Assessment of the Contribution of Value Added Tax to the Nigerian Economy

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Abstract
Value added tax (VAT) is a consumption tax, levied at each stage of the consumption chain and borne by the final consumer of the product or service. The performance of VAT as a source of revenue in Nigeria is encouraging, but it remains difficult to systematically assess the impact on VAT on the economy. The administration of VAT is relatively easy, unselective and difficult to evade. The study investigated the impact of value added tax on the economic growth of Nigeria. This paper analyzed empirically the impact of Value Added Tax (VAT) on economic growth in Nigeria from 2005-2014. Data were collected from Central Bank of Nigeria (CBN) statistical bulletin. A simple regression technique, with the aid of SPSS version 23.0, was employed to test the hypotheses formulated. The result shows that VAT positively contributes to the total revenue generated by government and by extension the economic growth of Nigeria. Therefore, this study recommends that revenue collected from VAT needed to be boosted. This can be achieved not necessarily by increasing the VAT rate of 5% percent but by closing every VAT revenue leakage, sensitizing the managers of companies operating in Nigeria on the need to remit the VAT revenue collection and proper training of the Federal Inland Revenue staff in charge of VAT revenue collection.

Key words: Assessment, contribution, value added tax, economy

INTRODUCTION
Value added tax (VAT) is a consumption tax, levied at each stage of the consumption chain and borne by the final consumer of the product or service. The administration of VAT is relatively easy, unselective and difficult to evade. Countries all over the world, look for ways to boost their revenue. This facilitated many nations to introduce value added tax on goods and services. For instance in Africa, VAT has been introduced in Benin Republic, Cote d’Ivore, Guinea, Kenya, Madagascar, Mauritius, Senegal, Togo, Nigeria. Evidence suggests that in these countries VAT has become an important contributor to government revenue (Ajakaiye, 2000). Nigeria introduced VAT in 1993. However its full implementation began on 1st January, 1994. This has attracted the attention of researcher sand academia on its benefit in the economic growth of Nigeria. Economic growth measures the increase in the national income or total volume of production of goods and services of a country.
accompanied by improvements in the total standard of living of the people (Chinwuba and Amos, 2011).

VAT revenue is generated for distribution to the state and local government in Nigeria, unlike the oil revenue whose market government has no control over. VAT helps to reduce over dependence on oil revenue that assures a sustainable economic growth and development. While the performance of VAT as a source of revenue in Nigeria is encouraging, it is difficult to systematically assess the contribution of VAT on the economy.

STATEMENT OF THE PROBLEM
The attitude of Nigerians towards taxation is worrisome as many prefer not to pay tax if given the opportunity. The economy continues to lose huge amount of revenue through the unwholesome practice to tax avoidance and tax evasion. This loss of revenue can change the fortune of many economies, particularly developing countries like Nigeria (Eneje, 2011). This problem has been lingering for so long which urgent attention and solution is long overdue. The cost of collecting tax in Nigeria (both social and economic cost) is too high to the extent that if left unchecked the cost may soon outweigh the benefit or value derived from such operations and that will not be appropriate for the system. In Nigeria, VAT is one of the instruments the federal government introduced to generate additional revenue. Yet, most prominent Nigerians and interest groups had spoken against its introduction (Omolapo, Aworemi and Ajala, 2013). It would appear that VAT is froth with some problems. For the purpose of this research work we shall examine the implication of VAT on revenue generation in Nigeria and how VAT affects the economic growth in Nigeria.

OBJECTIVE OF THE STUDY
The major objective of this study is to assess the contribution of Value Added Tax to the Nigerian economy, but the specific objectives are:

i. To evaluate if revenue generated through Value Added Tax have any significant influence on the economic growth of Nigeria, proxy by Gross Domestic Product (GDP).

ii. To examine if revenue generated through Value Added Tax have any significant effect on the overall revenue generation in Nigeria, proxy by Total Consolidated Revenue (TCR).

STATEMENT OF HYPOTHESIS
Based on the above research questions the following null hypotheses are set to be tested for acceptance or rejection:

H01: Revenue generated through Value Added Tax has no significant influence on the Gross Domestic Product.

H02: Revenue generated through Value Added Tax has no significant effect on the Total Consolidated Revenue.

