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# Effect of Non-Oil Revenue on Government Expenditure in Nigeria

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**Abstract:** The study investigated the effect of non-oil revenue on government expenditure. The specific objectives were to determine the effect of tax revenue, to find out the effect of government borrowing, to find out the effect solid minerals revenue; and to examine the impact of agricultural revenue on government expenditure in Nigeria. The study adopted *ex post facto* research and used time series data on tax, solid mineral, government borrowing, and agricultural revenue. The ordinary least square (OLS) regression technique to analyze the data. The major findings of the study indicated that tax revenue has significant positive impact on the government expenditure of Nigeria; government borrowing had significant negative effect on the government expenditure; solid mineral mining revenue has positive significant positive impact on the government expenditure of Nigeria; andagricultural revenue has significant positive impact on the government expenditure of Nigeria; the study concluded that non-oil revenue had mixed impact on the government expenditure of Nigeria for the period under review.Based on the findings, the study therefore recommended that there is need for the government to expand the tax net, this will increase the tax revenue and hence, improve the government expenditure funding; the government should expand the borrowing plan in line with the budget outlay so as to ensure that that the revenue from borrowing is tailored to meet budget needs and avoid over borrowing; the Federal government shore upexploration of solid mineral mining, this will further expand the non-oil revenue base and improve policies that help its expenditure; and there is need to provide more incentives to expand the agricultural value chain and increase the capacity of agricultural sector to contribute significant revenue for the government to finance its expenditure.

## 1. Introduction

The revenue base of any country remains a veritable tool that propels her public finance (expenditure) activities. As such, each tier of government is constitutionally provided with fiscal responsibilities and internal sources for generating revenue to accomplish those responsibilities (Onoh, 2007). This author also emphasized the place of nonoil revenue on the governments ability to carry on its expenditure, and Bhatia (2002), captured the theory of public revenue as a portion that deals with the alternative sources of state income. Within the analysis, the comparative advantages of the various forms of revenue and the principles which should govern the choice between them are exposed. The non-oil revenues are revenues generated from sources other than the oil-producing activities. These revenues include those from companies not engaged in oil & gas explorations. Its activity sector comprises of agriculture, industry, constructions, trade and services. In view of the above stated background, the emphasis of this research work is to determine the economic effect of non oil revenue on government expenditure in Nigeria using agricrevenue, solid mineral and service revenue contribution to match with Nigerian GDP for period of (2000-2022).

The Nigerian economy is generally described as developing economy which relies mostly on the oil and gas sector for its survival and thus forms greater proportion of revenue generation for government expenditure activities. The Nigerian economy in past decades survived on the agricultural sector. The Agric sector was known as the mainstay of the Nigerian economy in the early 1960's prior to oil discovery (Kamil Sertoğlu, Sevin & Victor Bekun (2017). However, a cursory look at the government expenditure documents shows that nonoil revenue component of income sources makes little contribution to government expenditure

A closer examination of Central Bank of Nigeria (CBN) Annual report 2022 showed the dominance of oil revenue as the major contributor to government finances (expenditure). Revenue shortages has continued with gross oil revenue of ₦4,604.49 billion in 2019. This translate to a ₦4,722.47 billion (50.63 percent) and ₦941.13 billion (16.97 percent) shortfall below the annual budget and ₦5,545.62 billion generated in the corresponding period of 2018. The shortfall is attributable to lower output and high production cost. Gross non-oil revenue of ₦3,548.56 billion was received in 2019. This signifies a shortfall of ₦731.87 billion (17.10 percent) below the annual estimate of ₦4,280.43 billion. With the exception of Customs & Excise Duties, all the other non-oil revenue items fell below their expected annual projections. The net distributable revenue to the three tiers of government after cost deductions therefore stood at ₦6,191.46 billion in 2019, representing a shortfall of ₦5,586.13 billion (47.43 percent). A total of ₦4,120.09 billion was received to fund the FGN budget in 2019. This comprises ₦1,373.18 billion (33.33 percent) oil revenue and ₦2,746.91 billion (66.67 percent)

non-oil revenue. The amount received is ₦2,878.40 billion (41.13 percent) below the 2019 annual revenue estimate but ₦253.60 billion (6.56 percent) higher than the ₦3,866.49 billion recorded in 2018.

Actual expenditure in 2019 stood at ₦8,298.82 billion, signifying a decrease of ₦618.14 billion (6.93 percent) below the annual projection. The 2019 expenditure was however ₦760.79 billion (10.09 percent) higher than the ₦7,538.03 billion total expenditure in 2018. A total of ₦4,251.11 billion was spent as non-debt recurrent expenditure in 2019 implying an increase of ₦185.17 billion (4.55 percent) above the annual estimate of ₦4,065.94 billion. It was also above the non-debt recurrent expenditure of ₦3,238.10 billion reported in 2018 by ₦1,013.01 billion (31.28 percent). Statutory Transfers amounts to ₦428.46 billion during the review period.

