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Nigeria's Export Diversification and Economic Growth: An Empirical Analysis

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Abstract

The effect of export diversification on Nigeria's economic growth is examined in this article. The study makes the case that policies implemented have contributed to the fact that export diversification has helped some countries achieve economic growth. Ordinary Least Squares is the data analysis technique used (OLS). The study discovered that while oil exports and the Herfindahl export concentration index had a negative effect on economic growth as measured by GDP per capita, non-oil exports, natural resource endowments, institutions, and real exchange rates all had a positive and significant impact on economic growth. According to the study, effective macroeconomic management strategies include anti-export bias policies, countercyclical fiscal policies (low inflation, realistic exchange rates, and low fiscal and external deficits), and steps to lessen the negative social effects of the reforms required to bring domestic prices into line with those of other countries. Therefore, for Nigeria's traded industries to compete globally, trade policies must be fairly open. Additionally, as diversification will not happen suddenly but rather be fueled by efficient infrastructure development, particularly in the non-oil sector, it must be accompanied by an increasing exchange rate in order to broaden the economy's export base.

Keywords: *Economic Growth, Export Diversification, OLS, Exchange Rate, GDP Per Capita*.

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Background to the Study

The idea of economic diversification as an operational phrase in public policy has continued to evolve, reflecting the growing understanding of the complexity of the related technical and policy concerns (Hesse, 2008). There was no distinct place for export diversification as an organizing framework for action in the larger investigation of the effects of export diversification on economic growth and development as well as the role of the government in supporting a mono-product economy like Nigeria to ensure economic stability and sustainability (Olaleye, Edun, & Taiwo, 2013). Rather, the emphasis is on the broader concept of diversity, which includes a number of unique elements including value addition and revenue growth. The World Trade Organization (2010) emphasized the significance of export diversification and stated that it boosts domestic output, employment, income, and economic growth when a nation's export base is diversified. It issued a warning, pointing out that export earnings are very erratic for emerging nations that ship huge quantities of a select few goods. In Nigeria, economic diversification is not a novel tactic. Indeed, since oil and gas became the primary and nearly exclusive source of income for the government more than 50 years ago, it has been on the political agenda.

The nation was ranked 176 out of 216 countries in the world and among the least diverse countries in terms of export diversification, with a Herfindahl-Hirschman Index of concentration of 0.78 and for diversification (0.783), according to the export diversification index calculated using the Herfindahl-Hirschman Index concentration ratio published by the United Nations Conference on Trade and Development (UNCTAD, 2012). The current state of affairs runs counter to the widely held belief that agriculture and other non-oil sectors continue to play a significant role in Nigeria's socioeconomic development.

The allocative state model currently in use in Nigeria is predicated on the sale of hydrocarbons with other productive assets nearly neglected and underdeveloped. It is plausible that the recent political focus on diversification is driven by a number of issues arising from the developmental issues pertaining to the unpredictability of oil and gas prices at the international market. In two crucial ways, the current situation makes it impossible for states in Nigeria to continue their efforts at development. Nigeria's oil and gas sector primarily focuses on the extraction and export of basic commodities and does little to process and refine crude to finished products and their derivatives. As a result, it fails to provide a steady and sufficient income for the population and, secondly, it fails to create job opportunities for the rapidly expanding and well-educated groups of young citizens.

The need for export diversification as the economy grows and develops has recently received a lot of attention in the trade literature, particularly empirical research. For at least two reasons, the debate over how nations with varying per capita income levels manage to diversify their economic structures has significant policy implications. Second, as Kalenali-Ozcan, Sorensen, and Yosha (2003) put it, concentration of resources in one sector (high degree of overall specialization) may be risky in the case of sectoral shocks which De Ferranti, Perry, Lederman, and Maloney (2002) observed, can limit economic growth. First, the ongoing process of diversification attests to the structural change as an aspect of economic

development. As the world started to see dependence on primary products as harmful to growth due to volatile prices and low demand elasticity, issues of export diversification as a means of development and growth only became important in economics in the 1950s. However, Ross's (1999) portfolio effect theory provides evidence of the extent to which the problem of export instability can be managed with a mix of investment and its variances.