Conceptual Framework
Tax is a compulsory payment made by all concerned to the government of a country from which essential services are rendered, without necessarily offering an explanation on how the money generated was spent or equating the services with the money collected (Abdullahi, 2011). Tax administration was nonetheless given to federal Inland Revenue Services, which was already charged with the responsibility of administering most other taxes in Nigeria. The introduction of VAT in Nigeria through Decree102 of 1993 marks the phasing out of the Sales Tax Decree No. 7 of 1986.
Value Added Tax and Economic Growth

Michael and Ben (2007) explored the causes and consequences of the spread of value added tax (VAT). A panel study of 143 countries for 25 years were observed. The result shows that VAT has a significant but mixed impact. This implies that while some countries would have gained revenue from the adoption of VAT, others would not. However, allowing the impact of VAT to vary with country specifics will shift the effect to become negative though acting in the opposite direction are gains that tend to be greater in higher income and in more open economies. Denis, (2010), investigated the relationship between Value Added Tax (VAT) and Gross Domestic Product (GDP) in Nigeria. The study finds that VAT is not effective as revenue earner; this implies that significant parts of GDP which represent aggregate national income as well as aggregate national expenditure are not collected as tax. (Salti and Chabaan, 2011) studied the effect of increasing rate of VAT by targeting poverty and inequality. An empirical model based on consumer theory of demand was established to study the impact. Simulation results showed that increased rate of VAT would have negative significant impact on poverty. Although the increased rate would have a negative impact on overall consumption, yet its effect on the poor is greater compared to the rich. Nellor (1987) looked at whether the ratio of government revenue to GDP rises steadily after implementation of VAT in 11 European countries. Nellor, concluded that the implementation of the VAT instantly increased tax ratio, which then continues growing at the higher level. Smith, Islam, and Moniruzzaman, (2011) attempt to analysis the contribution and performance of VAT in Bangladesh compared to other developing countries.

GENESIS OF VAT

VAT Simply called the goods and services tax (Gst) is levied on the value added that results from each exchange. It is an indirect tax collected from someone other than the person who actually bears the cost of the tax or the tax burden. Value Added Tax (VAT) has been reduced in most countries of the world on record. The first country that introduced or imposed VAT, as is known in modern sense is France on April 10, 1954. Most countries of the European Economic Community (EEC), have value added tax as a means of ensuring uniformity of trading, since goods and services move relatively freely among these countries. Owing to the close economic relationship between France and its colonies, VAT was introduced almost immediately after 1954 in most of Franco- phone African Countries, beginning with Cote Divoire in 1957. Within ten years of its administration, VAT in one form or the other was operational in most French speaking African countries.

The first developing country to implement VAT was Brazil in 1967 when the state government abolished the multiple sales tax system, in order to ensure financial and economic co-ordination among 26 states in the country. The latest countries that imposed VAT were India and China both in 1990. Nigeria introduced VAT in 1st September, 1993 and was impose on 1st January 1994. In the United States despite the autonomy of the states in tax matters, the state that operated value added tax was Michigan which was introduced in 1965, but was replaced in 1974 and was re-introduced in 1981. All the other states still operate the sales tax system.

Today, VAT is used as an important instrument for fiscal and economic policies in many countries of the world. In Europe, Austria, Belgium, Denmark, Germany, Finland, France, Grace, Ireland, Italy, Iuxemburg, the Norway, Portugal, Spain, Sweden, Turkey, and United Kingdom operated value added tax. Hungary, Poland and Czech are among the emerging East European free market economics still considering the introduction of VAT. In Latin America-Argentina, Bolivia, Brazil, Columbia, Costa Rica, Ecuador, Guatemala, Mexico, Hunduras, Vicerage Panama, Peru, Uruguay, Dominican Republic, Haiti, all operate VAT
system. In Asia-China, India, Indonesia, Korea, Taiwan, Pakistan, Philippines, Japan and Thailand all operate VAT system. In the middle East-Israel and Turkey still use VAT system. In Africa – Benin Republic, Botswana, Burkina Faso, Guinea Bissau, Kenya, Lesotho, Madagascar, Mali, Mauritania, Morocco, Niger, Senegal, South Africa, Swaziland, Togo and Nigeria all operate VAT system.