Total Debt Service stood at ₦2,453.74 billion in 2019. This represents an increase of ₦199.72 billion (8.86 percent) above the ₦2,254.01 billion projected for the year. Domestic debt service cost amounts to ₦1,661.03 billion while external debt service amounted to ₦448.66 billion during the period under review. Domestic debt service was lower than the annual projection by ₦49.19 billion (2.88 percent). A total of ₦1,165.51 billion was released and cash backed for the 2019 capital projects and programmes of MDAs. Budget implementation is the final stage of the budgeting process before the monitoring stage. This involves the actual usage or application of public funds in carrying out the activities and projects that have been enumerated in the budget. The officers that have been entrusted with these funds now have to properly channel such monies to the right places. Contracts will be given out, commitments would be made and results should be expected.

### 1.2. Statement of the Problem

Nonoil revenue sources have not been properly utilized in Nigeria. Recent reports (NBS, 2023) indicated that Nigeria earned approximately $18bn from export of Urea fertilizer, Ginger, Sesame in seven years. This goes to show that nonoil sources could significantly boost government revenue and enhance its ability to carry out expenditure programmes. However, attention has been removed from nonoil production activities and concentrated on oil economy. Despite the reliance on oil economy, government is still running deficit expenditure.

There is the recurring menace of uncompleted and or abandoned projects littered all over the country ranging from roads, bridges, school projects, health facilities, electricity projects and others and the common rhetoric of government in defense is paucity of funds. It is common knowledge that governments continually have the problem of limited stream of revenue to contend with, perhaps Adams (2002) and Nzota (2004) aligns with this in their assertion that "funds available to governments at all levels and at any point in time to pursue articulated policies and programmes are seemingly perceived insufficient".

The total revenue accruing to government from oil revenue, tax revenue, government borrowings and other nontax revenue has not made significant additions to the capacity of the government to fund expenditure programmes. Available data indicate that public expenditure so far has never been completed to at least 90% (CBN, 2022) due to over reliance on oil revenue and the low contribution of nonoil revenue to government income sources.

Some empirical evidence has shown that nonoil revenue has positive effect on government expenditure programmes, for example Ejem (2022), Ogbonna (2019), Muojeckwu and Udeh (2023), and others. However, some other studies have found non-relational movement between nonoil revenue and government expenditure in Nigeria including for example Akinola and Olalekon (2023), Olugbenga, Ishola and Olotu (2022). However, their ground of dispersion may well be traced to differences in data and methodology of studies. Following this posture, there is justification for this study on the effect of nonoil revenue on government expenditure in Nigeria. The broad objective of is to evaluate the effect of non-oil revenue on government expenditure. The specific objectives are:

1. To determine the effect of tax revenue on government expenditure in Nigeria
2. To find out the effect of government borrowing on government expenditure in Nigeria
3. To find out the effect solid minerals revenue on government expenditure in Nigeria
4. To examine the impact of agricultural revenue on government expenditure in Nigeria

## 2. Review of Related Literature

### 2.1. Revenue

The term revenue has been defined by various authors in different ways. Adam (2006) defined revenue as the fund required by the government to finance its activities. These funds are generated from different sources such as taxes, borrowing, fines, fees etc. It is also defined as the total amount of income that accrues to an organization within a specified period of time (Hamid, 2008). Bhaha (2001) contends that revenue include "routine and "earned" income. For these reasons, according to him, revenue do not include borrowing and recovery of loans from other parties, but it include tax receipts, donations, grants, fees and fines and so on. Similarly, Peace (1986) defined government revenue as all the money received other than from issue of all debts

and liquidation of investments. Government revenue includes tax collections, charges and miscellaneous revenues, utility and insurance trust revenue for all funds and agencies of a government.

This is money received by a government. It is an important tool of the fiscal policy of the government and is the opposite factor of government spending. Revenue earned by the government are received from sources such as taxes levied on the incomes and wealth accumulation of individual and corporations and on the goods and services produced, exports and imports, nontaxable sources such as government owned corporations incomes, central bank revenue and capital receipts in the form of external loans and debts from international financial institutions. It is used to benefit the country. Government use revenue to better develop the country, to fix roads, provide steady power supply and adequate water supply etc. The money that the government collects pays for the services that are provided for the people. The sources of finance used by the federal government are mainly taxes paid by the public.

