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Economic Diversification, Revenue and Economic Growth Sustainability: Insights from Nigeria

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ABSTRACT

The government's income influences its expenditures in public finance; its ability to spend is based on its anticipated revenue. That is why, all other things being equal, the government's ability to raise a given amount of money determines how well its economy performs throughout a fiscal year. For this reason, there is a strong emphasis on raising significant revenue to fund other government needs and developmental projects. Any nation's revenue base is key to driving its economic growth. Achieving multiple sources of income will be a mirage in a mono-economy. Therefore, economic diversification is commonly understood to move an economy away from a single source of income towards many sources derived from an expanding array of markets and sectors. The theoretical frameworks used in this study are primarily based on portfolio theory, which views diversification as reducing risk or variability as long as the price changes of the various stocks in an investment portfolio move in different directions or are not perfectly correlated. Herfindahl-Hirschman Index (HHI) model was adopted for the analysis. The findings indicate that revenues from the agricultural, industrial, and services sectors significantly and positively influence Nigeria's economic growth beyond the oil sector's contributions. The Nigerian government should implement policies that stimulate various sectors of the economy to enhance revenue generation for the nation

ملخص

تعتمد النفقات الحكومية في المالية العامة على الإيرادات المتوقعة؛ إذ إن قدرة الحكومة على الإنفاق تتحدد وفقا لمستوى الإيرادات. ولهذا، يعد تأمين إيرادات كافية شرطا أساسيا لأداء اقتصادي فعال خلال السنة المالية. وتعد القاعدة الإيرادية لأي دولة ركيزة أساسية لتحقيق النمو الاقتصادي. في الاقتصادات أحادية المصدر، يصبح تنويع مصادر الدخل

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هدفا صعب المنال، ومن هنا تأتي أهمية التنويع الاقتصادي الذي يقصد به الانتقال من الاعتماد على مصدر واحد للدخل إلى الاعتماد على مصادر متعددة من قطاعات وأسواق متنوعة. اعتمدت الدراسة على نظرية المحفظة الاستثمارية كإطار نظري، حيث ينظر إلى التنويع على أنه أداة لتقليل المخاطر عند عدم تطابق حركة الأسعار بين الأصول المختلفة. وقد تم استخدام نموذج هيرفندال-هيرشمان (HHI) لتحليل البيانات. أظهرت النتائج أن إيرادات القطاعات الزراعية والصناعية وقطاع الخدمات لها تأثير إيجابي ومهم على النمو الاقتصادي في نيجيريا، إلى جانب إيرادات قطاع النفط. توصي الدراسة الحكومة النيجيرية بوضع سياسات تحفيزية لدعم مختلف القطاعات بهدف تعزيز الإيرادات الوطنية.

RÉSUMÉ

Les recettes publiques influencent les dépenses publiques ; la capacité de dépense du gouvernement dépend de ses recettes prévisionnelles. C'est pourquoi, en toute logique, la capacité du gouvernement à collecter une certaine somme d'argent détermine la performance de son économie tout au long de l'exercice financier. Pour cette raison, l'accent est fortement mis sur la collecte de recettes importantes afin de financer les autres besoins du gouvernement et les projets de développement. Les recettes fiscales d'un pays constituent un facteur essentiel pour stimuler sa croissance économique. Dans une économie mono-sectorielle, il est illusoire de vouloir multiplier les sources de revenus. Par conséquent, la diversification économique est généralement considérée comme un moyen de faire passer une économie d'une source unique de revenus à de nombreuses sources provenant d'un éventail croissant de marchés et de secteurs. Les cadres théoriques utilisés dans cette étude s'appuient principalement sur la théorie du portefeuille d'investissement, qui considère la diversification comme un moyen de réduire les risques ou les fluctuations tant que les variations des cours des différentes actions du portefeuille d'investissement évoluent dans des directions différentes ou ne sont pas parfaitement corrélées. Le modèle de l'indice Herfindahl-Hirschman (HHI) a été adopté dans l'analyse. Les résultats indiquent que les revenus des secteurs agricole, industriel et des services ont une incidence significative et positive sur la croissance économique du Nigeria, dépassant les contributions du secteur pétrolier. Le gouvernement nigérian doit mettre en œuvre des politiques qui encouragent les différents secteurs de l'économie afin de renforcer la génération de revenus pour l'État.

Keywords: Economic Diversification,Revenue, Economic Growth Sustainability Insights,Nigeria

JEL Classification: O47, O44, O57

1. Introduction

The government's income influences its expenditures in public finance; its ability to spend is based on its anticipated revenue. Before creating plans to increase revenue, the government often estimates its expenses. That is why, all other things being equal, the government's ability to raise a given amount of money determines how well its economy performs throughout a fiscal year. For this reason, there is a strong emphasis on raising significant money to fund other government needs and developmental projects. Due to its potential to lessen dependence on a single industry, increase resilience to external shocks, and foster sustainable development, a diverse economy is essential for stability and growth. Diversification makes it possible for a wider variety of economic activities, which raises living standards, creates more jobs, and distributes money more fairly.

An economy is particularly vulnerable to changes in market prices when it is overly dependent on one industry, such as a single commodity. With several industries making up the GDP, a diversified economy is more resilient to downturns in any one of those industries. For instance, a decline in oil prices can have a significant effect on the overall economy of a nation whose economy is mostly dependent on oil exports. An economy that is more diverse and includes contributions from manufacturing, tourism, and agriculture would be better equipped to withstand the shock Any nation's revenue base is still key in driving its economic growth. Therefore, the Constitution assigns fiscal responsibilities to each level of government and internal revenue sources to enable them to be fulfilled. In doing this, multiple sources of income will be a mirage in a mono-economy. Diversification of the Economy is commonly understood as an act and a process in which a society removes itself from a monopolistic income source and moves toward expansion in the manufacturing sector to diversify income sources. This involves production flow across various economic sectors toward higher productivity applications. Structural transformation entails a remarkable transition from the oil and gas industry to other industries and sectors or from manufacturing to services rendering sectors. Diversifying one's income stream is essential because a downturn or significant loss in one sector could trigger a boom in another (Herrendorf et al., 2014).Sbia and Hamdi (2013) conducted an econometric analysis of government revenue and economic growth in Bahrain, an oil-dependent country, and called for urgent diversification efforts due to fiscal vulnerability. Therefore, the objective of this work is to ascertain how diversification has enabled economic growth and how Nigerian economy can leverage on its enormous natural endowment to achieve multiple sources of revenue that will absorb the shocks of oil price volatility and achieving economic growth at the same time.