This research aims to provide an empirical analysis of the effects of export diversification on Nigeria's economic growth. There are five sections to the paper. The study's introduction, which provides a broad overview of the work, is the first section. The literature review is covered in the second segment, and the technique and model formulation are covered in the third. Results and discussion are covered in the fourth section, and suggestions for more research are made in the last section, which also finishes the work.

Literature Review

Theoretical Framework

The traditional trade theories based on the Hechscher-Ohlin (H-O) framework, new trade theories, and endogenous growth theories proposed by Liu and Shu (2003) are some of the theoretical underpinnings for the empirical investigations on exports. The Hechscher-Ohlin model holds that a nation should export goods for which it has a comparative advantage in both production and exports; however, the new trade theories consider trade costs, economies of scale, and imperfect competition as significant factors influencing export performance and serve as the foundation for diversification. Based on the endogenous nature of the diversification decision, a pool of these theories gave rise to the endogenous growth theories of Barro (1991), Romer (1994), and Barro and Sala-i-Martin (2003), among others. The relationship between Nigeria's economic growth and export diversification is explained in the paper using the endogenous growth theory. This is due to the fact that it is the only growth theory that maintains that policy decisions, rather than exogenously determined elements such unexplained technological advancement, influence an economy's long-term growth rate. Here, long-term economic growth can be explained without the need for exogenous technology advances. Rather, growth results from a never-ending investment in human capital, which boosts the economy overall and lessens the decreasing returns on capital accumulation. The endogenous growth model also has the advantage of assuming that the production function does not show diminishing returns to scale. This leads to endogenous growth based on the idea that agents optimally determined how much to consume and save, as well as how best to allocate resources to research and development that advances technology.

The endogenous growth model is relevant to the paper since it attempts to construct macroeconomic models based on microeconomic underpinnings. The endogenous growth theory states that investments and labor productivity have an impact on growth rate and per capita output. The simplest form of the production function, $Y = AK$, is projected as the basis for the Harrod-Domar "AK" model, which relies on the lack of decreasing returns to capital. According to this equation, K is the capital (which includes human capital), Y is the production level, and A is the positive constant that influences the level of technology. $Y = AK$ indicates that, at level $A > 0$, the average, marginal product, and production per capita are all constant.

This equation demonstrates how an economy's per capita income converges to both its own steady-state equilibrium value and to the per capita incomes of other countries: f1(K)/K = A. in an equation of transitional dynamics of Solow (1956) model. When a growth rate on K is provided in a transitional dynamic equation of this kind, $\Delta K = K/K = s. f1(K)/K – (n + \delta)$. When A is substituted, $\delta K = sA – (n + \delta)$. It can be demonstrated at x = 0 that long-term per capita growth is now possible even in the absence of exogenous technical development.

Empirical Review

A substantial amount of theoretical and empirical research has been conducted to understand the impact of export diversification on economic growth and development in developing nations. Using the per capita income (PCI) variable, a number of studies, including those by Imbs and Waczlarg (2003), De Benedictis, Gallegati, and Tamberi (2009), Parteka (2007), Parteka and Tamberi (2011), Cadot, Carrere, and Strauss-Khan (2007), and Koren and Tenreyro (2007), hypothesize a monotonic increasing relationship between the level of development and export diversification in developing nations. This aligns with the theoretical stance of Acemoglu and Zilibotti (1997), who emphasize the restricted opportunities for diversification at lower development levels due to capital shortages and investment project indivisibility.

In order to determine the connections between changes in export variety and increases in total factor productivity, Feentra and Kee (2008) looked at the relationship between changes in export variety and economic growth across sixteen (16) sectors in Taiwan and South Korea between 1975 and 1991. Export variety has a good and considerable impact on production, according to the study. Agosin (2006) used cross-sectional data for Asian and Latin American nations from 1980 to 2003 to further examine the explanatory power of export diversification. Using a growth model, the study discovered that while export increase alone could not spur economic growth, growth in conjunction with the benefits of diversification seemed to have a considerable impact. The study found that export growth and diversity had good explanatory power, were statistically significant, and had the predicted sign. According to the study's findings, export diversification will boost economic growth by altering the mix of exports and extending competitive advantage.