### *2.2. Nonoil Revenue*

Non-oil sector products are those commodities except crude oil which can be offered within the international market for the motive of revenue generation. Kromtit and Gukat (2016) stated that: The non-oil sector comprises of those groups of activities which are outside the petroleum and gas industry or those not directly linked to them. It consists of sectors such as manufacturing, agriculture, telecommunication service, finance, solid minerals, tourism, real estate, construction and healthcare sectors. Also, Elechi, Kasie and Chijindu (2016) were of the opinion that Non-oil exports are products which are produced within the country under supply chain of agriculture, mining, quarrying and industrial sector that are send outside the country to generate revenue for the growth of the economy.

The non-oil sector revenues are derived from those groups of economic activities which are outside the petroleum and gas industry or not directly linked to them. These include: telecommunication services; financial sector (banking and insurance) services; tourism service (hotels, restaurants, parks, carnivals, movies; wholesale and retail trade; Health services; export trade; agricultural activities; mineral activities; power (conventional and renewable); Manufacturing; environmental services (cleaning, waste collection and recycling); R&D activities; ICT, etc. (Adulagba, 2011 &Onwualu, 2012). However, these activities of nonoil sector revenue could be made up of revenues derivable from various industries, including those in the manufacturing, telecommunication, agriculture, finance, tourism, real estate, entertainment, construction, health sector, (Emmanuel &Ogagaoghene, 2022). Therefore, non-oil sector comprises of all sectors of the Nigerian economy with the exemption of oil and gas sub-sector. All the proceeds generated from these non-oil sectors constitute the non-oil revenue.

### 2.3. Tax revenue

Tax is a compulsory levy imposed on a subject or on his properties and this is done by the government to provide security, social amenities, and create suitable conditions for the wellbeing of the society (Oluyombo & Olayinka, 2018). According to Ezu and Okoh (2016), tax is a burden which every citizen must bear to sustain the government because the government has certain functions to perform for the benefits of those it governs Tax revenue is the income that is gained by government through taxation. Taxation is the primary source of income for a state. Tax revenue may be extracted from sources such as individuals, public enterprises, trade, and royalties on natural resources etc. Just as there are different type of tax (such as Petroleum Profit Tax (PPT), company Income Tax (CIT), Value Added Tax (VAT), etc.), the form in which tax revenue is collected also differs; furthermore, the agency that collects the tax may not be part of central government, but may be a third party licensed to collect tax which they themselves will use. In Nigerian context, each tier of government is saddled with the responsibility of collecting different taxes. The federal government collects taxes through the Federal Board of Inland Revenue (FBIR); the agency administers revenue laws that deal with taxes paid by the resident of the federal capital territory and taxes that are paid by corporate bodies (limited liability companies). They are responsible for accounting federal government for all taxes collected. The state government collects taxes through the state Board of internal revenue; the agency primarily administers the personal income tax act, and however, some states of the federation has instituted additional revenue statutes, which they administer

### 2.4. Government borrowing

Government borrowing refers to loans obtained by the government from difference sources. In most countries government expenditure exceeds the level of government income received through taxation. This shortfall is made up by government borrowing and bonds are issued to finance the government's debt. The core of any domestic capital market is usually the government bond market, which also forms the benchmark for all other borrowing. Governments have many competing demands for financial support. Any spending should be tempered by fiscal responsibility and by looking carefully at the spendings' impact. When a government spends more than it collects in taxes, it runs a budget deficit. It then needs to borrow. When government borrowing

becomes especially large and sustained, it can substantially reduce the financial capital available to private sector firms, as well as lead to trade imbalances and even financial crises. A prolonged period of budget deficits may lead to lower economic growth, in part because the funds borrowed by the government to fund its budget deficits are typically no longer available for private investment. Moreover, a sustained pattern of large budget deficits can lead to disruptive economic patterns of high inflation, substantial inflows of financial capital from abroad and heavy strains on a country's banking and financial system.

**2.5. Agricultural Revenue**

The climate of Nigeria supports agricultural production. This production unit of the Nigerian economy economic is sub-divided into four sub-sectors namely crop production, livestock, and forestry and fishery sub sector. Agriculture provides the largest economic activity in the rural area where almost 50% of the population lives. About 70% of the working population are fully or partly engaged in agricultural activities in Nigeria, (CIA, 2016). The sector has several untapped potentials for growth and development due to availability of land, water, labour and its large internal markets. It is estimated that about 84 million hectares of Nigeria's total land area has potential for agriculture; however, only about 40% of this is under cultivation (FMARD, 2012).Agricultural production includes farming; ranching; aquaculture; apiculture; horticulture; viticulture; animal husbandry, including, but not limited to, the care and raising of livestock, equine, and fur-bearing animals; poultry husbandry and the production of poultry and poultry products; dairy production; the production of field crops, tobacco, fruits, vegetables, nursery stock, ornamental shrubs, ornamental trees, flowers, sod, or mushrooms; timber; pasturage; any combination of the foregoing; the processing, drying, storage, and marketing of agricultural products when those activities are conducted in conjunction with, but are secondary to, such husbandry or production.