Most emerging economies have adopted economic diversification to refer to a development strategy of an economy from being a mono source of income or product to multiple revenue generation streams. It entails spreading economic activities in most sectors of an economy with the involvement of critical sectors of the population. Product diversification indicates a country's productive potential. Government economic diversification, the outcome of production capacity, has been linked to economic growth. Diversification permits economies to grow over time while protecting them from external shocks like price fluctuations, technological advances, and shifts in global tastes (Ali and Canter, 2020). The underpinning desire for economic diversification has a far-reaching impact on the economy by fostering a firm monetary policy that provides financial stability. A diversified economy improves economic performance and achieves long-term economic growth and development by building resilience against fluctuations in a nation's macroeconomic activities. Making diversification policies is a massive challenge in countries dependent on other countries' resources and technology. These nations do not perform to expectations due to heavy reliance on the extraction sector from different countries to accumulate products, deliver services, and earn revenue. Economic diversification helps a country to reduce over-dependence on economies for revenue sources. Due to the diversity of countries endowed with raw materials and resources, moving the production base away from the extractive sector is better. This can be done by constantly supporting the economy's non-resource and manufacturing sectors. This entire process has been called industrialization (Okonta, Mobosi& Ugwu, 2020). Diversification of the economy positively influences the banking sector's performance. This is because a more significant part of policies for economic and sustainable growth revolves around a conscious attempt to develop structured strategies to facilitate economic development. Low diversification of the Economy has been discovered to be among the reasons for apparent symptoms of high endowment, as natural endowment seems to dominate profits from and earnings for the government (Bahar and Santos, 2018;

Ross, 2017). Limited diversity of the Economy could prove damaging because the Concentration of activities of the Economy upon natural endowment makes highly endowed countries exposed to shocks which could be caused by unpredictable prices of commodities and depletion of resource stocks (Venables, 2016; Van der Ploeg, Devlin & Titman 2004; and Poelhekke 2009). Dependence on industries involved in extraction and high regulatory rents might hinder the emergence of market and political institutions, which facilitates growth in many ways (Pritchett, Sen, and Werker 2017).

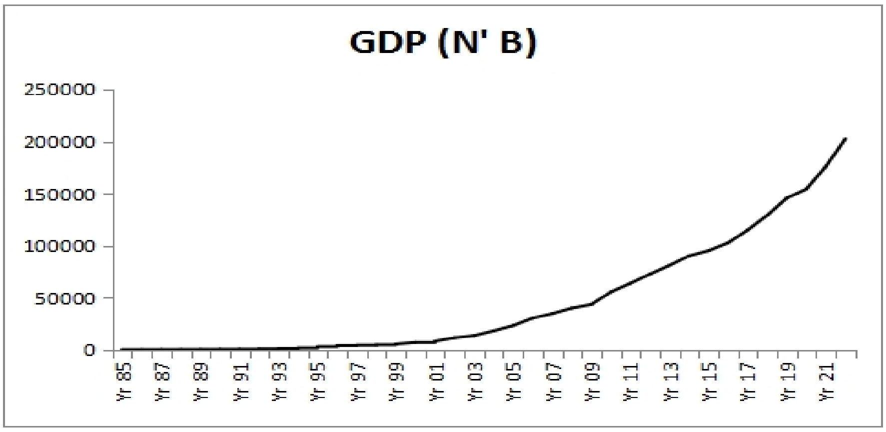
Obadi and Korcek (2018) examined the role of revenue diversification in achieving sustainable development across resource-dependent economies. The article reinforces the authors' central argument that overdependence on a single export commodity (oil) increases exposure to global shocks.

Before the oil boom in the late 1970s, non-oil export income and funds from Nigeria included groundnut, cocoa, rubber, palm oil, and palm kernel, accounting for 96.4% of total revenue (Ekpo & Umoh, 2012; Jide, 2017). This revenue has since dropped dramatically, changing the country's economic structure because of over-dependence on oil (Ojo, 1994; Obadan, 2000). Indeed, the oil industry continues to be the backbone of the economy of Nigeria, contributing more than 70% of the country's GDP, 80% of all export earnings, and 90% of all government revenue (Udeh, Onwuka, &Agbaeze, 2015). Without question, this has made the Nigerian economy both unstable and monolithic (Obi, 2018). The income statistics of the top tier of government in Nigeria revealed that revenue from the oil industry accounts for over 80% of foreign earnings. Still, non-oil-related revenue represented around 20.1% (NBS, 2022). This is not the case in the USA, where the economy has shifted from relying on oil to non-oil sources of income like the sale of non-oil products and other sources of energy substitutes like solar, wind, and bio-energy. Due to this, the amount of oil sold in Nigeria and in the world, market has unavoidably dropped (NBS, 2021). This has exposed countries whose entire economy depends on the oil sector to extreme volatility and economic turbulence. A growth based on resources and the export and production of non-oil products has replaced the policy directions and philosophy due to the fall in oil price globally, which has hurt the unstable economic growth of the state exporting goods or services and the mismanagement of such revenue from oil. Naturally, this isn't good for a monolithic economy, so economic diversification is a required paradigm shift. An economy will undoubtedly be stimulated, and its revenue will increase enormously if it is diversified from oil-based to non-oil-based sources.

Elhiraika and Mbate (2014) discussed how structural transformation and revenue diversification are critical for inclusive growth in African economies.Their findings support that revenue diversification is crucial for Africa's development.