The Economic and Social Commission for Asia and the Pacific (ESCAP, 2004) determined that diversification plays a significant role in determining economic growth in three Asian countries: Bangladesh, Nepal, and Myanmar. It also confirmed the existence of a positive relationship between diversification and economic growth. The outcome demonstrates that the three nations' development processes are accelerated by growing exports.

Using export data from sub-national districts, Matthee and Naude (2008) investigated export diversity and regional growth in the context of developing countries throughout the South African region. They discovered that regions with a lower degree of export specialization and more diversified exports tended to have higher rates of economic growth and made a greater contribution to South Africa's total exports. Additionally, Lyakurwa (1991) looked at trade policy and promotion in sub-Saharan Africa and discovered that export diversification is

crucial for lowering the volatility of emerging nations' export revenues and increasing the rate at which both exports and domestic output are growing.

In numerous economics fields, a large number of additional empirical research and data have also shown the validity of the relationship between export diversification and economic growth. In an investigation into the potential relationship between export diversification and growth, Al-Marhubi (2000) used data from 1961 to 1988 to study 91 countries. The study found that export diversification promotes capital accumulation and that countries with higher export diversification and lower export concentration grow at faster rates. Lederman and Maloney (2003) examined the empirical relationship between trade structure and economic growth using the impact of natural resources, export concentration, and intra-industry trade. Panel data covering 25-year intervals was used by the authors. The report's conclusion that export concentration hinders growth in nations where the export base is largely undiversified is one of its most intriguing findings. It is consistent with the Solow growth model's assertion that the marginal efficiency of natural resources is negative and that resource abundance negatively affects growth.

Methodology and Model Specification

The study uses Ordinary Least Squares (OLS) to examine the relationship between export diversification and economic growth in Nigeria. It is based on annual data from 1986 to 2017 that was obtained from the Central Bank of Nigeria Statistical Bulletin. Most people agree that one of the available indicators of economic growth is export diversification. We outline the paper's model and philosophy in this part. The primary goal of this study is to investigate how export diversification affects Nigeria's economic expansion. The variables are analyzed using an econometric instrument reliant on ordinary least squares (OLS) in order to achieve this goal. We also use stationarity tests to investigate the characteristics and behavior of the macroeconomic data used, and we use the OLS analysis technique to describe the estimated model's results.

We concentrate on the effect of export diversification on economic growth because the goal of this study is not to determine the factors that lead to Nigerian export diversification. This is the study's principal contribution. Starting with the standard symbolic representation of the final goods manufacturing function in this literary strand, in accordance with Parteka and Tamberi (2011),

$$Y = A.L_i^{1-\alpha}.\sum_{i=1}^{N}(X_{ij})^{\alpha} \qquad 1$$

Where: $0 < \alpha < 1$, j denotes differentiated intermediate inputs, L is the labor input, and Y is the type I end product.

A decomposition of aggregate GDP growth is estimated in order to ascertain the productivity of labor and capital, as well as its efficient utilization as a component of total output. The

components of productivity, capital, and labor make up the total GDP. Technical progress defines total factor productivity (TFP), as it is not explained by growth in factor inputs as a percentage of GDP. The neoclassical production function of Solow (1956) is then used to determine the productivity of inputs to total output growth by first assuming constant returns to scale, competitive markets, and neutral technical progress. As a result, the production model and estimated growth rate as in Haouas and Hesmati (2014) are written as follows:

$$Y = AK^{\alpha}L^{(1-\alpha)} \quad 2$$

Which is converted to log linear form as:

$$\log Y = A + \alpha \log K + (1 - \alpha) \log L \quad 3$$

Equation (2)'s neoclassical production function defines Y as the output rate. The total factor productivity growth rate (TFPG) is denoted by A. As determined by the ratio of K to L, or K/L, the capital income share is equal to the elasticity of production. In equation (3), the terms log Y, log K, and log L stand for the growth rates of labor use, capital formation, and output, respectively. Equation (3) can be used to calculate the growth rate of commodity Y, which allows the determinants of economic growth in the absence of exogenous technological change to be expressed in econometric form as follows:

$$RGDPPC = \beta_0 + \beta_1 HIREXIN + \beta_2 NONOILEXP + \beta_3 NREND + \beta_4 INST + \beta_5 REXRATE + \lambda GDPPC_{t-1} + \mu \quad 4$$