TRADITIONAL THEORY ON INCOME TAX RATE
Motau (2009), traditional schools of thought advocated the theory of low income tax rates influencing economic development, whereas modern school of thought propagated the theory of higher income tax rates producing greater economic growth, especially for developed nations. In order to justify these thoughts an attempt was made taking Nigeria as a case study to pinpoint the effect of low and high income tax rate on economic growth. In this study, various parameters will be taken into account, these includes: income tax rate, income tax revenue, total revenue and gross domestic product (GDP) of the country in the nominal and real value of money. It was located that low income tax rate boosted the economic growth of Nigeria.

For the purpose of this research work, traditional income tax theories were examined.

EMPIRICAL LITERATURE REVIEW:
Basila (2010), in investigating the relationship between VAT and GNP in Nigeria used a data based on VAT revenue figure and GNP figure from 1994 to 2008 obtained from Central Bank of Nigeria statistical bulletin, GNP and VAT figure for that period of study were tested for correlation, the test revealed a strong pearsons product moment correlation (PPMC) at about 96 percent strength. Further, a test of significance confirmed that VAT revenue is significantly different at 99 percent confidence level in relation to GNP. He concluded that there is a strong positive correlation between VAT revenue and GNP, again as regards to the test of significance, student „t”-test confirmed that VAT is significantly different in relation to GNP in Nigeria.

Adereti, Sanni and Adesina (2011), uses time series data on the Gross Domestic Product (GNP), VAT Revenue, Total Tax Revenue and Total (Federal Government) Revenue from 1994 to 2008, sourced from Central Bank of Nigeria (C.B.N) to analyze, using both simple regression analysis and descriptive statistical method. Findings showed that the ratio of VAT Revenue to GNP averaged 1.3% compared to 45% in Indonesia, though VAT Revenue accounts for as much as 75% significant variations in GNP in Nigeria. However, they concluded that there is a positive and significant correlation that exists between VAT Revenue and GNP.

Omolapo, Aworemi and Ajala (2013), performed a data analysis with the use of stepwise regression analysis. Findings showed that valued Added Tax has statistical significant effect on revenue generation in Nigeria. The results from their analysis revealed that value added tax (VAT) is beneficial to the Nigerian economy. From the findings it also shows that for Nigeria to attain its economic growth and development, she must be able to generate enough revenue in order to meet up with the challenges of her expenditure in term of provision of social amenities and the running costs of the government. The result from the analysis indicates that if more goods and services are taxed the revenue base of the country will increase.

Unegbu and Irefin (2010). Collected data from both primary and secondary sources. Regression, discriminate analysis and ANOVA were used in testing the hypothesis and they
found out that VAT allocations alone accounts for 91.2% of the variations in expenditure pattern. From their findings they concluded that, although VAT allocations to Adamawa State from 2001 to 2009 have a very significant impact on expenditure pattern of the state during the same period, however, the perceptions by the state suggest that VAT has minimum impact level on the economic and human developments of Adamawa State from 2001 to 2009.

Eneje (2011), obtained data from the C.B.N. Statistical Bulletin within the period of 1981 to 2009. The findings revealed that VAT has a significant impact on Nigeria’s economic growth.

Samimi, and Abdullahi, (2011) Scan the impact of implementing Value Added Tax on export of goods and services in selected countries. Four different indices for export; export of goods and services, export of goods and services (BOP), export of goods and services (annual % growth), export of goods and services (% of GDP) to investigate the sensitivity to different definitions. Findings of the study based on Mean Difference Statistical Test in a two three-year periods before and after introduction of VAT showed that, in different indices, the impact of VAT on export is positive.

In Lithuanian, Bikas and Rashkauskas (2011) looked at the impact of VAT standard tariff, reduced tariffs and shadow economy on income from this tax. The Lithuanian VAT structure, the dynamics of income from this tax and amendments in the Law on Value Added Tax in terms of narrowing and widening the taxable base according to the theoretical analysis of the sources were analyzed using multiple regression, correlation, and optimization and C-effectiveness ratio analysis. The analysis revealed that, the amendments in the Law on Value Added Tax in terms of narrowing and widening the taxable base has influenced the amount of income from VAT collected to the budget.