For example, in Nigeria, reliance on the oil sector has essentially reduced the proportion of employment in agriculture and has shrunk across all country income groups. Even though oil revenue has been instrumental in developing Nigeria and other exporting nations—the majority of which have been experiencing a boom—there are drawbacks to relying solely on oil revenue. To mitigate these drawbacks, a country must maximize its revenue base through non-oil sources such as art and craft, taxes, manufacturing, agriculture, mining and service sectors. Additionally, manufacturing employment appears to be declining globally, having decreased a little from 16% in 1991 to 14% in 2022, a trend which showed huge derivation of funds by many countries (WDI, 2022). Nigeria's economy is a single economy. Since 1956 oil was first discovered in Nigeria, the primary source of income has been that resource. Nigeria's over-reliance on crude oil began in 1970, coinciding with the end of the war known as the Nigeria Civil War. This made the price of oil increase. Due to the enormous amount of money generated by oil production, it was an immediate positive shock because over forty other natural resources have remained untaped.Nevertheless, this resulted in disregarding agricultural productivity and other economically productive areas (Awe and Dias, 2022). About 90% of Nigeria's total exports, 60% from fiscal revenue, and less than 10% of its GDP come from crude oil extraction. Before Nigeria's 1960 independence, the country's agricultural industry provided more than 75% of employment, 68% of GDP, and foreign exchange revenues. In the 1980s, this pattern underwent a significant shift (National Bureau of Statistics, 2019; Awe et al., 2018; Metu, 2021). The facts remain obvious: the unsettling reliance on oil revenue that is vulnerable to changes in prices in the international market and the growing debt profile of Nigeria. Arising from the above, this paper aims to investigate the potential of non-oil sectors to facilitate diversification and utilization of the vast resource base of the Economy of Nigeria. In the face of growing unemployment, a sizable portion of Nigerians are very poor. The contributions of the non-oil sectors are plainly at their lowest level in Nigeria, and this requires immediate attention for the diversification of the Nigerian economy.

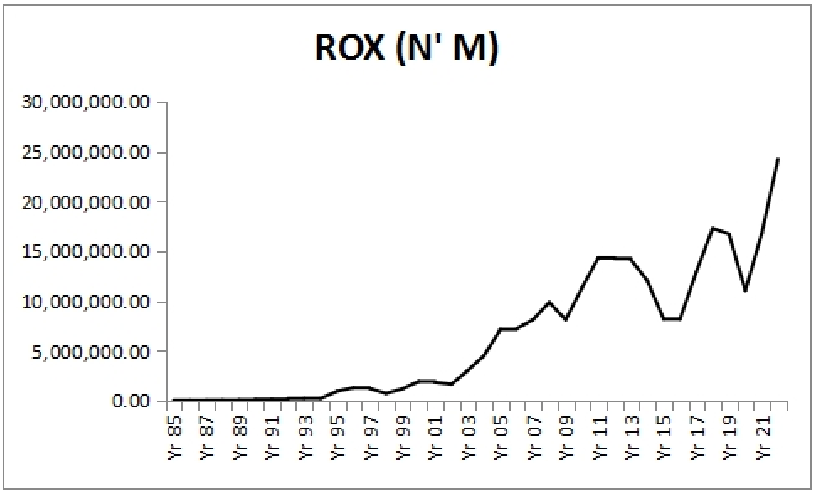
Figure 1: GDP Growth (N'B), 1985-2022 (Graphical Illustration)



Source:Author's graphical illustration.

Figure 1 shows the GDP (N'B), which has a successive increasing growth from year 1985 to year 2022. The greatest growth increase was experienced between year 2021 and 2022.

Figure 2: Revenue from Oil Export (ROX), 1985-2022



Source: Author's pilot study

Figure 2 shows the revenue from oil export (N'M), which has generally increased from year 1985 to year 2022. Specifically, the revenue decreased from year 1985 to 1986, then increased afterwards till year 1994 when it decreased again. From 1994, it grew till 1996 and fell in 1997-98 consecutively, then rose in 1999 and 2000 before experiencing another fall in 2001-02 consecutively. There as increase in 2003, notwithstanding there as growth till the year 2008 but there was a fall in the year 2009. It rose in 2010-2011, falling slightly in 2012-13 and then in 2014-16, it increased in the years 2017 and 2018, but there was a fall in 2019 and 2020however, increased in the year 2021and 2022.

Figure 3: Revenue from Non-Oil Export (RNOX), 1985-2022

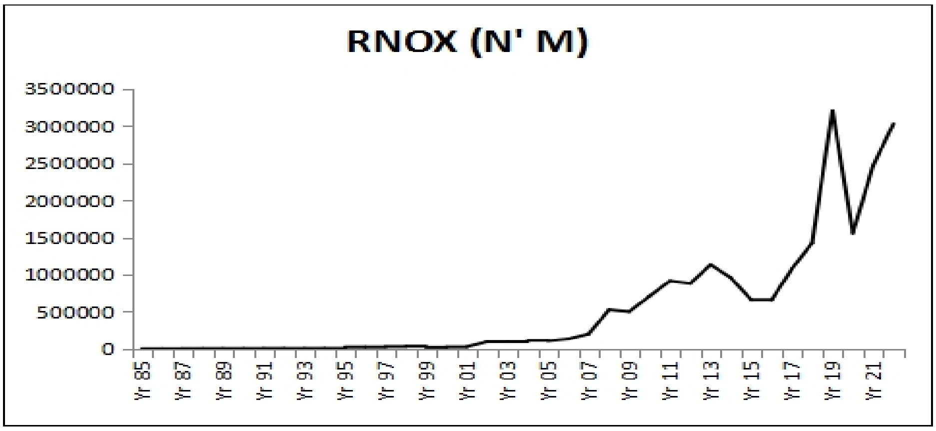


Figure 3 shows the revenue from non-oil export (N'M), which generally has a growing trend. From the figure above, it can be seen that from 1985, there as growth till 1991, falling in 1992, it grew till 1998, falling 1999, it grew till 2004 before falling in 2005. Rising from 2006 till 2008 and falling in 2009, it rose till 2011 and fell in 2012. It rose in 2013, fell in 2014 till 2016, rose in 2017-19 fell in 2020and then increased in 2021-22

