

Causality between VAT and economic growth in Nigeria: An ARDL bounds testing approach

Hammed Agboola Yusuf*, Irwan Shah Zainal Abidin, Normiza Bakar,
Oluwaseyi Hammed Musibau

School of Economics, Finance and Banking, Universiti Utara Malaysia, Kedah, Malaysia

ARTICLE INFO

Article history:

Received 1 October 2017

Received in revised form

25 November 2017

Accepted 5 January 2018

Published 31 January 2018

Keywords:

VAT

Corruption

Economic growth

ARDL

ABSTRACT

Value Added Tax(VAT) is a consumption tax imposed at every stage of consumption level whose burden is borne by final consumer of goods and services. In most developing economies in the world, VAT as a source of revenue to the government that has been notable for its significant role in ensuring economic efficiency. However, VAT revenue has been underutilised in Nigeria due to a high level of corruption in the process of administering the tax. This study examines the impact of VAT, domestic investment and trade openness on economic growth in Nigeria from 1980 to 2016 using ARDL techniques. The research design is time series, and the data were analysed using time series unit root test, error correction model regression, short run and long run ARDL. The result found that VAT, domestic investment and trade openness had a positive and significant impact on real GDP. Also, corruption index is negative also significant in the long run. In the same vein, past value added tax had a negative and weak significant impact on real gross domestic product indicating convergence to long-run causality between economic growths and VAT and economic growth. The Error Correction Model (ECM (-1)) coefficient had a negative and statistically significant sign. This shows that 39 percent can quickly correct short-run deviation. The study, therefore, recommends that tax administrative loopholes should be plugged for tax revenue to contribute immensely to the development of the economy since past VAT had a significant impact on economic growth.

1. Introduction

In Nigeria, the available sources on which the government depended on heavily for revenue generation has been recently affected hugely through the shock of drastic oil price reductions with the effects spiralling down on the capital sector of the economy. However, the Nigerian government has liberalised and privatised the oil sector and introduced policies that make it compulsory for the major oil companies that operate in Nigeria to refine at least 50 percent of their crude oil in the country therein encouraging competition and also reducing costs.

* Corresponding author. Tel.: +6011-5113-3081.

E-mail address: agboolayusuf2007@gmail.com

Value Added Tax 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. After its adoption into the Nigerian system, it has become a controversial issue that generates debate as to the purpose of introducing VAT as one of the methods of taxation in Nigeria. VAT is a tax on spending where the tax is borne by the final consumer of the goods and services because it is included in the price paid. This tax which is charged at a flat rate of 5 percent is collected on behalf of the government in Nigeria by businesses and organisations which have registered with the Federal Inland Revenue Service (FIRS VAT Directorate) for VAT purposes. The VAT began life in the more developed countries of Europe and Latin America but, has been adopted by a vast number of developing and transition countries over the past 25 years.

A recent IMF study concludes that the VAT can be a good way to raise resources and modernize the overall tax system, but this requires that the tax be well designed and implemented. The rapid rise of the VAT was the most dramatic and probably most important development in taxation in the latter part of the twentieth century, and it continues. Forty years ago, the tax was barely known outside theoretical discussions and treatises. Today, it is a vital component of the tax system in over 120 countries, raising about one-fourth of the world's tax revenue (Summers et al., 2002). The foreign non-resident person or company is required upon registration for VAT to include in his or her invoice, VAT at 5% with instructions to the receiver of the goods or services to remit the VAT in the currency of the transaction to the Nigerian government on behalf of the non-resident foreign person. A taxable person, whether Nigerian or resident outside Nigeria, who fails or refuses to register for VAT administration within six months of engaging in any economic activity in the territory of Nigeria is liable to pay a penalty of \$67.00 for the first month that the failure occurs and a further penalty of \$34 for each subsequent month in which the failure continues.

More so, Nigerian VAT revenue was N8.189 billion in 1994 about 36.5 percent higher than the projection of the year and VAT was N21 billion also N9 billion higher than projected revenue and contribution accounted 5.93% to total revenue in Nigeria. In the year 2008, VAT was 5.1% from total revenue of N404.5 billion. In addition to the fines for non-registration, Section 32 of the VAT Act (as amended) authorizes the FBIR to seal up the premises from where the economic activity in question is being carried on within the territory of Nigeria (Adereti et al. 2011). With this tremendous contribution of the VAT to economic performance in Nigeria, the attitude of Nigerians towards payment of VAT poses a challenge to the policy maker as they prefer not to pay VAT if the opportunity is given. The federal continues to loose substantial amount of money due to this attitude.

Moreover, 22 years after the introduction and implementation of VAT in Nigeria economy, the 5% charge on the value of taxable goods and services remain the same. Ethiopia, a country in Africa, introduced VAT in 2003 with a standard rate of 15% and has achieved a growth rate of 66.27%. Advanced countries in Europe and America charge between 10% and 15% (Jalata, 2014). Various attempts by the Federal Government to increase VAT rate to at least 10% have not been successful because of the politics involved as the thinning effect of the increase on the purchasing power of the people especially the high-income earners who believe they would be negatively affected.