**2.6. Government Expenditure**

A major policy challenge confronting both developed and developing economies is the process of determining how to raise, allocate and spend public resources and the ways the resources are utilized goes a long way in determining how public policy objectives are achieved. In addressing these challenges of the country, the budget is often designed focusing on the preferred sectors of the economy. This is while in formulating the budget, government makes a number of choices regarding its financing and how available resources are allocated to existing or new programmes and institutions (Adrian, 2001; ODI, 2004).

This unpredictability of resource flows creates uncertainty in resource allocation and capital budget implementation (Omelehinwa and Roe, 1989; Nwagu, 1992). Other studies have also shown evidence that the manner in which new projects have been planned, appraised, approved and included in the budget are not in tandem with the laid down guidelines designed to facilitate the linkage between development plans and annual budget. The capital budget of a country is seen as a potent tool in the provision of capital investment, and it is often more directly related to development because it contributes to the capital stock of economy needed to drive the growth process.

But in Nigeria, available evidence reveals that annual budgets over the years have not contributed significantly to the growth process of the economy due to weak implementation of capital budget (Obadan, 2000; Oke, 2013). This view was made more evident by Ogujiuba and Ehigiamusoe (2014) when they assert that only 51% of the total budgeted funds for capital expenditures in the 2012 Federal government budget were utilized. Of all the factors contributing to the increasing gap between budgeted and actual performance is the seeming obsession with projection in crude oil revenue. As enunciated by Kwanashie (2013), the 2013 budget is one of the series geared towards achieving the targets of the country's goal of becoming one of the 20 leading economies in the world by 2020. Towards achieving this dream, the government has introduced variety of programmes, and the main vehicle for achieving the targets of the transformation agenda is the various annual budgets embedded within a medium term expenditure framework.

**2.7. Empirical Review**

Udeh (2022) assessed the effect of oil and non-oil revenue of the government on economic growth of Nigeria. The scope of the research ranges for a period of thirty-five years spanning (1981 – 2015). The researcher made use of multiple linear regression models. Ex post factor research design was adopted and Secondary data were sourced on oil and non-oil revenue of the government for the period were collected from CBN statistical bulletin. Economic growth which is the dependent variable was proxy by gross domestic product (GDP). The researcher applied the augmented Dickey-Fuller unit root test, co-integration test and error correction model in analysis of data. Findings revealed that oil and non-oil revenue exerted a positive and significant effect on gross domestic product. On this premise, the study recommended that more can be done to

increase revenue generation through non-oil producing sectors of the economy by making available enabling environment and incentives that can facilitate economy diversification.

Emmanuel and Ogagaoghene (2022) examined the effect of the effects of Oil and Non-Oil revenue (ONOR) on the Nigerian economy from the period of (1994 - 2021). Specifically, the measures of Oil and Non-Oil revenue, namely; Total Oil Revenue (TOR), Total Non-Oil Revenue (TNOR) and Total Revenue (TR) were analyzed in relation Nigerian economy proxied Real Gross Domestic Product (RGDP). Causal research design were adopted. This showed that the impact of TR on RGDP is significant. Hence, the study came to the conclusion that ONOR have a considerable effect on the expansion of the Nigerian economy. Recommended that improve revenue generation through non-oil operations, it is high time the government looked into the development of the sector which has wider opportunities for growth. This can be achieved through diversification to create more avenues through which the government can generate revenue to meet its financial needs.

Salami (2018) evaluated the impact of non-oil revenue on government revenue and economic growth. The study used secondary data. The data were analyzed using inferential statistics, comprising of the simple regression analysis of the ordinary least square method. The independent variable is the non oil revenue while gross domestic product (GDP) and total government revenue served as dependent variables. The findings shows a significant relationship non-oil revenue and economic growth at 1% level of significance ($t = 26.58$, $p = 0.00$); significant relationship exists between non-oil revenue on total government revenue at 1 percent level of significance ($t = 25.25$, $p = 0.00$). It was concluded that government should use the revenue generated from petroleum to invest in other domestic sectors such as Agriculture and manufacturing sector in order to increase the revenue source of the economy.

Oyakhilomen, and Zibah, (2020) researched to find the relationship between agricultural production and the growth of Nigerian economy with the aim of poverty reduction. It employed the Time series data with the help of the using unit root tests and the bounds (ARDL) testing approach to co-integration. Its result revealed that that agricultural production was significant in influencing the favorable trend of economic growth in Nigeria. It was recommended that adequate policies should be designed and implemented in alleviating rural poverty through puffed-up investments in agricultural development.