Scholars have over the year devoted time to research to unravel the mystery behind the various attempts in the form of policies and intentional strategies all geared towards ensuring that economic diversification becomes a reality and eventually facilitate economic growth. They did that by various means which include developing practical measures for economic diversification; and ways to detect the various determinants driving diversification of the economic; and the ability to understand the impact of numerous policies on growth of the Economy and its effect on employment generation, labour market export growth, inflation rate and balance of trade position. Some wealthy in resources at some point diversified their economies from sector of extraction into non-resource sectors, this show that the experiences of some countries like Indonesia, Malaysia and Chile are prominent. Within the year 1970 to 2018, the share of products mining in total Chilean exports decreased from 85.5 per cent to 58.7 per cent, while the share of products which were produced for the purpose of sale to other countries increased from 11.6 per cent to 35.3 per cent. In Malaysia, the GDP from agriculture fell from 26.7 per cent in 1970 to 7 per cent in 2017; however, the revenue from manufacturing increased from 12.2 per cent to 35.8 per cent. The importance of this is that these countries have adopted economic diversification as a key driver in the quest to achieve economic growth (Tovik, 2018). Also during the pandemic the world witnessed downturn which was as a result of the outbreak of COVID-19 pandemic and this had great effect on countries that depends solely on their resources for survival. It is important to mention that without economic diversification, revenue diversification and export diversification of economies (resource-dependent) remain highly volatile to numerous influences from the environment which tends to be negative. The creation of special resource funds and the rigid monetary policy (banking sector development) cannot cover a country from the negative effect from excessive changes in the prices of commodities. These countries do not possess policy guidelines which direct the implementation for effective diversification of its Economy to bring about development.

Economic diversification can be achieved through two major planks which are production diversification and diversification of exports. Diversification of the Economy refers to means through which the Economy of any country becomes more productive in the areas of goods and services. It produces goods and services which were formally imported from other countries furthermore makes deliberate policies which were geared towards changing the shares of products in the export mix and introduction of new products in the export portfolio, as this can lead to business expansion and cause expansion in profit. Both types are believed to facilitate growth economically, and create an atmosphere that is conducive to profitable investment, and reduce short-term macroeconomic volatility and sectoral development that promotes economic growth. However, this present work is distinct from the previous studies because it tries to establish how the diversification strategies adopted by the government in power in Nigeria during the crash of crude oil price at the international oil market have affected the GDP growth of Nigeria and how the Nigerian authority has taken drastic measures to move away its too much Concentration on the oil sector of the Economy and develop other non oil sectors as key players in economic growth drive of the Economy of Nigeria. The Nigerian Economy increased by only 2.21 per cent from 2015 to late 2019, a 0.29 per cent growth over 2018, and the worst rate in almost a decade (World Bank 2019). Nigeria has once again been thrust into the spotlight as a country experiencing economic hardship due to the current global pandemic. The economic benefits of oil wealth have been demonstrated to be countered by the disadvantages of insufficient revenue diversification, excessive sensitivity to external shocks, and associated macroeconomic volatility due to the crisis. As a result, revenue diversification is at the forefront of discussions about how Nigeria may improve its economic performance and prosper. Because domestic demand in many developing nations is typically relatively low, exports remain one of the few avenues that can meaningfully contribute to more excellent income per capita development rates in the long run. Many commodity-dependent countries or those with a limited export basket face export volatility due to inelastic and volatile global demand. Export diversification is one strategy to overcome these limits. The fundamental questions are: (1) why do countries diversify, and (2) does diversification help economic growth?

This debate is frequently devoid of an explanation of how the banking sector and other non-oil sector development may aid in Nigeria's economic diversification as most of the previous research dwells on financial inclusivity (Adeola & Evans, 2017; Nwosu & Metu, 2015; Babangida & Adegboye, 2015; Ozdeser, Usman & Shuaibu, 2021; Albert, Samson & Gbeminiyi,2021; Effiong & Ekong, 2021). For instance, Farouq, Sambo & Jakada (2021) dealt only with financial sector development using the exchange rate as a proxy to measure economic growth. None of these studies empirically investigated the role of non-banking sectors' development and economic diversification in achieving macroeconomic growth in Nigeria using the HHI approach. Hence, this paper filled the gap in this regard to ascertain how the non-oil sector has deepened macroeconomic growth in Nigeria, especially with the recent diversification policy of the Nigerian government and the dwindling receipt of foreign exchange from the international oil market.

A moneconomic system leaves emerging countries exposed to attack by wealthy nations most of the time. Furthermore, it destabilizes a monolithic economy, misaligning it with naturally adverse effects such as recession, unemployment, depletion of external reserves, exchange rate crises, pricing instability, inability to satisfy financial obligations, etc. Because of all these economic fluctuations, countries have been pushed to diversify their revenue bases. For this reason, this study looks at the connection between economic diversification and economic growth successes.

2. Literature Review

Theoretical justifications for national diversification are derived from two different sources via portfolio reasoning and the structure of preferences. It is commonly recognized that when wealth increases, agents with non-homothetic preferences will alter their consumption patterns. It is often accepted that these Cumulative effects suggest a growing variety of products being consumed. Preference-based arguments are adequate to produce growing sectoral diversification during development because, in a closed economy, production patterns react to shifts in the demand structure. According to Acemoglu and Zilibotti (1997), diversification happens naturally due to agents' choices toinvest in various hazardous ventures, or "sectors," that are not completely coupled. Diversification is flawed because the number of sectors is constrained by the minimum size requirements of a specific project, and each industry carries a unique risk. Sectoral diversification opportunities increase with the total capital stock due to these indivisibilities.

On the other hand, investing in riskier ventures and diversifying idiosyncratic risk are made easier by the increased openness of industries. Therefore, improved diversification opportunities and market expansion go hand in hand with development. By way of a portfolio motive, diversification is a process that goes hand in hand with economic growth in this paradigm. There are also two theoretical justifications for specialization. First, specialization and trade intensity are related according to Ricardian theory. For example, a continuum of products with an endogenous spectrum of goods produced domestically and imported is shown by Dornbusch et al. (1977). A decreasing variety of (nontraded) domestically produced items results from declining transportation costs (or tariffs), which promotes specialization. The literature on economic geography is the source of the second category of sectoral concentration explanations (Krugman, 1991). The significance of demand externalities in understanding the Concentration of economic activity in particular areas or cities has been underlined in this research. Since their products raise local expenditures, which are a positive function of the number of local businesses, these externalities usually make it best for monopolistic competitors to cluster. Since the need to be near demand reduces the effect of demand linkages, the notion that transportation costs decrease with improved technology supports the process. Therefore, economies are anticipated to agglomerate regionally as they become more integrated once the world is arbitrarily divided into nations, this kind of regional agglomeration results in an increase in the observed sectoral concentration.