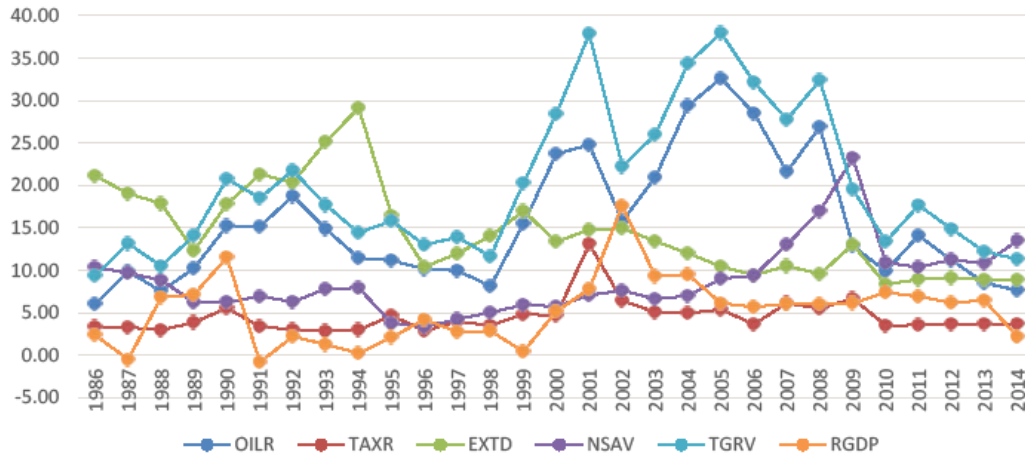


Fig. 1. The oil revenue, tax revenue, external debt, national saving, total government revenue and growth rate of the gross domestic product.

2. Taxation in Nigeria

Taxation in Nigeria presently is traced to the British Colony creation at Lagos, Nigeria and subsequent amalgamation of the Northern and Southern protectorates in 1914. Tax law was enforced by all three tiers of government by Decree 1998 that states how revenue will be managed. As shown in Figure 1, tax revenue was positive from 1996 to 2014 which exerted a significant impact on economic performance. However, the main revenue in Nigeria is profit taxes, crude oil sales, royalties, VAT, company income tax, customs and excise duties (Emmanuel, 2010). VAT is a consumption tax levied on the increase in the value of goods and services in the course of their production or supply. It is an indirect tax whose burden or incidence is borne by the final consumer of such goods on which it is imposed. It is regulated by the Value Added Tax Act No 102 of 1993 and became effective on 1st January 1994. This tax aimed to increase the revenue base of government and make funds available for developmental purposes (Oseni, 2008).

The tax system in Nigeria is made up of tax policy, tax laws and tax administration and it is expected that they work together to achieve the goal of the nation's economy (Abiola & Asiweh, 2012). In generating revenue to achieve this goal, the tax system is expected to minimise distortion in the economy. Taxes at the federal level are administered by the Federal Inland Revenue Service (FIRS) while those at the state level are administered by the State Inland Revenue Service (SIRS). This study examines the impact of value added tax, domestic investment and trade openness on economic growth in Nigeria from 1980 to 2016 using ARDL techniques.

3. Problem statement

Value added tax has been a source of revenue to the government in many countries in the world. For example, in most African countries, these are namely Nigeria, Guinea, Kenya, Togo, Mauritius and Senegal. Nigerians attitude toward payment of tax is worrisome as many Nigerians are tax averse. Over 80 percent of Nigerians do not pay tax coupled with corruption among tax officers for not remitting money received from taxpayers. Nevertheless, overdependence on petroleum return made the government

neglect this challenge on tax management. Nigeria had lost substantial amount of money via the practice of tax aversion, avoidance and corruption among the officers. In light of these banes, social and economic cost of collecting the tax is more than the revenue received.

Also, VAT had increased the cost of raw materials, semi-finished goods and finished commodities in which government is unable to provide necessary support like good roads, constant electricity supply and security from revenue generated through tax. This is evident that epileptic power supply, portable drinking water and basic health care delivery are salient problems affecting economic growth in Nigeria. The arrival of the oil boom stimulated some laxity in the administration of non-oil revenue sources like the custom and excise duties and company income tax. This calls for an urgent need for the improvement of the tax system to enhance the evaluation of the performance and facilitates adequate macroeconomic planning and implementation (Adereti et al. 2011). Thus, the study investigates the relationship between the VAT and economic growth in Nigeria using ARDL of which little has been done in investigating tax and economic performance in Nigeria.

