Revenue Profile and Government Expenditure in Nigeria

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Abstract:
The study examined revenue profile and government expenditure in Nigeria, covering 1987 to 2017. Objectively, the study analyzed the trend of oil revenue, non-oil revenue, capital expenditure, and recurrent expenditures; and equally investigated the effect of revenue on expenditure pattern in Nigeria using four single models in which capital expenditure and recurrent expenditure were made a full function of oil revenue and non-oil revenue. Correlation matrix and simple regression were used to analyze data generated from CBN statistical Bulletin 2017. The findings revealed that both oil revenue and non-oil revenue exerted a significant effect on capital and recurrent expenditure in Nigeria. It was concluded that both capital and recurrent expenditure were predominantly financed through both oil revenue and non-oil revenue. Thus, the study recommended that government should invest more on capital projects that could induce foreign investors through which the economy of the state will be more booming and that government should work out modalities that will ensure offices and personnel are duplicated and huge expenditure incurred on the assembly men are grossly reduced.

Keywords: Oil revenue, non-oil revenue, capital expenditure, recurrent expenditure

1. Introduction
World over, the attainment and sustenance of growth and development of any nation are contingent on infrastructural facilities put in place. Expanding this Ojo (2016) submits that infrastructural facilities constitute the groundwork of a nation through which expansion and development are attained. Hence, public expenditure remains an imperative management tool and, if well-managed, it could put an economy on a long-term sustainable growth and development path. Judicious government spending, through an efficient sharing of its resources to the diverse sectors of the economy, translates into an inclusive and sustainable growth pattern, which serves as a driver for eliminating poverty and discrimination within the society.

Public expenditure is the expenses that a government incurs for its own maintenance, for the society and the economy. In the opinion of Aruwa (2010), it means government payments for the goods and services acquired and for the works done pursuant to their respective laws, social security contribution, interest payments of domestic and foreign debts, general borrowing expenditures, payments resulting from the discounted sale of borrowing instruments, economic, financial and social transfer denomination and grant, and others. Generally, government expenditure in Nigeria can be categorized into two component parts namely capital expenditure and recurrent expenditure. Capital expenditure is incurred on the creation or acquisition of tangible assets (new or second-hand) while recurrent expenditure is incurred on the purchase of goods and services, payment of wages and salaries and settlement of depreciation on tangible assets (Arogundade & Olaoye, 2016).

The amount expended on both capital expenditure and recurrent expenditure largely depend on the volume of the total revenue. This, therefore, implies that revenue generated determines the infrastructural development of any nation and equally help to prevent the volatility of a nation’s economy. This explains the reasons why some economies are growing and inducing and why others are crawling and unpersuasive. The inference here is that the revenue profile of a nation could stimulate economic activities of a country. According to Edogbanya and Ja’afaru (2013), revenue is defined as the funds generated by the government to finance its activities. In other words, revenue is the total fund generated by the government (Federal, state, local government) to meet their expenditure for a fiscal year. This refers also to the grand total of money of income received from the source of which expenses are incurred.

Literature affirms that there is a relationship between revenue profile and government spending, reflecting that the expenditure pattern of a nation largely depends on her revenue profile (Ojo, 2016; Jones, Ihendinihu & Nwaiwu, 2015). However, the composition of public spending in developing economies has not been steady over some years and this was attributed to low revenue profile, mismanagement, perverted economy and lack of patriotic acts (Idenyi, Ogonna, Chinyere & Chibuzor, 2016). It is often established that there is need to appraise the relative trend in public spending in relation to
revenue generated across emerging economies and to assess the possible input of each sector to economic growth as this will enhance allocative efficiency. Idenyi, Ogonna, Chinyere, and Chibuzor (2016) submit that for government expenditure to be able to promote growth and development in any economy, there is a need for the budgeting process to be significantly evaluated to ensure that resources are allocated based on social, human and infrastructural need in the economy.