2.0. Economic Diversification and Economic growth rationale

Diversification of the Economy can be measured in three ways: by diversity, quality, or production. Variety-based measurements assess economic activity diversity irrespective of its worth; this is closer to the literal sense of diversification (Ross, 2017). Diversification can be measured based on quality and is related to the idea of structural change, which takes into consideration the shift of production toward economic activities that tend to add more excellent value and provide a competitive advantage. Also, changes that take place in economic non-resource output, not minding its content, are considered by output-based measurements (McMillan, Rodrik, and Verduzco-Gallo, 2014).

Lashitew, Ross, and Weker (2021) used non-resource (manufacturing and services) sectors growth of domestic and export markets to study economic diversification in resource-rich countries; this has a more precise and easier interpretation than competing metrics. This metric can be used in assessing diversification on a long-term basis, especially as it relates to resource-dependent countries, as well as to rank countries based on their performance. At the national level, they found policy-relevant correlates of diversification, such as the acquisition of human capital, intellectual and public capital, in addition, dynamism of the company. Countries whose resources- are depleted appear to perform worse on intellectual capital metrics and human capital, whereas countries which are rich in resources appear to do better when it relates to human capital accumulation and public capital.

Ali and Canter (2020) studied and utilized data from twenty European countries between 1996 and 2010. Their study discovered positive evidence of the welfare impacts of diversification economically in Eastern and Central Europe, implying that diversification is emphatically imperative for social welfare in societies that are in transition. Their findings are consistent across the three major types of indices for the measurement of diversification, which are: (unrelated, related and overall diversification) these are unaffected by industry selection or lag parameters. After a significant latency, variation influences human development in the entire sample. More specifically, total diversity promotes societal welfare in the long run, whereas linked variety decreases it. The outdated nature of abilities occurs when new sectors replace old ones, causing a negative link between the related variety of growth of any industry.

Ideh, Okolo, and Emengini (2021) use CBN data to assess the contributions of the non-oil industry to the expansion and its effect on Nigeria's economic growth from 2000 to 2019. The study variables created an economic growth model estimated through vector auto-regression (VAR) techniques. However, a few diagnostic tests were used. These included the augmented Dickey-Fuller test for time series stationary, Roots of Characteristic Polynomials for VAR model stability, and Granger causality tests. This was to ensure the reliability of the model estimates. Their findings revealed stability of the estimated model and the significantly environmentally motivated in the short run but results also revealed weakly endogenous in the long run, according to VAR and variance decomposition results of real gross domestic product is significantly. Furthermore, evidence suggests that the non-oil sector is strongly endogenous to real GDP in the long run (92 per cent contribution). The report proposes that the Nigerian economy be diversified by putting greater focus on solid minerals, agriculture and industries involved in the provision of services, as these tend to improve the nation's revenue base while supporting long-term economic growth.

Hamidi and Sbia (2013) explored the linkages which are dynamic between revenues from oil, expenditure from the government and economic growth in the oil-dependent Economy of the Kingdom of Bahrain. Oil earnings are the primary source of funding for expenditure of government and goods and services imports. They discovered that rising oil prices in recent years have increased government spending on social and economic infrastructure. The study sought to determine whether or not massive government expenditure has accelerated economic growth. For 1960–2010, a multivariate co integration analysis and error-correction model was employed. Overall, the findings suggest that oil revenues will continue to be the primary source of growth and the primary source of funding for government expenditure, with the recommendation that economic diversification is pursued because price volatility in the international oil market has a significant impact on Bahrain's Economy.

Ahmadova, Hamidova, &Hajiyeva (2021) examine the relationship between Azerbaijan's economic development and the degree of diversification of its economy and exports. The study assessed the country's level of economic diversification using indicators such as the Herfindahl-Hirschmann export diversification index and industry concentration in GDP. Based on the correlation-regression analysis and other econometric methodologies, they discovered several variables that affect economic growth in the Azerbaijani economy. The generated model is appropriate for econometric properties and confirms the empirical data. The study's findings revealed that the economy requires greater diversification to overcome oil dependence and achieve economic diversification, processing industries eust be developed, small and medium businesses must have greater financial access to resources, and foreign investment in the non-oil sector must be encouraged, resulting in multiple revenue streams for the government.

Esu and Udonwa (2015) did a study on the impact of diversification on Nigeria's Economy, and they stated that oil trade elasticity has a significant and positive relationship, which has a better-intended contribution. Notwithstanding, it revealed that the ratio of its contribution to GDP is less than the funds which ought to be lost by the neglect of trade and non-oil sectors. It has been noticed that about 15.41 per cent of the total is the actual figure. This reveals that so much dependence on oil is a grave mistake in planning the economy. This is because of the failure of the non-oil sector to contribute significantly to economic growth due to all facets of underdevelopment and under-utilization of resources) cannot be traded off by input from the oil sector, as their study revealed. They think a nation-state can only benefit from trade if it promotes the export of intermediate and finished goods rather than primary commodities. They argued that this type of trade would result from diversification and that diversification would be possible if production and industrialization were prioritized. Nigeria can benefit immensely when a large amount of her untapped potential from trade are given maximum attention as this shall lead to long-term profit, as this was the product of their finding. They also discovered from their study that growth of the Nigeria economy can be achieved when conscious efforts are made and directed towards diversification of Nigeria's Economy, promoting and assisting large-scale industrialization away from the oil sector, adopting technological innovations in varying trade and investment across the country, notwithstanding, not leaving out improvements in the agricultural sub-sector. Tesfay (2016) discovered strong evidence for the positive impact of export diversification on Ethiopia's economic growth. In the case of Ethiopia, the study found that exports have a statistically positive effect on output growth, which increased its revenue base and suggested an increase in the number of trading partners and diversifying exports of those commodities in which comparative advantage was discovered in Ethiopia, according to the report. Export diversification had a favourable but minor relationship with economic growth in Nigeria according to Duru and Ehidiamhen (2018) posited that the rate of growth in exports of services and goods will have a significant impact on the economic growth of the country and on the tax base of the country also.Osakwe, Santos-Paulino and Dorgan (2018) investigated if there were links between the liberalization of trade, export diversification and revenue diversification in developing countries of sub-Sahara Africa. Their study found that developing countries with more open export structures had more varied structures of export than countries of the world with lower open structures of export. In comparison, SSA countries with more open export structures had less diversified export structures.Fu, Wu, and Zhang (2019) carried out a study and found that increased revenue and growth benefits are linked with diversification of export products rather than diversification based on geographical location. As regional economies expand, the government has a responsibility to always separate export product diversification from export area diversification and make required changes to its export policies.