### 2.8. Theoretical Framework

**Theory of Increasing State Activities**

Wagner's law is a principle named after the German economist Adolph Wagner (1835-1917). Wagner advanced his law of rising public expenditures by analyzing trends in the growth of public expenditure and in the size of public sector. Ezirim (2006) accept that reduction in public sector growth would require a slowdown of economic growth and it is expected that a continuous expansion of the government sector and its expenditure would occur. Tsauni (2007), expresses the view that public expenditure can be treated as an outcome or an endogenous factor of the growth of economy and also state the opposite view of Keynes which regards public expenditure as an exogenous factor which can be utilized as a policy instrument to stimulate economic growth.

Assumptions of the theory:

(i) The extension of the functions of the states leads to an increase in public expenditure on administration and regulation of the economy.

(ii) The development of modern industrial society would give rise to increasing political pressure for social progress and call for increased allowance for social consideration in the conduct of industry.

**(iii)** The rise in public expenditure will be more than proportional increase in the national income (income elastic wants) and will thus result in a relative expansion of the public sector.

The work will be anchored on Wagner's law which prescribes that government expenditure activities have the capacity to generate economic growth. It encourages the law of comparative advantage and as such, if the nation can look inwards, debt servicing will reduce drastically with time.

A review of empirical literature reveals that while there is handful of studies that assessed the effects of nonoil revenue on government expenditure in Nigeria, none to our knowledge, decomposed nonoil revenue to incorporate solid mineral revenue and agricultural revenue. This led to dearth of previous research work on some of these two variables (solid mineral and agricultural revenue) as previous research works centered on either tax revenue, government borrowing alone or both. This study decomposed nonoil revenue to include the elements of solid mineral revenue and agricultural revenue along with tax revenue and government borrowing.

## 3. Method, Data and Model

An ex- post factor research design was adopted. Ex- post facto research design was employed in obtaining, analyzing and interpreting the relevant data for hypotheses testing, because, ex-post facto research determines the cause-effect relationship among variables (Obachie 2015). The reason for the choice is that ex-post facto research design allows the researcher the opportunity of observing one or more variables over a period of time.The nature and source of the data that the researcher used are secondary sources which were obtained from CBN statistical Bulletin 2022, Nigeria Bureau of Statistics, ministry of Budget and Economic Planning Yearly Reports. ***Model Specification***

For the purpose of this study, the government expenditure depends on the receipts from non-oil revenue. This study therefore postulated the relationship between nonoil revenue and government expenditure in the functional model below:

GEX = f(TREV, GBR, SMR, AGR) ..... (i)

Equation (i) can be expressed in a linear form or mathematically as

$GEXt = \beta 0 + \beta 1TREVt + \beta_2 GBR_t + \beta_3 SMRt + \beta_4 AGRt$ …… (ii)

By turning equation (ii) into econometric model, to include random term, is expressed as:

$GEXt = \beta 0 + \beta 1TREVt + \beta_2 GBR_t + \beta_3 SMRt + \beta_4 AGRt + \mu t$…… (iii)

Where: β0 = Constant; β1 to β4 are the coefficients of the variables to be estimated;

Given the nature and objective of this study, multiple regression was adopted, the Ordinary Least Square (OLS), Diagnostic test and Granger Causality regression estimation technique through the econometric views (E-views) statistical package version 10 were used. The ordinary least square method was chosen because it possesses some optimal properties. Its computational procedure is fairly simple and it possesses the property.

This is deemed an appropriate data analyses technique for the purpose of this study with regards to the nature of data collected and the research objectives.

## 4. Results

***Descriptive Test***

| | GEX | TREV | GBR | SMR | AGR |
|---|---|---|---|---|---|
| Mean | 6709.419 | 3501.013 | 10544.45 | 239.3250 | 23374.50 |
| Std. Dev. | 2.658210 | 1.243747 | 1.240823 | 1.112740 | 0.226877 |
| Skewness | 0.022455 | 0.097673 | 0.037963 | 0.003823 | 0.037845 |
| Kurtosis | 2.448603 | 2.467073 | 2.143710 | 2.292186 | 2.284157 |
| Jarque-Bera | 1.853866 | 2.099780 | 0.750240 | 9.649482 | 1.345044 |
| Probability | 0.000766 | 0.000976 | 0.000207 | 0.008029 | 0.000420 |
| Observations | 12 | 12 | 12 | 12 | 12 |

Source: researcher computation 2024

Table 1 above shows the selected descriptive statistical summaryof the dependent and independent variables. In mean percentage, the size of the gross government expenditure (GEX) been the dependent variable stood at 6709.42 billion naira. The average annual value of non-oil revenue variables (tax revenue – TREV, agriculture revenue - AGR, solid mineral mining revenue - SMR, and government borrowing - GBR)in the period under review (2011–2022) stood at 3501.013 billion naira, 233374.50 billion naira, 239.33 billion naira and 10544.45 billion naira respectively.