Adereti, Sanni, and Adesina (2011) studied the contribution of VAT to GDP in Nigeria. Their findings show that VAT revenue to total tax revenue averaged 12.4% which they considered low compared to other African countries such as Ivory Coast, Kenya and Senegal that had 30%. The study also observed a positive and significant correlation between VAT and GDP.

METHODOLOGY
The method employed is historical research method. Data were collected mainly from secondary sources, such as; literature, journals, libraries, periodicals, books and other similar materials. It tries to look at the past event or what has happened so as to relate it to the present situation. This study is limited to the Nigerian economy for the period 2005-2014.

DATA ANALYSIS INSTRUMENTS
A simple linear regression model was used to test the hypotheses set up in this study. Two separate models were run for Gross Domestic Product and Total Consolidated Revenue as dependent variables. Analysis was carried out with the aid of the Statistical Package for Social Science (SPSS, version 23) to establish the relationships between dependents and independents variables. These analytical tools have been used by Lyon, (2007) and Ngwakwe, (2008).
Models Specification

MODEL 1
To test the hypothesis one which states that “Revenue generated through Value Added Tax has no significant influence on the Gross Domestic Product”
\[ \text{GDP} = \beta_0 + \beta_1 \text{VAT} + \epsilon \]
Where: GDP = Gross Domestic Product.
\[ \beta_0 = \text{the intercepts coefficient of model GDP} \]
\[ \beta_1 = \text{the slope representing the per unit rate of change for model} \]
\[ \text{VAT} = \text{Value Added Tax} \]
\[ \epsilon = \text{the random error component for the model.} \]
GDP is the dependent variable, while VAT is the independent variable.

MODEL 2
To test the hypothesis two, which state that “Revenue generated through Value Added Tax has no significant effect on the Total Consolidated Revenue”.
\[ \text{TCR} = \beta_0 + \beta_1 \text{VAT} + \epsilon \]
Where: TCR = Total Consolidated Revenue.
\[ \beta_0 = \text{the intercepts coefficient of model TCR} \]
\[ \beta_1 = \text{the slope representing the per unit rate of change for model} \]
\[ \text{VAT} = \text{Value Added Tax}. \]
\[ \epsilon = \text{the random error component for the model.} \]
TCR is the dependent variable, while VAT is the independent variable.

The Result of Hypotheses Testing
This section presents how the hypothesis set out in the study was tested. However, the null Hypothesis was stated followed by the results of the test presented in tabular form and discussions thereafter.

Test of Hypothesis One
The null Hypothesis states that “Revenue generated through Value Added Tax have no significant influence on the Gross Domestic Product”. To test this hypothesis, regression analysis was performed on the dependent and independent variables in order to determine the degree of relationship between them.
Table 1 presents summary of regression model result. The value of R is 0.983. The R value of 98% represents the correlation between Value Added Tax and Gross Domestic Product. It represents a strong correlation between the two variables. The R² which indicates the explanatory power of the independent variables is 0.967. This means that 97% of the variation of the Value Added Tax is explained by the independent variable. The R² value as revealed by the result is quite high which means that about 03% of the variation in the dependent variables is unexplained by the model, denoting a very strong relationship between the explanatory variable, Value Added Tax and Gross Domestic Product.

Table 1: Summary of regression model result for GDP

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.983&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.967</td>
<td>.963</td>
<td>.01649</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), VAT
b. Source: SPSS Output
The fitness of the model can also be explained by F-ratio (F) in Table 2. The F-ratio in the model is 233.264, which is very significant at p < 0.05. According to Andy (2000), “a good model should have a large F-ratio (greater than one at least)”. This means that there is significant evidence to infer that Value Added Tax is linearly related to Gross Domestic Product.

Table 2: Summary of ANOVA for GDP

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.063</td>
<td>1</td>
<td>.063</td>
<td>233.264</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>.002</td>
<td>8</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.066</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: GDP
b. Predictors: (Constant), VAT
c. Source: SPSS Output

From table 6, the model is: GDP= 1.866 + 0.367 VAT. For a given unit of Value Added Tax, Gross Domestic Product is increased by 0.367. The implication is that Value Added Tax brings about (positive) increase in Gross Domestic Product. The t-value for Value Added Tax is 15.273. This value is also significant at p-value < 0.05.