Similarly, Sarin, Mahapatra, and Sood (2022) reviewed previous studies on the relationship between export diversification, export instability, revenue diversification, and economic growth, conducting an extensive literature review across academic journals to provide structured, comprehensive, and chronological findings and results. Most articles presented strong evidence for the favourable influence of export and revenue diversification on economic growth and mixed results for the impact of export instability on growth.It is imperative to note that there has been a divergence in the view on whether economic and revenue diversification is growth-enhancing or otherwise. However, a thorough literature review revealed compelling evidence that export and revenue diversification has boosted the economic growth and development rate in emerging countries through the availability of multiple income streams. In addition, most researchers have found that export instability has a detrimental impact on economic growth. As a result, development economists have pushed for export diversification to lessen the effect of export volatility on economic growth.Agwu (2021) examined growth synthesis and diversification of revenue sources using Macrofinametric evidence from Nigeria. To estimate economic growth between 1981 and 2020, this study analyzed data from the Central Bank of Nigeria's Gross Domestic Product, Oil Export Revenues, and Non-Oil Export Revenues tables. After numerous assessments, he concluded that Nigeria's economic growth has little to do with oil and non-oil export money. Additionally, it was discovered that Nigeria's Economy does not increase due to either oil export money or non-oil export revenue alone or together. The analysis also found that long-term economic growth would be favourable and significant to oil and non-oil export earnings. Once more, that particular shock had the most significant impact on what caused the economy to change.Alkhathlan, Alkhateeb, Mahmood, and Bindabel (2020) examined the Saudi Economy's Concentration or diversification in the oil sector and the effects on long-term growth from 1970 to 2018. Then, they use the normalized Herfindahl Hirschman Index to calculate the concentration indices for production, exports, government revenues, investments, and employment, and they examine the impact of concentration indices on economic growth. Their conclusion demonstrates that government funding and exports heavily rely on the oil industry. Public sector employment is more concentrated, and the oil sector accounts for the majority of production. Investment shows a comparatively lower dependency on oil than exports, output, and government revenues. They discover that production and government revenue concentrations have long-term favourable effects on economic growth and adversely impact exports and employment concentrations. Additionally, they find Granger causality between the Concentration of production and economic development, between the Concentration of government revenue and exports and the Concentration of production, between the Concentration of investment and exports and between the Concentration of production, investment, and government revenue.

From the extant literature reviewed, there is a mixed result on the role of economic diversification on economic growth. For instance,(Agwu,2021, Sarin et al 2020, Fu et al. 2017; Osakwe et al. 2018, Ehidiamhen 2018; Esu and Udenwa, 2015; Ideh et al., 2021) agree that economic diversification promotes economic growth (Ross, 2017, Faroug 2021 and Effiong 2021) argued that economic diversification cannot automatically guarantee economic growth because of some government institutions lack the capacity drive the change. Most of these previous studies did not apply the HHI diversification model except for Alkhathlan, Alkhateeb, Mahmood, and Bindabel (2020), who used the model to examine Saudi's economic diversification, which is a suitable parameter for measuring economic diversification. Thus, the present study investigates how diversification can address the over reliance on crude oil as a major source of revenue to the Nigerian government leaving over forty natural resources unharnessed and the role they play in the macroeconomic growth of Nigeria, employing the Herfindahl-Hirschman Index (HHI) diversification model, which is different from other models such as the Generalized Method of Moment (GMM),System Generalized Method of Moment(SGMM) and others was key in advancing the discourse of economic diversification in Nigeria.

3. Methodology

The theoretical frameworks used in this study are primarily based on portfolio theory, which views diversification as a means of reducing risk or variability as long as the price changes of the various stocks in an investment portfolio move in different directions or are not perfectly correlated (Brealey & Myers, 1991). Using portfolio theory as a theoretical foundation, this study shows how economic diversification affects revenue stability depending on the composition of the income base. The Herfindahl-Hirschman Index (HHI) is an index standardized in analyzing the degree of market concentration of a specific industry within a geographical location of a market.

3.1 The Model

The Herfindahl-Hirschman Index (HHI) is adopted as the theoretical framework. This standard index is usually used to analyze the extent to which the market concentration of a particular industry in a specific geographic location. Herfindahl-Hirschman Index or HHI has been widely used to measure the degree or level of diversification. Herfindahl and Albert O. Hirschman HHI were developed by Herfindahl in his dissertation "Concentration in the Steel Industry (1950). The dissertation aimed to determine if the steel industry had become more or less monopolistic over time. There were two approaches to measuring monopoly power of de facto power, such as Lerner's (1934) index of price-cost margins and concentration measures, such as Crowder's (1937) per cent of output controlled by the most significant four firms in an industry. Herfindahl felt the number of firms had an obvious bearing on the ability to collude. While Crowder considered the number of firms in his study, he did so separately from Concentration. Herfindahl wanted a single measure of market power that captured the output distribution across them and the number of firms.