Looking into the result above, the standard deviation for each of the variables is very low when compared to their respective mean values, hence the outcome of the study is reliable.The result (table 1) above also showed that the value of the kurtosis among the variables was very low. Skewness is a measure of symmetry or lack of it in a dataset. A perfectly symmetrical data set will have a skewness of 0. The normal distribution has a skewness of 0. A truly symmetrical data set has a skewness equal to 0. A positive skewness indicates that the size of the right-handed tail is larger than the left-handed tail. To ascertain when skewness is too much, the rule of thumb is: If the skewness is between -0.5 and 0.5, the data are fairly symmetrical, If the skewness is between -1 and – 0.5 or between 0.5 and 1, the data are moderately skewed. If the skewness is less than -1 or greater than 1, the data are highly skewed. The result as above, confirmed that the series (our model variables) are moderately skewed as they hover between 0 and 1.

**Unit Root Test**

The stationarity test was conducted on the data and model to ensure that they are fit and suitable for use. Table 2 is the summary of the unit root test results.

**Table 2: Unit root test result**

| SERIES | AT LEVELS | | | ORDER | REMARK |
|---|---|---|---|---|---|
| | ADF Stat | 5% critical value | P-value | | Stationary |
| GEX | -5.216086 | -3.933364 | 0.0009 | 1(0) | Stationary |
| TREV | -4.804236 | -3.933364 | 0.0032 | 1(0) | Stationary |
| GBR | -5.249301 | -3.933364 | 0.0003 | 1(0) | Stationary |
| SMR | -7.876130 | -3.933364 | 0.0000 | 1(0) | Stationary |
| AGR | 5.602271 | -3.933364 | 0.0000 | 1(0) | Stationary |

Source: researcher's computation 2024

The study conducted the unit root test of stationarity using the Augmented Dickey Fuller (ADF) approach. The results indicated that the model series (government expenditure – GEX, Tax revenue – TREV, government borrowing – GBR, solid mineral mining revenue – SMR and agricultural revenue – AGR)were stationary @ level; hence there was no need for differencing. Stationarity was concluded since the ADF statistic is greater than the 5% critical value, and the p-value of the ADF test statistic less than 0.05 (5% level of significance); stationarity and integration was therefore achieved at order 1(0).

**Correlation test**

Correlation test was used to ascertain the strength and magnitude of the relationship between the dependent (government expenditure) and independent variables (non-oil revenue variables: tax revenue, agricultural revenue, solid mineral mining revenue and the government borrowing). The result of the correlation test is presented in table below:

**Table 3: Correlation Matrix**

| | GEX | TREV | GBR | SMR | AGR |
|---|---|---|---|---|---|
| GEX | 1.000000 | | | | |
| TREV | 0.952663 | 1.000000 | | | |
| GBR | 0.953132 | 0.940314 | 1.000000 | | |
| SMR | 0.921212 | 0.918064 | 0.855983 | 1.000000 | |
| AGR | 0.983930 | 0.954814 | 0.981691 | 0.905131 | 1.000000 |

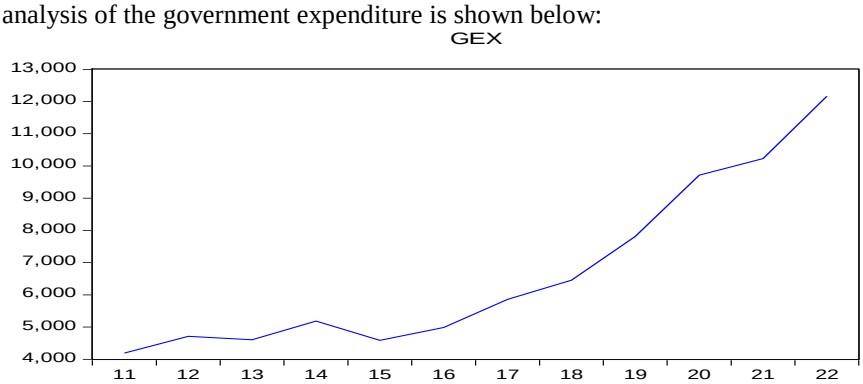
Source: researcher's computation 2024

The correlation test result in table 3 above indicates that all the non-oil revenue variables have positive relationship with the government expenditure variable. This implies that the nonoil revenue variables had direct positive impact on government spending decisions.