Nigeria’s revenue profile consists of oil revenue and non-oil revenue with the former covering over 70% of the total revenue to the Federation (Jones, Ihendinhu & Nwaiwu, 2015). Available data from the Central Bank of Nigeria (CBN) cited in Jones, Ihendinhu, and Nwaiwu (2015) indicates that oil revenue contributed 77.5% from 1986 to 2012 on the average while the non-oil revenue generated only 22.5% during the same period. This mono-product nature of the Nigerian economy explains the vulnerability of Nigeria’s economy among the economies of the world and is presently being degraded by instability in the international price of oil and observable shortfalls in production resulting from occasional social and political unrest. No doubt, these circumstances put the nation’s earnings at risk and portend severe consequences to the economy (Jones, Ihendinhu & Nwaiwu, 2015).

Studies like Harishiita and Jimjel (2015), Nwosu and Okafor (2014), Emelogu and Uche (2010) and Mithani and Khoon (1999) have been carried out on revenue generation and government expenditure with disaggregated hypotheses and methods of analysis. Most of the studies in Nigeria have recorded the same findings indicating that a positive correlation between revenue and expenditure in Nigeria. However, the justification of this study was predicated on the recent reduction in both oil and non-oil revenue in 2014, 2015 and 2016 and increase in capital expenditure simultaneously. Based on this backdrop, it is the interest of the researcher to examine the relationship between revenue profile and government expenditure in Nigeria.

2. Literature Review

2.1. Revenue and Public Expenditure

Revenue means income required by the government to finance its growing expenditure. 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, fine, fees etc. Bhatia (2001) contends that revenue receipt includes “routine” and “earned” income. For these reasons, according to him, revenue does not include borrowing and recovery of loans from other parties, but it includes tax receipts, donations, grants, fees and fines and so on. Hepworth cited in Edogbanya and Ja’afaru (2013) described revenue as an income or funds raised to meet the expenditure. Revenue could, therefore, be defined as an income or funds raised to meet expenditures to be incurred by a constituted authority. Similarly, it means a raising resource needed to defray public expenditure. It is the funds generated by the government to finance its activities.

In Nigeria, oil and non-oil revenues are the major sources of government finances. The oil revenue includes proceeds from sales of crude oil, petroleum profit tax, rents, and royalties while the components of non-oil revenues are companies’ income tax, customs and excise duties, value-added tax and personal income tax. Nigeria relies heavily on oil as its main source of foreign exchange earnings and government revenues. Following the 2008-09 global financial crises, the banking sector was effectively recapitalized and regulation enhanced. Since then, Nigeria’s economic growth has been driven by growth in agriculture, telecommunications, and services. Economic diversification and strong growth have not translated into a significant decline in poverty levels; however, over 62% of Nigeria’s 170 million people still live in extreme poverty (Central Intelligence Agency, 2018).

Government Expenditure no doubt is an important instrument for a government to control the economy of a nation. Economists are fully aware of the effects of promoting economic development. Anyway, the general view is that government expenditure notably on social and economic infrastructure can be growth enhancing, although the financing of such expenditure to provide essential infrastructural facilities including transport, electricity, telecommunication, water and sanitation, waste disposal, education, and health can be growth retarding (Olaoye, 2008). According to Arogundade and Olaoye (2016), government expenditure involves all the expenses that the public sector incurs for its maintenance for the benefit of the economy. Generally, government expenditure can be categorized into two component parts namely capital expenditure and recurrent expenditure. Capital expenditure is incurred on the creation or acquisition of tangible assets (new or second-hand) while recurrent expenditure is incurred on the purchase of goods and services, payment of wages and salaries and settlement of depreciation on tangible assets (Arogundade & Olaoye, 2016).
2.2. Conceptual Framework of Federally Collected Revenue and Government Expenditure

The two major sources that constitute the revenue profile of Nigeria could be vividly seen from the framework above. The first source is oil revenue, which is broadly divided into oil revenue and gas revenue. The second source is non-revenue which include company income tax, petroleum profit tax, and capital gain tax, value added tax, excise duties, and others. The financial resources from the different sources are channeled to the expenditure responsibilities either in the form of capital expenditure or recurrent. This is usually based on the State priorities and needs that are reflected in the medium-term plans.