The measure of Chere as HHI, is computed as the addition of the squares of firms' market shares:

$$C = \sum_{i=1}^{m} \left(\frac{x_i}{\sum_{i=1}^{m} x_i} \right)^2 = \sum_{i=1}^{m} (s)^2 \tag{1}$$

Where m is the number of firms, $x_i$is the output of the i^{th} firm, and s_i is its share of industry output. HHI is defined as sum of the squares of the portfolio proportions. Consider a portolio P with expose across 3 counterparties, C_i, with corresponding proportions, c_i where i= 1 to 3. Where the degree of diversification for P across counterparties can be measured using HHI, where

$$HHI = c_1^2 + c_2^2 + c_3^2 = \sum_{i=1}^{3} c_i^2 \tag{2}$$

HHI is effectively the weighted average of the proportions with proportions themselves as weights. If the propotions are equal in the portfolio P, i.e. $c_1 = c_2 = c_3 = 1/3,$ then $HHI_{equal} = 3\times(1/3)^2 = 1/3.$ Similarly, if the proportions are unequal and skewed towards a single counterparty, say, $c_1 = 0.9$ and $c_2 = c_3 = 0.05,$ then $HH1_{unequal} = 0.9^2 + 0.05^2 + 0.05^2 = 0815$

The following gives the definition of the HHI

$$HHI_{1\ldots n} = \sum_n C_n^2 \qquad (3)$$

where C_n is the market share of firm n where n = 1, 2, … and n. The maximum value of the index is 10,000 provided all industry are concentrated in one firm (10,000 =100 × 100). The theoretical values of minimum HHI are dependent on how the market shares are distributed.

3.2 The Model specification

Impact of diversification on improving economic growth

GDP = f (Economic Diversification) (4)

GDP = f (Agriculture Production, Industry, Service) (5)

$$HHI = c_{AP}^2 + c_{IND}^2 + c_{SER}^2 = \sum_{i=1}^{3} c_i^2$$

(6)

Where: Agriculture product (AP), Industry (IND) and Services (SER) Therefore

3.3 Data Sources

Data for this paper were obtained from apex bank in Nigeria which is the Central bank and from National Bureau of Statistics. The data wee sources specifically for information on economic growth, diversification, GDP and revenue from outside the oil sector of the Nigeria economy.

4. Results and Discussion

Descriptive Statistics

Table 1: Model Summary of Regression of GDP on ROX and RNOX

R	R Square	Adjusted R Square	Std. Error of the Estimate	F	p-value.
.954	.909	.904	17677.938	175.638	< .001

Table 2: Regression Coefficients of GDP on ROX and RNOX

	Unstandardized Coefficients		Standardized Coefficients Beta		
	B	Std. Error		t	p-value
Constant	2,020,789,014,213	4,194,097,195,912		.482	.633
ROX	3.522	.937	.405	3.760	.001
RNOX	39.521	7.379	.577	5.356	< .001

Table 1 and 2 shows significant multiple relationship between income from oil and income which are from non-oil export (Economic diversification) and the GDP ($r = .954$, $p < .001$). Oil and non-oil export revenue explained 90.9% of the variations in the GDP. The regression model: N2,020,789,014,213 + N3.522 (ROX) + N39.521 (RNOX) was significant to predict GDP. N1 increase in oil and non-oil export revenue increased GDP by N3.52 and N39.52 respectively; that is, N1 trillion increase increased the GDP by N3.5 trillion and N39.5 trillion respectively).

Table 3: Model Summary of Regression of GDP on ROX and RNOX

R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
.957	.917	.909	17191.741	124.811	< .001

Table 4: Regression Coefficients of GDP on ROX and RNOX

	Unstandardized Coefficients		Standardized Coefficients Beta		
	B	**Std. Error**		**t**	**p-value**
Constant	977,659,983,403	4,122,858,257,294		.237	.814
ROX	4.926	1.219	.567	4.042	< .001
RNOX	17.486	14.592	.255	1.198	.239

Table 3 and 4 shows a significant multiple relationship between revenue generation through oil and non-oil export (economic diversification) and the GDP (r = .957, p < .001). Oil and non-oil export revenue factor explained 91.7% of the variations in the GDP. The regression model: N977,659,983,403 + N4.926 (ROX) + N17.486 (RNOX) + N39,125,119,935,613 was significant to predict GDP. However, only the ROX was significant (p < .001); RNOX (p = .239) were not significant predictors. N1 increase in oil export revenue increased GDP by N4.93; that is, N1 trillion increase increased the GDP by N4.926 trillion.

Table 5: Show Economic diversification as a percentage of GDP

Year	GDP	AGRI	AGRI/GDP	INDU	INDU/GDP	SERV	SERV/GDP
2010	54612.26	13048.89	0.238937	13826.43	0.25317452	27736.94	0.507888
2011	57511.04	13429.38	0.23351	14986.62	0.26058686	29095.04	0.505904
2012	59929.89	14329.71	0.239108	15350.45	0.25614015	30249.74	0.504752
2013	63218.72	14750.52	0.233325	15682.46	0.24806678	32785.73	0.518608
2014	67152.79	15380.39	0.229036	16742.15	0.24931435	35030.24	0.52165
2015	69023.93	15952.22	0.231111	16366.66	0.23711569	36705.05	0.531773
2016	67931.24	16607.34	0.244473	14918.15	0.21960658	36405.75	0.535921
2017	68490.98	17179.50	0.250829	15238.28	0.22248594	36073.21	0.526685
2018	69799.94	17544.15	0.251349	15523.43	0.22239886	36732.37	0.526252
2019	71387.83	17958.58	0.251564	15882.35	0.22247976	37546.90	0.525957
2020	70014.37	18348.18	0.262063	14953.72	0.21358065	36712.48	0.524356
2021	72393.67	18738.41	0.25884	14883.77	0.20559495	38771.49	0.535565
2022	74639.47	19091.07	0.255777	14195.58	0.19018869	41352.81	0.554034