**Graphical trend of the Variables**

**Graphical Trend of Government Expenditure**

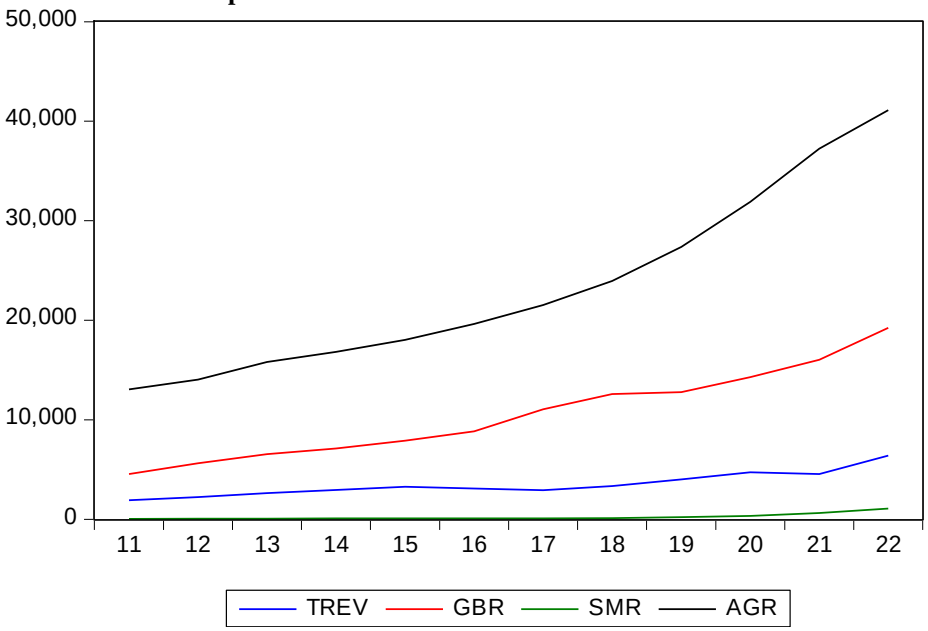
The model series is a mix of stock and flow variables. The trend line of both stock and flow variables produce important information that aid the monitoring of their performance index and policy decisions. The graphical trend analysis of the government expenditure is shown below:




As indicated on the graph above, the trend line for government expenditure showed a somewhat progressive growth. The upward trajectory of the variable based on the period under study persisted between

2011 and 2022, indicated moderate trend between 2001 to 2016. From 2017, the was a rather greater upward growth from about 5.1 trillion naira to 9.7 trillion in 20`9 and then about12 trillion naira in 2022. This indicates a steady significant increase in government expenditure.

**Graphical Trend of the Nonoil Revenue Variables**




The trend lines for the nonoil revenue variables showed a steady progressive non-erratic pattern. The agricultural revenue was higher and indicated most for in 2020-2021. The government borrowing variable is also indicated to have a significant impact on the government expenditure. The tax revenue and the solid mineral mining revenue were not significant as they lie at the bottom of the graph.

**Regression**

After testing for stationary status of the model series, it was found that they are all stationary at level; therefore, following econometric procedures, the Ordinary least squares regression can be applied to estimate the model. The regression result is presented below:

**Table 4: OLS result**

**Dependent Variable: GEX**
Method: Least Squares
Sample: 2011 2022
Included observations: 12

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| TREV | 0.284868 | 0.359970 | 2.791366 | 0.0016 |
| GBR | -0.187356 | 0.162121 | -3.155657 | 0.0012 |
| SMR | 0.487889 | 0.672833 | 2.725126 | 0.0090 |
| AGR | 0.323711 | 0.095688 | 3.382970 | 0.0096 |

| | |
|---|---|
| R-squared | 0.775663 |
| Adjusted R-squared | 0.766536 |
| S.E. of regression | 1.862690 |
| Durbin-Watson stat | 1.799685 |

**Source: researcher's computation 2024**

As indicated in table 4, it could be observed that the non-oil revenue series turned up all positive on the government expenditure except the government borrowing variable (TREV + and > 0, AGR + and > 0; SMR + and > 0; and GBR - and < 0). An increase in the non-oil revenue variables produced marginalinfluence on the government expenditure by 0.285 billion naira for tax revenue; and 0.32 billion naira for agricultural revenue,

and 0.488 billion naira for solid mineral mining revenue. However, the government borrowing revenue was negative (-0.19 billion naira).

The empirical value of the coefficient of determination ($R^2$ = 0.775663) shows that 77.57% of the total variations in the government expenditure variable (GEX) of Nigeria was influenced by variations in the non-oil revenue variables (agricultural revenue, government borrowing revenue, tax revenue and solid mineral mining revenue), while the remaining 22.43% is attributed to factors not captured in the model.