Here are the variables: real gross domestic product per capita (RGDPPC), Hirschman concentration index (HIREXIN), oil export value (OILEXP) and non-oil export value (NONOILEXP), natural resource endowments (NREND), institutional (indicated by contract intensive money, or CIM) as a proxy for the institution, real exchange rate (REXRATE), and error term (ε) with assumed normality. To standardize the unit of measurement and let the coefficients be interpreted as elasticities, all variables are in their logarithmic form. Thus, equation (4)'s logarithmic form is as follows:

$$\text{Log } RGDPPC = \beta_0 + \beta_1 \log HIREXIN + \beta_2 \log OILEXP + \beta_3 \log NONOILEXP + \beta_4 \log NREND + \beta_5 \log INST + \beta_6 REXRATE + \lambda \log GDPPC_{t-1} + \varepsilon \quad 5$$

On a priori, $\beta_1, \beta_2, < 0;\ \beta_3, \beta_4, \beta_5, \beta_6$ and $\lambda > 0$

Results and Discussion

The empirical findings for this study are presented and discussed in this section, starting with the pre-estimation unit root test to verify the stationarity of the model's variable variables.

Unit Root Test

It was crucial to confirm the stationarity of the data series employed before beginning the study. Using the Augmented Dickey, the variables' stationarity property was examined.

Table 1: Result of Unit Root Test

Variables	Critical value	ADF	Status
GDPPC	- 2.9320**	- 4.202011	1(1)
HIREXIN	- 2.9303**	- 3.811577	1(0)
OIL EXP	- 2.9320**	- 5.148182	1(1)
NON-OIL EXP	- 2.9320**	- 4.040437	1(1)
NREND	- 2.9320**	- 6.698987	1(1)
INST	- 2.9320**	- 4.176809	1(1)
EXR	- 2.9320**	- 4.027400	1(1)

Source: Authors' computation, using E-views 10.1. ** indicates the 0.05 level of significance

It is clear from Table 1 that every variable is integrated of order 1, or 1(I). Stated differently, it is claimed that every variable is stationary at first difference. The real exchange rate of HEREXIN is the only one that is level and stationary (with constant, constant and trend and under none). Consequently, it is reasonable to say that first differencing is adequate for simulating the time series used in this investigation.

Table 2: Estimates for the Export Diversification and Economic Growth

Regressor	Coefficient	t- value
Constant	4.966638	6.780673
HIREXIN	- 0.862944**	- 2.242361
LOGOILEXP	- 0.479219**	- 2.764539
LOGNONOILEXP	0.125337**	0.490134
NREND	0.057795	2.110082
INST	0.150526**	0.607274
REXRATE	0.008206**	3.250667
GDPPCt – 1	0.336667**	4.612358

Summary Statistics:

$R^2 =$ 0.813505	Adj $R^2 = 0.77822$
Dw stattistics = 1.526097	F-Statistics = 23.05661

Source: Authors' computation from E-Views 10.1; ** represent the 0.05 significant level

The calculated t-ratios corresponding to the coefficients are statistically high, and the coefficient of determination (defined by R2), which gauges the model's goodness of fit, is also statistically high, making the regression results generally tenable. It clarified that the model's regressors account for approximately 81% of the variation in per capita GDP. However, only roughly 19% are missing from the picture. This indicates that the regression equations have a high explanatory power. Autocorrelation is not a major issue because the Durbin-Watson (D-W) score is 1.526097.