Table 3: Summary of Coefficients of Regression Model for GDP

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>1.866</td>
<td>.064</td>
</tr>
<tr>
<td>VAT</td>
<td>.367</td>
<td>.024</td>
</tr>
</tbody>
</table>

a. Dependent Variable: GDP

Test of Hypothesis Two
This hypothesis states that “Revenue generated through Value Added Tax has no significant effect on Total Consolidated Revenue”. To test this hypothesis, regression analysis was performed on the dependent and independent variables in order to determine the degree of relationship among the two variables.

Table 4 presents summary of regression model result. The value of R is 0.776. The R value of 78% represents a strong correlation between total income generated and Value Added Tax. The R² value, which indicates the reliability of the model, is 0.603. This means that 60% of the variation in Total Consolidated Revenue is explained by the independent variable. The R² value as revealed by the result means that about 40% of the variation in the dependent variables is unexplained by the model, denoting an above average relationship between the explanatory variable Total Consolidated Revenue and Value Added Tax.
Table 4: Summary of regression model result for TCR

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted Square</th>
<th>R</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.776&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.603</td>
<td>.553</td>
<td>.08878</td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), VAT 
b. Source: SPSS Output

The fitness of the model can also be explained by F-ratio (F) in Table 2. The F-ratio in the model is 12.146, which is very significant at p < 0.05. A good model should have a large F-ratio that is greater than one at least (Andy, 2000). This means that there is a very significant evidence to infer that Value Added Tax is linearly related to Total Consolidated Revenue.

Table 5: Summary of ANOVA for TCR

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>.096</td>
<td>1</td>
<td>.096</td>
<td>12.146</td>
<td>.008&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual</td>
<td>.063</td>
<td>8</td>
<td>.008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>.159</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: TCR 
b. Predictors: (Constant), VAT 
c. Source: SPSS Output

From table 6, the model is: TCR= 2.675 + 0.451 VAT. For a given unit of Value Added Tax, Total Consolidated Revenue is increased by 0.451. The implication is that Value Added Tax brings about (positive) increase in Total Consolidated Revenue. The t-value for Value Added Tax is 3.485. This value is also significant at p-value < 0.05.

Table 6: Summary of Coefficients of Regression Model for TCR

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>2.675</td>
</tr>
<tr>
<td></td>
<td>VAT</td>
<td>.451</td>
</tr>
</tbody>
</table>

a. Dependent Variable: TCR 
b. Source: SPSS Output

DISCUSSION OF FINDINGS

The result of the first hypothesis presented in Tables 1 to 3 rejects the null hypothesis, and concludes that, revenue generated through Value Added Tax have significant influence on the Gross Domestic Product. In other words, the government can increase its Value Added Tax revenue to get increments in Gross Domestic Product. It is on this note that the influence of
Value Added Tax on the growth of the nation cannot be overemphasized. This finding is consistent with finding of Jayede (1993) that tax incentives have a positive impact on economic growth of Nigeria. The result of the second hypothesis presented in Tables 4 to 6 rejects the null hypothesis, and concludes that, increase in Value Added Tax revenue will lead to increase in Total Consolidated Revenue. In other words, the government can increase its Value Added Tax revenue to get increments in Total Consolidated Revenue.

SUMMARY OF FINDINGS
Based on the analysis and test of hypotheses, the following findings were unraveled:

i. It empirically shows that Value Added Tax revenue has significant influence on the economic growth of Nigeria as there exist a positive correlation between Value Added Tax and Gross Domestic product.

ii. The study also revealed that there is a positive correlation between Valued Added Tax and the Total Consolidated Revenue as the former has statistical effect in the latter.

CONCLUSION
This study empirically assesses the contribution of Value Added Tax to the Nigerian economy. This was analyzed with regression analysis, and it is discovered that Valued Added Tax is the bedrock of wealth creation in Nigeria as well as economic development as it contributes significantly to the nation’s Gross Domestic Product. Therefore, government must give adequate attention to taxation in general and Value Added Tax in particular under a stable and conducive sociopolitical and economic atmosphere. The effect of Value Added Tax on the Total Consolidated Revenue in Nigeria is very significant, as the former contributes a very high portion in the latter. If the administration of Value Added Tax is strengthened and the compliance rate is high, government will generate more revenue through Value Added Tax and the dividend of democracy can be effectively delivered in the light of good governance. Finally, effective Value Added Tax would off-set other challenges of the nation such as inadequate and dilapidated infrastructure, complicated and antiquated tax laws, bureaucratic complexities and week administration of the other forms of tax.