## 5. Summary, Conclusion and Recommendations

This study investigated impact of non-oil revenue on the government expenditure of Nigeria for the period 2011 to 2022. The researcher reviewed related conceptual, theoretical and empirical literatures. Preliminary tests (unit root, correlation and descriptive) were carried out on the data employed for the analysis. From the unit root test of stationarity, the series (government expenditure – GDEX, agricultural revenue – AGR, solid mineral mining revenue – SMR, and the tax revenue - TREV) were stationary at level, and integrated of the same order 1(0). From the regression result, the coefficient of multiple determination (the $R^2$) shows that 0.775671 (or 77.57%) of the total variations in the government expenditure of Nigeria was influenced by the nonoil revenue variables.

The findings showed that the tax revenue was a significant variable and had a positive effect on the government expenditure. The coefficient was 0.284868 while the p-value was 0.0016. When tax revenue increases, the effect on government expenditure is expected to be positive since it will provide a boost for the government to be able to carry it its expenditure plans. This findings is in agreement with the results by Udeh (2022) which assessed the effect of oil and non-oil revenue of the government on government expenditure. The researcher made use of multiple linear regression models. Findings revealed that non-oil revenue exerted a positive and significant effect on the expenditure of government. On this premise, the study recommended that more can be done to increase revenue generation through non-oil producing sectors of the economy by making available enabling environment and incentives that can facilitate economy diversification.Tax revenue is the income that is gained by government through taxation.

The study found that government borrowing was negative on the expenditure of government. The coefficient for the government borrowing variable was -0.187356 while the p-value was 0.0012. This means that the borrowing has significant negative effect on the government expenditure. This may be because, despite the additions made by the borrowed money to government revenue, it may not be positive since there will be some form of withdrawal from the economy in form of interest payments for those funds borrowed. The finding however is different from the findings by Emmanuel and Ogagaoghene (2022) which examined the effect of the effects of Non-Oil revenue on the Nigerian government expenditure from the period of (1994 - 2021). Their findings showedthe impact of government borrowing to be positive.

From the ordinary least squares regression result, the p-value of the population parameter (t-stat) for the solid mineral mining series (SMR) was found to be (0.0090). Since the value is less than the 5% level of significance, it implied that solid minerals revenue has significant positive effect on government expenditure in Nigeria. Nigeria earned the total sum of N193.59Billion from the solid minerals sector in 2021. This is the earnings from the sector since NEITI commenced the reconciliation of payments by companies and receipts by government in the sector.The figure shows an increase of ₦60.32 billion or 51.89% growth, when compared to the 2020 revenue flows of ₦116.82 billion. This positive trend reflects a continuation of the upward positive trajectory observed in the sector over the past five years. This contribution, though a significant increase over past years, is still abysmal considering the potentials of the sector to the Nigerian economy.

Also, from the ordinary least squares regression result, the p-value of the population parameter (t-stat) for the agricultural revenue series (AGR) was found to be (0.0096). This therefore implied thatagricultural revenue has significant positive effect on government expenditure in Nigeria. The Nigerian agriculture sector extends beyond the farm business to include a range of farm-related industries. The overall contribution of crop production revenue to GDP is growing marginally because there are other sectors (related to agriculture) which rely on crop production in order to contribute added value to the economy. According to Babatunde (2020), the average amount of money accrued from the sale of unprocessed crops in Nigeria was N112,774. Rural farmers earned a little higher (N114,398) than urban farmers (N101,206) from selling unprocessed crops. Across Nigeria's geo-political regions, the average amount of fund recouped from the sale of unprocessed crops was highest in the south-west region (N318, 254) while the second highest was recorded in the north-central (N146, 886).

The major summary of the major findings of the study: tax revenue with coefficient value (0.284868) and p-value (0.0016) has significant positive impact on the government expenditure of Nigeria. government borrowing had significant negative effect on the government expenditure (coefficient = -0.187356, p-value = 0.0012); solid mineral mining revenue with coefficient value (0.487889) and p-value (0.0090) has positive

significant positive impact on the government expenditure of Nigeria; andagricultural revenue has significant positive impact on the government expenditure of Nigeria (coefficient = 0.323711) and p-value (0.0096). Based on the findings, the study concludes that non-oil revenue variables had mixed impact on the government expenditure of Nigeria for the period under review.Based on the findings, the study therefore makes the following recommendations: there is need for the government to expand the tax net, this will increase the tax revenue and hence, improve the government expenditure funding; the government should expand the borrowing plan in line with the budget outlay so as to ensure that that the revenue from borrowing is tailored to meet budget needs and avoid over borrowing; and the Federal government shore upexploration of solid mineral mining, this will further expand the non-oil revenue base and improve policies that help its expenditure; there is need to provide more incentives to expand the agricultural value chain and increase the capacity of agricultural sector to contribute significant revenue for the government to finance its expenditure.

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