Table 2 provides compelling evidence that, while holding other variables constant, the GDPPC would decline by roughly 0.86 percent (-0.862944) for every unit increase in the export concentration on a single sector. Stated otherwise, a one percent increase in per capita

income is correlated with a 0.86 percent decrease in the concentration measure, indicating that the process of export diversification occurs in tandem with growth, albeit at a rather sluggish pace. On the other hand, export diversification will increase by roughly 0.13 percent (0.125337) for every 1% increase in per capita income. In this way, the results disprove the null hypothesis, which holds that there is no meaningful and positive correlation between Nigeria's economic growth and export diversification.

Once more, the findings demonstrated that, when all other factors were held equal, GDP per capita would decline by roughly 0.48 percent (-0.479219) for every unit increase in oil export. It is evident from the oil exports' negative contribution to GDP per capita that there are decreasing returns to scale in Nigeria's oil resource development. Due to the renter economy brought about by oil wealth and the resulting idleness, the economy is no longer competitive and has a poor income distribution, which raises the nation's poverty rate. As the findings show, export diversification would essentially require challenging policies to emphasize the significance of lessening reliance on the oil and gas sector and more effectively allocating resources to the non-oil sector.

The model also looked at the relationship between Nigeria's economic development and export diversification while taking the non-oil sector's GDPC into consideration. The findings indicated that, while keeping all other factors equal, GDP per capita would increase by roughly 0.13 percent (0.125337) for every 1% increase in the economy's non-oil exports. Regression analysis shows that, interestingly, non-oil sector economic growth is substantially higher than oil export growth. This suggests that the non-oil industry is growing at a faster rate than the oil sector, particularly when it comes to proper development.

The results show that, if all other factors remained same, GDP per capita would marginally increase by roughly 0.6 percent (0.057795) for every unit change in the endowment of natural resources. The Dutch disease theory often finds that the availability of natural resources has a detrimental effect on economic growth. The findings showed that, when all other factors were held equal, GDP per capita would increase by roughly 0.15 percent (0.150526) for every one percent increase in institutional quality. This suggests that there is a strong direct correlation between Nigeria's economic growth and the caliber of its institutions.

The findings indicated that, if all other variables remained constant, GDP per capita would increase by less than 0.1 percent (0.008206) for every unit change in the real exchange rate. This finding is consistent with the work of Umoruet al. (2023) that discovered a weak but not statistically significant correlation between economic growth and exchange rates. GDP per capita is essentially dependent on its historical value (GDPPCt-1) more so than any other model variable. In reality, the outcome indicated that, while keeping all other variables equal, the GDPPC would increase by roughly 0.34 percent (0.336667) for every unit change in the GDPPC from the prior year. It suggests that, with a speed of adjustment (1 -) of 0.66 percent, roughly 0.34 percent of the disequilibrium in per capita gross domestic product (GDP) from the prior year gets corrected in the present period. This further illustrated how much the predictor and predicted factors contribute to the explanation of Nigeria's rate of economic

growth. The result, which illustrates the association between the primary regressors of the model and per capita gross domestic product (GDPPC), was estimated at the five percent significance level.

Conclusion and Recommendations

While the study's findings indicate that non-oil sectors have over 0.12% potential to positively impact growth, the study also demonstrates that Nigeria's high concentration on oil exports has a detrimental effect on both economic growth and the development of non-oil sectors. The study attributes this high degree of export concentration to a number of factors, including inadequate infrastructure, a lack of value addition in the production of primary products, and institutional weakness. In terms of policy, this relationship is intriguing. Government policies should therefore be developed to support the growth of non-oil industries so that they can get a competitive cost advantage and a competitive advantage in the global market. A policy that would enhance the nation's institutional quality, promote a general adherence to the rule of law rather than arbitrary behavior, expedite the process of enforcing contracts, and resolve contract disputes promptly could accelerate the growth of the non-oil sector and unleash the 0.15 percent growth potential. If this isn't the case, domestic rent expenditure will undoubtedly drive up domestic production costs and the cost of goods and services.

As a result, there would be less investments made in profitable industries, which would decrease employment, productivity, and exportable goods. Therefore, concerns pertaining to both behind and beyond borders should be a focus of successful export diversification. It is necessary to address supply-side, policy, and competitiveness constraints in addition to behind-the-borders constraints. Conversely, the "beyond the borders" limitations call for tackling market access obstacles to export commodities and possessing strong negotiation abilities at the bilateral, regional, and international levels.