RECOMMENDATIONS
In light with the above study findings and conclusions, the following recommendations are made:

i. Government should intensify effort in organizing seminars and workshops to educate viable organizations and individuals on the need for prompt payment of Value Added Tax.

ii. Adequate provisions should be made by the government for instant retrieving of Value Added Tax proceeds from both companies and government agents involved in Value Added Tax collection. There should be provision for enforcing penalties and additional assessment on erring viable persons.

iii. It is recommended that Federal Inland Revenue Service should pay attention to the informal sector of the economy by creating Value Added Tax offices at the Local communities so as to generate more revenue and to fully achieve the objectives of wealth creation through Value Added Tax.
REFERENCES


Appendix 1
Data Presentation
Table 1: CBN Statistical Bulletin and Annual Reports on Gross Development Product, Value Added Tax and Total Consolidated Revenue.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP (₦’Billion)</th>
<th>VAT (₦’Billion)</th>
<th>TCR (₦’Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>527.58</td>
<td>192.70</td>
<td>5,547.50</td>
</tr>
<tr>
<td>2006</td>
<td>561.93</td>
<td>232.70</td>
<td>5,965.10</td>
</tr>
<tr>
<td>2007</td>
<td>595.82</td>
<td>312.60</td>
<td>5,727.50</td>
</tr>
<tr>
<td>2008</td>
<td>634.25</td>
<td>401.70</td>
<td>7,866.59</td>
</tr>
<tr>
<td>2009</td>
<td>672.20</td>
<td>481.40</td>
<td>4,844.59</td>
</tr>
<tr>
<td>2010</td>
<td>718.98</td>
<td>564.89</td>
<td>7,303.67</td>
</tr>
<tr>
<td>2011</td>
<td>776.33</td>
<td>659.16</td>
<td>11,116.85</td>
</tr>
<tr>
<td>2012</td>
<td>834.16</td>
<td>710.56</td>
<td>10,654.75</td>
</tr>
<tr>
<td>2013</td>
<td>888.89</td>
<td>802.69</td>
<td>9,759.79</td>
</tr>
<tr>
<td>2014</td>
<td>934.34</td>
<td>912.53</td>
<td>10,068.85</td>
</tr>
</tbody>
</table>


In order to reduce magnitude of the data for easy elasticity, the data presented in the table 1, the data was logged for easy interpretation of the data. The logarithm of the magnitude of the data is presented in the table 2.

Appendix 2
Table 2: Log of Gross Development Product, Value Added Tax and Total Consolidated Revenue.

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP</th>
<th>VAT</th>
<th>TCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2.72</td>
<td>2.29</td>
<td>3.74</td>
</tr>
<tr>
<td>2006</td>
<td>2.75</td>
<td>2.37</td>
<td>3.78</td>
</tr>
<tr>
<td>2007</td>
<td>2.78</td>
<td>2.50</td>
<td>3.76</td>
</tr>
<tr>
<td>2008</td>
<td>2.80</td>
<td>2.60</td>
<td>3.90</td>
</tr>
<tr>
<td>2009</td>
<td>2.83</td>
<td>2.68</td>
<td>3.69</td>
</tr>
<tr>
<td>2010</td>
<td>2.86</td>
<td>2.75</td>
<td>3.86</td>
</tr>
<tr>
<td>2011</td>
<td>2.89</td>
<td>2.82</td>
<td>4.05</td>
</tr>
<tr>
<td>2012</td>
<td>2.92</td>
<td>2.85</td>
<td>4.03</td>
</tr>
<tr>
<td>2013</td>
<td>2.95</td>
<td>2.91</td>
<td>3.99</td>
</tr>
<tr>
<td>2014</td>
<td>2.97</td>
<td>2.96</td>
<td>4.00</td>
</tr>
</tbody>
</table>