2.3. Theoretical Paradigm

Theoretically, this study will be underpinned by Wagner’s Law and Peacock and Wiseman Theory of public expenditure. Wagner’s Law is named after the German political economist Adolph Wagner (1835-1917), who developed a “law of increasing state activity” after empirical analysis on Western Europe at the end of the 19th century. He argued that government growth is a function of increased industrialization and economic development contingent on national income. Wagner’s Law tends to be a long-run phenomenon: the longer the time-series, the better the economic interpretations and statistical inferences. It was noted that these trends were to be realized after fifty to a hundred years of modern industrial society.

Peacock and Wiseman (1967) suggested that the growth in public expenditure does not occur in the same way that Wagner theorized. Peacock and Wiseman choose the political propositions instead of the organic state where it is deemed that the government like to spend money and people do not like increasing taxation. There may be a divergence of ideas about desirable public spending and limits of taxation but these can be narrowed by large-scale disturbances, such as major wars. According to Peacock and Wiseman, these disturbances will cause displacement effect, shifting public revenue and public expenditure to new levels. The government will fall short of revenue and there will be an upward revision of taxation. Initially, citizens will engender displeasure but later on, will accept the verdict in times of crisis. Both theories attributed the growth of public expenditure to revenue generation, indicating that an increase in national income will endanger increase in the expenditure pattern of nations. Although there were disaggregations of views as regards what caused an increase in government expenditures, the inference that could be derived from these theories is that public expenditure is always dependent on revenue generation. This theory is relevant to this study on the basis that expenditure patterns of both Nigeria are contingent on the amount of revenue generated from their various sources of revenue.

2.4. Revenue and Government Expenditure

Empirically, a lot of studies have been carried on the relationship between revenue generation and public expenditure in all parts of the world. Few out of these studies are reviewed. In Nigeria, Emelogu and Uche (2010) undertook a study on the relationship between government revenue and government expenditure in Nigeria using time series data from 1970 to 2007, Engel-Granger two-step co-integration technique, the Johansen co-integration method, and the Granger causality test within the Error Correction Modelling (ECM) framework. They discovered that a long-run relationship between the two variables and a unidirectional causality running from government revenue to government expenditure in Nigeria. In a study similar study conducted by Ogulumba and Abraham (2012) on the revenue-spending hypothesis for Nigeria using macro data from 1970 to 2011, it was found that revenue and expenditure are highly correlated and that causality runs from revenue to expenditure in Nigeria. The study used correlation analysis, Granger causality test, regression analysis, lag regression model, vector error correction model, and impulse response analysis.

In Barbados, applying Granger Causality on both bivariate and multivariate co-integrating models, Tracy and Kester (2009) examined the interrelationship between total government expenditure and total tax revenue. The result of the multivariate error correction model suggests that a unidirectional causality exists from tax revenue to government expenditure. On the same note, Mithani and Khoon (1999) incorporated the effect of seasonality to examine the causal
relationship between quarterly government revenue and government expenditure in Malaysia between 1970-1997. They report evidence of seasonal co-integration of biannual frequency while the seasonal error correction model indicates a unidirectional causal influence from government expenditure to government revenue.

Using co-integration technique, Error Correction Model (ECM) and Granger causality test, Al-Qudair (2005) examined the long run equilibrium relationship between government expenditure and revenues in the Kingdom of Saudi Arabia. The co-integration test indicates the existence of a long-run equilibrium between government expenditure and revenues. The causality tests show the existence of a bi-directional causal relationship between government expenditure and revenues in the long and the short run. In Romania, Hye and Jalil (2010) adopted the autoregressive distributive lag approach to co-integration, variance decomposition and rolling regression method to determine the causal relationship between expenditure and revenue of government. The results indicate that bidirectional long-run relationship exists between government expenditure and revenue.

