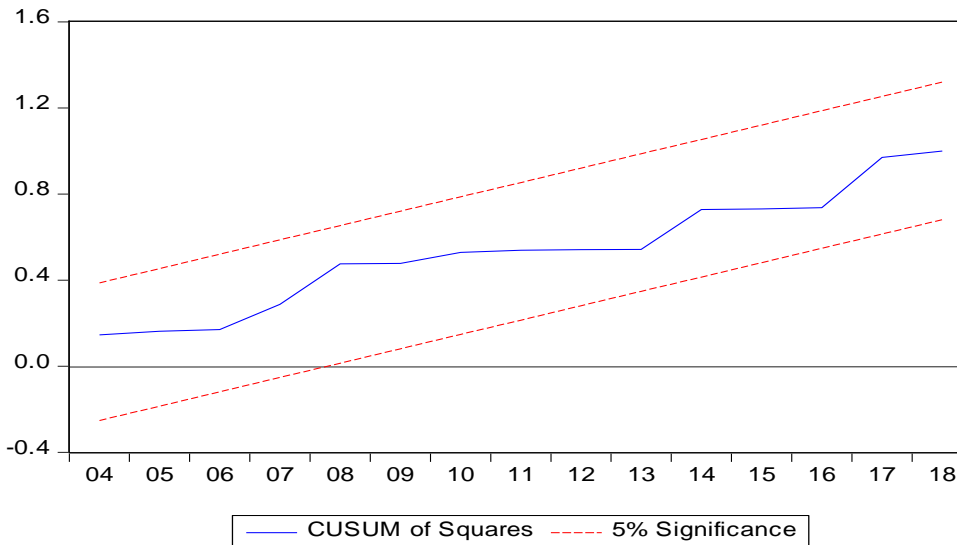
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PCGDPR(-1))	2.070289	0.395898	5.229356	0.0001
D(DIVINDEX)	356.6243	72.96429	4.887656	0.0002
D(DIVINDEX(-1))	175.8515	70.28029	2.502145	0.0244
D(DIVINDEX(-2))	196.0245	67.00604	2.925475	0.0104
D(EXR)	0.197360	0.061596	3.204083	0.0059
D(EXR(-1))	-0.308126	0.076846	-4.009663	0.0011
D(EXR(-2))	-0.132660	0.082513	-1.607745	0.1287
D(EXR(-3))	-0.245870	0.077108	-3.188641	0.0061
D(GOVEXP)	-0.012332	0.003293	-3.745421	0.0019
D(GOVEXP(-1))	0.014692	0.003903	3.764463	0.0019
D(GOVEXP(-2))	0.021234	0.005220	4.068102	0.0010
D(INFL)	0.028681	0.067773	0.423191	0.6782
D(INFL(-1))	-0.321941	0.080110	-4.018737	0.0011
D(INFL(-2))	-0.149651	0.067289	-2.224010	0.0419
D(INV)	2.79E-09	1.15E-09	2.429539	0.0281
D(INV(-1))	5.97E-09	1.25E-09	4.788249	0.0002
D(INV(-2))	7.65E-09	1.55E-09	4.937037	0.0002
ECM(-1)*	-3.829620	0.514358	-7.445430	0.0000
R-squared	0.875862			
Adjusted R-squared	0.751724			
Durbin-Watson stat	2.094853			

**Source: Researchers' computation (2022)**

**Stability Test**



**Fig. 1a: CUSUM test for stability of PCGDP and Diversification model**



**Fig. 1b: CUSUM square test for stability of PCGDP and Diversification model**

## SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

### Summary of Findings

This study was carried out to investigate the impact of diversification on economic development in Nigeria. In order to achieve this, descriptive analysis of the various variables was made and the nature of their correlation determined. The data were subjected to stationarity

test using the augmented Dickey-Fuller unit root test. The result revealed that the variables were stationary at both levels and first differencing.

The result of granger causality shows that no bidirectional causality was found between diversification index and per capita GDP. The bound test result shows that a long run relationship exists among the variables in the estimated equations. Therefore, the null hypothesis of absence of co-integrated is rejected while the alternative hypothesis is retained. This signifies the relevance of these variables in stimulating economic development in Nigeria. The statistical significance of diversification indices implies that it has much influence on economic development in both the short and long run.

The model was estimated using the error correction mechanism (ECM) within the framework of autoregressive distributive lag (ARDL) and the outcome of the results showed that the dwindling economic fortune of the nation is caused by lack of diversification of the economy.

From the per capita income equation, a positive relationship exists between diversification index and economic development in Nigeria implying that diversification is an essential variable that affects economic development in Nigeria in the short and long run. The finding is consonance with the views of Esu and Udonwa (2015) who revealed that trade openness; financial integration and foreign direct investment have significant positive impact on economic growth in Nigeria. The findings indicate the fact that economic development can greatly be achieved through conscious efforts at diversifying the economy, encouraging large-scale industrialization of the non-oil (real) sector of the economy, emphasizing deepening technology in every trade and investment discourse, and sustaining the recent improvements in the agricultural sub-sector, amongst other factors.

The error correction coefficients met the three criteria for its acceptability given that it is negative, fractional and statistically significant. Consequently, the estimated results confirm the presence of long run relationship among the variables in the model. It also shows that the speed of adjustments is high in the estimated model. The value of the adjusted R-squared implies that the model has good fit as the independent variables have high explanatory power. The Durbin-Watson Statistic connotes absence of autocorrelation in the estimated equation. The study, therefore, accepts the null hypothesis of no serial correlation in the model. This further implies that the error terms of different periods are not serially correlated.

The stability test using the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) further shows that the variables included in the equation were stable within the period of the study. This is evidenced by the swing of the trends within the CUSUM and CUSUMSQ bound at the  $\pm$  five percent significance level. The study, therefore, infers that the equation is stable and consistent to be adopted for economic policies and forecasts.

## **Conclusion and Recommendations**

The study explored the impact of diversification on economic development in Nigeria from 1981-2020 adopting the autoregressive distributive lag model. The study observed that diversification affect economic development in the country. A positive relationship was found between diversification index and economic development in Nigeria. Based on these results, the

study concludes that the plummeting nature of economic development is orchestrated by low diversification indices. This explains to some extent the slow growth, high level of poverty and the economic recession experienced over time especially in the recent years. The overall challenge to policymakers is to ensure the diversification of the country away from oil into agriculture, small and medium scale enterprises and manufacturing, which will enhance the stability of economy.

In line with the findings of this study, the following recommendations are made: The economy should be diversified from crude oil and there should be prudent government spending and conducive and enabling environment for both the growth of other important sectors and improved domestic investment. Horizontal and vertical export diversification should be encouraged. Exports from sectors such as agriculture, manufacturing, textile as well as minerals and steel should be encouraged. The monetary authorities should enhance the formulation of appropriate monetary policy that will help to control inflation and exchange rate for sustainable economic development. Government should endeavor to maintain a stable and favorable macroeconomic policy that will drive domestic investment in the economy and this will make doing business in Nigeria a success towards a more vibrant economy. The monetary authorities should aim at stabilizing exchange rate through the use of appropriate monetary policy tools as well as support export diversification programmes in order to enhance foreign exchange inflow into the manufacturing sector of the Nigerian economy.

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