Table 6: Show Economic diversification as a percentage of GDP

Year	GDP	AGRI	(AGRI/GDP) *100	INDU	(INDU/GDP) *100	SERV	(SERV/GDP) *100
2010	54612.26	13048.89	23.8937	13826.43	25.3174522	27736.94	50.78884
2011	57511.04	13429.38	23.35096	14986.62	26.0586864	29095.04	50.59036
2012	59929.89	14329.71	23.91078	15350.45	25.6140152	30249.74	50.4752
2013	63218.72	14750.52	23.33252	15682.46	24.8066777	32785.73	51.8608
2014	67152.79	15380.39	22.90358	16742.15	24.9314354	35030.24	52.16499
2015	69023.93	15952.22	23.11114	16366.66	23.7115692	36705.05	53.17729
2016	67931.24	16607.34	24.44728	14918.15	21.9606582	36405.75	53.59206
2017	68490.98	17179.50	25.08286	15238.28	22.2485939	36073.21	52.66855
2018	69799.94	17544.15	25.1349	15523.43	22.2398861	36732.37	52.62521
2019	71387.83	17958.58	25.15637	15882.35	22.2479758	37546.90	52.59566
2020	70014.37	18348.18	26.2063	14953.72	21.3580652	36712.48	52.43564
2021	72393.67	18738.41	25.88405	14883.77	20.559495	38771.49	53.55646
2022	74639.47	19091.07	25.57772	14195.58	19.0188695	41352.81	55.40341

Source: Author's computation

Table 7: $$HHI_{1\ldots n} = \sum_{n} C_n^2$$

Year	((AGRI/GDP)*100)^2	((INDU/GDP)*100)^2	((SERV/GDP)*100)^2
2010	570.9090952	640.9734	2579.507
2011	545.2672038	679.0551	2559.384
2012	571.7254594	656.0778	2547.746
2013	544.4066608	615.3713	2689.542
2014	524.5737933	621.5765	2721.186
2015	534.1249969	562.2385	2827.824
2016	597.6693468	482.2705	2872.109
2017	629.1497615	494.9999	2773.976
2018	631.7633515	494.6125	2769.413
2019	632.8428032	494.9724	2766.303
2020	686.7701302	456.1669	2749.496
2021	669.9840292	422.6928	2868.294
2022	654.2196535	361.7174	3069.538
Total	**7218.736939**	**6982.725**	**35794.32**
HHI	**7218.736939/10000 = 0.72187**	**6982.725/10000 = 0.698273**	**35794.32/10000 = 3.579432**

Source:Author's Computation

Herfindahl – Hirschman Index Rule of Thumb

HHI values range from 0 to 10, 000, with an HHI closer to zero which mean a marketmore competitive or economic activity closer to 10,000 indicate a less competitive market or economic activity.

- An HHI index below 0.1 (or 1000) indicates a highly competitive market (economic activity)
- A HHI index between 0.1 and 0.15 (or 1000 and 1,500) this shows an unconcentrated market (economic activity)
- A HHI index between 0.15 to 0.25 (or 1000 and 2,500) this shows a moderate market (economic activity) concentration.
- A HHI index above 0.25 (above 2,500) shows high market or economic concentration.

Above mentioned results indicate that the agricultural sector holds a value of 7218.736939, or 0.72187, which exceeds the threshold of 2,500, or 0.25. This sector of economic diversification reflects a significant concentration within the market or economic landscape. Consequently, the agricultural sector demonstrates a beneficial impact on growth economically, specifically gross domestic product, in Nigeria, in addition to the traditional oil production sector. The revenue generated from agricultural production encompasses various activities, including crop cultivation, livestock rearing, forestry, and fishing.

The second aspect of economic diversification pertains to the industrial sector, which encompasses various economic activities such as quarrying, mining, manufacturing, electricity generation and transmission, gas, steam, water supply, air conditioning, management of sewage and construction. The data indicates that the industrial sector holds a value of 6,982.725, or 0.698273, which exceeds the threshold of 2,500, or 0.25. This sector demonstrates a significant concentration of revenue, suggesting that it exerts a substantial and positive influence on growth of the economically, specifically gross domestic product, in Nigeria, apart from the oil sector.

Additionally, another aspect of economic diversification pertains to the services sector, which encompasses efficient transportation system, good storage system,effective information and communication, trade, accommodation and food services, arts, entertainment and recreation, financial and insurance services, real estate, public administration, and education. The data indicates that economic activities within the services sector have a value of 35,794.32, or 3.579432, significantly exceeding the threshold of 2,500, or 0.25. This suggests that the revenue generated from this sector exhibits a high level of economic concentration. Consequently, it can be inferred that the services sector exerts a effect on economic growth, specifically in terms of gross domestic product, in Nigeria, apart from the oil sector.

5. Conclusion and Recommendations

This research assessed the effect of economic diversification on economic growth in Nigeria. The analysis encompasses the agricultural, industrial, and services sectors, aiming to determine whether the revenues generated from these sectors contribute to economic growth, in addition to the primary revenue source, the oil sector. To discover the effect of diversification on economic development, the study employs the Herfindahl-Hirschman Index (HHI) to evaluate the distribution of market share among various economic activities. The findings indicate that revenues from the agriculture, industrial, and services sectors significantly and positively influence Nigeria's economic growth beyond the contributions generated by the oil sector. Based on these results, the study offers several recommendations.

1. The Nigerian government ought to implement policies that will stimulate various sectors of the Economy toward growth and improvement in revenue generation for the nation. In doing this, adequate emphasis should be laid on small and medium-term enterprises as they are key drivers of the growth and development of the economies of developing states.
2. The Federal Government should focus more on the agricultural sector, which historically served as the backbone of the Economy in pre-colonial Nigeria. Strengthening agriculture is essential for economic improvement, ensuring food security, creating employment opportunities for many unemployed youth, and generating the necessary foreign exchange to sustain the nation.
3. Federal and state governments should also prioritize the industrial (manufacturing) and services sectors to increase national revenue, as these sectors are crucial and contribute significantly to economic growth.

Conflict of Interest

There is no conflict of interest concerning this journal article. The editor is therefore requested to treat the work without any prejudice as there is no competing interest either from the authors or from their Institutions.

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Author Contribution:

The conception and the actualization of the work was done by the two authors. However, because of expertise, Okonta Patrick did the conceptualization and the methodology. Okolie Anthony evaluated the literature review and its synthesis. The analysis and the presentation of the results and findings were done by the two authors for the robustness of the outcomes.

Ethical Statement

This research was conducted in a way that respects the rights of the participants and other people whose works we may have cited. Though, the data for this research is mainly secondary data obtained from recognized government institutions and bodies.

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