A similar study was conducted by Nwosu and Okafor (2014) on government revenue and expenditure in Nigeria: a disaggregated analysis. The study utilized co-integration techniques and VAR models which included an Error Correction Mechanism (ECM) as the methods of analyses. The co-integration tests indicate the existence of long-run equilibrium relationships between government expenditure variables and revenues variables. The VAR results also show that total government expenditure, capital, and recurrent expenditures have long run unidirectional relationships with total revenue, oil and non-oil revenue variables as well as unidirectional causalities running from expenditures to revenue variables.

Nnanseh and Akpan (2013) carried out a study to examine the influence of IGR on the provision of electricity, road, and water in AkwaIbom State. Simple regression was used to analyze the data generated and it was revealed that there was a significant relationship between IGR and provision of electricity, road, and water in Akwa Ibom State. A similar finding was discovered by Adenugba and Ogechi (2013) in their study titled the influence of IGR on infrastructural development in Lagos State. The result of the analysis that was carried out with the use of Spearman’s Rank indicated a positive connection between IGR and infrastructural development in Lagos State.

3. Methodology

Ex post facto research design was adopted for this study because the study aimed at obtaining important information on the status of the specific phenomenon after some naturally occurring treatment without any manipulation of the situation. The study utilized annual time series data of 30 years, spanning from 1987 to 2017; and covering variables such as capital expenditure, recurrent expenditure, oil revenue, non-oil revenue, tax revenue, and non-tax revenue. Data collected were analyzed using line and symbol for the trend analysis and correlation and multiple regression for the formulated hypotheses. The data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin of 2017. The models formulated were given below:

Model 1

\[ CEX = f(ORE) \] .......................... (1)

Model 2

\[ REX = f(ORE) \] .......................... (2)

Model Three

\[ CEX = f(NRE) \] .......................... (3)

Model 4

\[ REX = f(NRE) \] .......................... (4)

Where:

- ORE is Oil Revenue
- NRE is Non-oil revenue
- CEX: Capital Expenditure
- REX: Recurrent Expenditure

The Equations of the models were given below:

Equation 1

\[ CEX = \alpha_0 + \alpha_1 \times ORE + U \] .......................... (5)

Equation 2

\[ REX = \alpha_0 + \alpha_1 \times ORE + U \] .......................... (6)

Equation 3

\[ CEX = \alpha_0 + \alpha_1 \times NRE + U \] .......................... (7)

Equation 2

\[ REX = \alpha_0 + \alpha_1 \times NRE + U \] .......................... (8)

\( \alpha_0 \) = Intercept

\( \alpha_1 \) = Coefficient of the Independent variable

U= Captures other variables not included in the model and it takes care of other factors that cannot be observed or computed due to lack of data. The a priori expectation was there would be a positive relationship between the dependent and independents variables of the study.
4. Empirical Result

4.1. Trend Analysis

4.1.1. Trend Analysis of Oil Revenue and Non-Oil Revenue

Figure 2 above revealed the trend analysis of oil revenue and non-oil revenue that constitute the revenue profile of Nigeria. For the period covered, spanning from 1987-2017, it shows that oil revenue trended higher than non-oil revenue in Nigeria except the year 2016 where non-oil revenue trended higher than oil revenue. Similarly, the highest oil revenue recorded in Nigeria was in 2011, where a total 8,025,970,000 billion was generated that year. In the same vein, the last 4 years in Nigeria has witnessed the dividends of diversification where non-oil revenue has contributed on the average 45% of the total revenue accruing to the revenue pool of the federal government. This is a clear indication that Nigeria is no longer a mono-economy where government expenditure is predominantly financed through oil-revenue.