References

Acemoglu, D., & Zilibotti, F. (1997). Risk, diversification and growth, *Journal of Political Economy 105*(4), 709-751.

Agosin, R. (2006). *Export diversification and economic growth: An analysis of Columbia's export.* Working Paper No.233. Department of Economics, University of Chile.

Al-Marhubi, F. (2000). Export diversification and growth: An empirical investigation, *Applied Economics Letters, 7,* 559-562.

Barro, R. G. (1991). Economic growth in a cross-section of countries, *Quarterly Journal of Economics, 10*6, 407-443.

Barro, R., & Sala-i-Martin, X. (2003). *Economic growth (2nd ed.),* Cambridge, Mass.: MIT Press.

Cadot, O., Carrere, C., & Strauss-Khan, V. (2007). Export diversification: What's behind the whom? Centre for Economic Policy Research (Discussion paper N0. 6590).

De Benedictis, R., Gallegati, M., & Tamberi, M. (2009). Overall specialization and development: countries diversity. *The Review of World Economic, 145* (1), 37-55.

De Ferranti, D., Perry, G., Lederman, D., & Maloney, W. (2002). *From natural resources to the knowledge economy: Trade and job quality,* Washington D.C: World Bank.

Economic and Social Commission for Asia and the Pacific, E. (2004). *Export diversification and economic growth: The experience of selected lease develope*d, New York: United Nations.

Feentra, R., & Kee, H. (2008). Expert variety and country productivity: Estimating the monopolistic competition model with endogenous productivity, *Journal of International Economics, 74* (2), 500-516.

Hesse, H. (2008). Export diversification and economic growth. Washington, DC: The international bank for reconstruction and development (The World Bank), On behalf of the Commission on Growth and Development (Working Paper No. 21).

Imbs, J., & Waczlarg, R. (2003). Stages of diversification, *American Economic Review, 93* (1), 63-86.

Kalenali-Ozcan, S., Sorensen, B., & Yosha, O. (2003). Risk sharing and Industrial Specialization: regional and international evidence, *American Economic Review,* 93 (3), 903-918.

Koren, M., & Tenreyro, S. (2007). Volatility and development, *Quarterly Journal of Economics, 122* (1), 243-287.

Lyakurwa, W. M. (1991). *Trade Policy and Promotion in Sub-Sahara Africa*, Africa Economic Research Consortiium . Kenya.

Matthee, M., & Naude, W. A. (2008). *Export diversity and regional growth in a developing country context: Empirical evidence*, Paper submitted to the Regional Studies Association International Conference: "Regions: the dilemmas of integration and competition". Prague, 27-29 May,.

Olaleye, S. O., Edun, F., & Taiwo, S. B. (2013). Export diversification and economic growth in Nigeria: An empirical test of relationship using Granger causality Test, *Journal of Emerging Trends in Economics and Management Science , 5* (1), 70-79.

Organization, World Trade. (2010). *Ten Benefits of the WTO Trading System*. WTO.

Parteka, A., & Tamberi, M. (2011). *Export diversification and development: An empirical assessment*. Working Paper No. 327.

Romer, P. M. (1994). The origins of endogenous growth. *Journal of Economic Perspectives*, 8 (1), 3-22.

Ross, S. (1999). Adding risks: samuelson's fallacy of large numbers revisited. *Journal of Financial and Quantitative Analysis, 34,* 323-339.

Solow, R. (1956). A contribution to the theory of economic growth, *Quarterly Journal of Economics, 7*0 (1), 65-94.

Umoru, D., Effiong, S. E., Ugbaka, M. A., Akhor, S. O. Iyaji, D., Ofie, F. E., Ihuoma, C. C., Okla, E. S., & Obomeghie, M. A. (2023). Modelling and estimating volatilities in exchange rate return and the response of exchange rates to oil shocks. *Journal of Governance & Regulation, 12*(1), 185–196