4.1.2. Trend Analysis of Capital Expenditure and Recurrent Expenditure

Figure 3: Trend of Capital Expenditure and Recurrent Expenditure
Figure 3 above shows the trend analysis of both capital and recurrent expenditures in Nigeria. Obviously, it could be deduced from the analysis that recurrent expenditure trended higher than the capital expenditure for all the periods covered by this study except the year 1996 to 1999, where higher developmental projects were executed in Nigeria. This could be partly attributed to the techniques used by the presidency after receiving sanctions from the global community as a result of the failed elections and the imprisonment of the acclaimed winner of the June 1992 elections to win the support of the people and to equally tell them that the present administration could do a better job to move the country to a better place. The analysis equally shows that since 2000, recurrent expenditure has trended higher than capital expenditure in Nigeria and this could be attributed to the high allocation of resources to the legislative arm of government, duplication of offices and personnel, and yearly mismanagement.

4.2. Correlation Analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>ORE</th>
<th>NRE</th>
<th>CEX</th>
<th>REX</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORE</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NRE</td>
<td>0.777**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEX</td>
<td>0.848**</td>
<td>0.850**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>REX</td>
<td>0.676**</td>
<td>0.940**</td>
<td>0.787**</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 1: Correlation Matrix
Source: Author’s Computation (2018)

Table 1 revealed that there is positive significant correlation between Oil Revenue (ORE), Non-Oil Revenue (NRE), Capital Expenditure (CEX), and Recurrent Expenditure (REX), with specific values of 0.777** for oil revenue and non-oil revenue, 0.848** for oil revenue and capital expenditure, and 0.678** for oil revenue recurrent expenditure. This result connotes that oil revenue moves in the same direction with non-oil revenue, capital expenditure, and recurrent expenditure significantly over the period covered by this study. Similarly, there was a positive significant correlation between non-oil revenue, capital expenditure and recurrent expenditure with a specific value of 0.850** for non-oil revenue and capital expenditure and 0.940** for non-oil revenue and recurrent expenditure. This implies that non-oil revenue moves in the same direction with capital expenditure and recurrent expenditure over the period covered by this study. Similarly, there was a positive significant correlation between capital expenditure and recurrent expenditure move in the same direction over the period covered by this study.

Dependent Variable: CEX

<table>
<thead>
<tr>
<th>Models</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-statistics</th>
<th>R-square</th>
<th>F-stat</th>
<th>Prob</th>
<th>Dub Wat</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-149.7794</td>
<td>423.0940</td>
<td>-0.354010</td>
<td>0.719841</td>
<td>74.51281</td>
<td>0.0000</td>
<td>1.339633</td>
</tr>
<tr>
<td>ORE</td>
<td>6.219192</td>
<td>0.720474</td>
<td>8.632080</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Dependent Variable: REX

<table>
<thead>
<tr>
<th>Models</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-statistics</th>
<th>R-square</th>
<th>F-stat</th>
<th>Prob</th>
<th>Dub Wat</th>
</tr>
</thead>
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<tr>
<td>C</td>
<td>-1.003469</td>
<td>0.2076</td>
<td>4.946405</td>
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<td></td>
</tr>
<tr>
<td>ORE</td>
<td>26.34832</td>
<td>0.303617</td>
<td>8.678152</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dependent Variable: CEX

<table>
<thead>
<tr>
<th>Models</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-statistics</th>
<th>R-square</th>
<th>F-stat</th>
<th>Prob</th>
<th>Dub Wat</th>
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</thead>
<tbody>
<tr>
<td>C</td>
<td>-126.3236</td>
<td>94.2581</td>
<td>1.340188</td>
<td>0.883439</td>
<td>219.7968</td>
<td>0.0000</td>
<td>0.745663</td>
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<tr>
<td>ORE</td>
<td>0.527919</td>
<td>0.039784</td>
<td>14.82554</td>
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</tr>
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</table>

Table 2: Regression Analysis
Data Analysis, 2018

Estimation result presented above-reported co-efficient estimate of 6.219192 alongside probability value of 0.000 for Oil Revenue (ORE). The null hypothesis is rejected and this implies that oil revenue exerts a positive significant effect on Capital Expenditure (CEX) in Nigeria reflecting that 1% increase in oil revenue would engender an increase in capital expenditure by 6.219192 billion naira. In addition, the Durbin Watson (1.339633) is estimated to be lesser than 2 indicating that there is no presence of autocorrelation. Similarly, the R-square value reported stood at 0.719841 which implies that about 71.98% of the systematic variation in capital expenditure of Nigeria was caused by oil revenue and the remaining 28.02 was caused by other factors not included in the study. This finding was in tune with the discovery of Ogujiuba and Abraham (2012). They discovered that revenue and expenditure are highly correlated and that causality runs from revenue to expenditure in Nigeria.

The table above further reveals that the systematic variation (0.457609) reflecting 45.8% shown under the R-Square segment indicates the level at which Recurrent Expenditure (REX) of Nigeria was affected by Oil Revenue and the remaining 54.2 was due to other variables not included in this study. In the same vein, the coefficient estimate of oil revenue reported to be 0.039784 means that a 1% increase in oil revenue would cause a recurrent expenditure to increase by 1.003469 billion. Similarly, the significant value (0.000) is statistically significant, thus the linearized functional specification of the model is appropriate leading to the rejection of the null hypothesis and the acceptance of the
alternative hypothesis. This means that oil revenue exerts a positive significant effect on Recurrent Expenditure (REX) in Nigeria. Similarly, the Durbin Watson reported to be 0.457555 connotes that there is no presence of autocorrelation. A similar finding was submitted by Emelogu and Uche (2010). They found a relationship between revenue and expenditure.

Also, the estimated result presented above-reported co-efficient estimate of 2.634832 alongside probability value of 0.000 for Non-Oil Revenue (NRE). The led to the rejection of the null hypothesis and it implies that non-oil revenue exerts a positive significant effect on the Capital Expenditure (CEX) reflecting that 1% increase in non-oil revenue would engender an increase in capital expenditure by 2.634832 billion in contrast to 2.634832 when constant. In addition, the Durbin Watson calculated to be 0.422670 is estimated to be lesser than 2 indicating that there is no presence of autocorrelation. Similarly, the R-square value reported stood at 0.721983 which implies that about 72.2% of the systematic variation in capital expenditure of Nigeria was caused by non-oil revenue and the remaining 27.8 was due to other variables not included in this study. The outcome was in tandem with Adenugba and Ogechi (2013). They found a positive influence of revenue on expenditure.

Lastly, the table above revealed that the systematic variation (0.883439) reflecting 88.3% shown under the R-Square segment indicates the level at which Recurrent Expenditure (REX) of Nigeria was affected by Non-Oil Revenue (NRE) and the remaining 11.7% was due to other variables not included in this study. In the same vein, the coefficient estimate of non-oil revenue reported to be 0.589819 means that a 1% increase in non-oil revenue would cause a recurrent expenditure to increase by 0.589819 billion. Similarly, the significant value (0.000) is statistically significant, thus the linearized functional specification of the model is appropriate leading to the rejection of the null hypothesis and the acceptance of the alternative hypothesis. This means that non-oil revenue exerts a positive significant effect on Recurrent Expenditure (REX) in Nigeria. Similarly, the Durbin Watson reported to be 0.745663 connotes that there is no presence of autocorrelation. This discovery corroborates the findings of Nnanseh and Akpan (2013). They found that expenditure of the government is dependent on the revenue generated.

5. Conclusion, Policy Implication, and Recommendations

The study examined revenue profile and government expenditure in Nigeria using time series data from 1987-2017. The study used to line and symbols to analysis the trend of oil revenue, non-oil revenue, capital expenditure, and recurrent expenditure. In line with the findings made, it was concluded that both capital and recurrent expenditure were predominantly financed through both oil revenue and non-oil revenue. This policy implication, therefore, is that expenditure should be presumed on revenue generated in order not to widen the budget deficit. The following recommendations were considered appropriate:

- The government should invest more on capital projects that could induce foreign investors through which the economy of the state will be more booming.
- The government should work out modalities that will ensure offices and personnel are not duplicated and huge expenditure incurred on the assembly men are grossly reduced.
- The diversification of the economy which is reflected in the increase in non-oil revenue should be maintained.

6. References