4. Literature review

Globally, tax has been given recognition as means of funding government spending. There are several options available to governments as government expenditures increase from year to year and the need for government to intervene in some sectors where the private sector cannot effectively utilise, such as a provision for public goods. The non-tax sources of revenue for government include fees, levies, charges, properties and investment income, domestic and foreign borrowing including loans from the multinational institutions and foreign grants (Rotimi, Udu, and Abdul-Azeez, 2013). The United Kingdom, Singapore, Hong Kong, Malaysia and other emerging economies have realised the impact of the tax on economic growth. Many African countries or resource-based economies like Nigeria had neglected its importance on economic growth. Many foreign investors had averted taxes instead of accordance with legal means. In fact, only a few people pay their tax in the country and government have not been focusing on it until now that the price of oil has come down. Also, Markku (2011) hinted that the tax system which replaces the labour taxes with consumption taxes would generate more capital economy with rather more wealth inequality.

According to Adereti, Sanni, and Adesina (2011) who studied the contribution of the VAT to GDP in Nigeria, VAT revenue to total tax revenue averaged 12.4% which was 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. McGowans and Billings (1997) studied the growth pattern of VAT in European Union (EU) countries to ascertain whether the implementation of VAT has led to an increase in the overall tax burden. Using Ordinary Least Square (OLS) and seemingly Unrelated Regression (SUR), they found that VAT has often been disapproved as it is said to be a money machine for government and a regressive tax. The results, however show that VAT can be put into practice without becoming money machines for the government. They submit that EU countries used VAT to substitute some indirect taxes and not to boost overall tax burden.

Among the empirical studies that conclude on the existence of negative relationship between corruption, tax and economic growth are Ghura (1998); Ashraf and Sarwar, (2016) and Abdullahi, (2016). Ghura (1998) hinted that high level of corruption coupled with structural reform affect the proportion of tax rate. Nevertheless, an increase in corruption is associated with a decrease in revenue generated through tax. Contrary to the opinion of Ashraf and Sarwar (2016), they asserted that democratisation of political system for developing economies enhances efficient tax system.

According to Bickersteth (2016), he explained that Nigeria had derived a large sum of revenue from oil and gas, with crude oil trading over \$100 per barrel during the first half of 2014, and the country attained a position of the largest economy in Africa, and comfortable but wasteful in resource management. The global oil glut has adversely affected the revenue position of Nigeria. The over 60% drop in oil price to below \$40 per barrel was unanticipated by the government. This has resulted in over 80% fall in the yield (spread) per barrel of oil produced in Nigeria. A steeper decline in the country's revenue in the year 2016 and budget deficit of over N2 trillion devaluation of the Naira, slowing GDP growth, the reduced inflow of foreign direct investment, rising inflation and growing unemployment. The government at the federal level has put a stop on capital projects, while allocation to the states of the federation has reduced resulting in the inability of many states to pay workers' salaries ranging from five months to eight months (Bickersteth, 2016). The Nigerian government dependent on only revenue from oil and gas, the mono-product of the federation, for foreign exchange and budgetary revenues has adversely affected the sustainable growth of the economy. It is therefore very clear to diversify the revenue base of the nation, and Value Added Tax (VAT) is a major revenue source of advanced nations of the world, which much attention is not focused on by the federal government of Nigeria.

The study carried out by Adereti et al. (2013) empirically investigated the contribution of Value Added Tax (VAT) to the GDP from 1994 to 2008. Using both simple regression analysis and descriptive statistical method, findings showed that VAT Revenue to Total Tax Revenue, which averaged 12.4 percent, is rather low compared to about 30 percent in Cote d'Ivoire, Kenya and Senegal in 1982. VAT revenue accounted for 19.71 percent of total government revenue in Mexico as far back as 1983 as against the average of 4.9 percent for Nigeria during the period under review. Smith, Islam, and Moniruzzaman, (2011) attempt to analyse the contribution and performance of VAT in Bangladesh compared to other developing countries. The result shows that the performance of VAT was entirely satisfactory in the initial years; afterwards, VAT collection remained stagnant at a certain level. The study finds that stagnation happened as a result of: relatively small number of VAT tax-payers, a general lack of awareness, and a weak monitoring system. Samimi and Abdolahi (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 two three-year periods before and after the introduction of VAT show that, in different indices, the impact of VAT on export is positive.

In another study, Ahmad and Zaman (2012) analyze the revenue effect of the VAT, in the SAARC region. Panel data of SAARC countries from 1995 to 2010 on various macroeconomic factors were obtained to determine the effect of VAT on revenue ratio. The results indicate a prosperous set of determinants of VAT adoption as it proves to be a vital instrument to collect the tax and enhance revenue ratio. The result shows that most of the SARRC countries that adopted VAT have gained a more efficient tax instrument to upgrade their GDP to revenue ratio.

Ayorinde et al. 2013 as well as Terzungwe and Eya, (2017) revealed that Value Added Tax is beneficial to the Nigerian economy. From the findings of the research which showed that VAT is statistically significant to revenue generation, for Nigeria to be able to attain economic growth and development, she must be able to generate enough revenue in order to meet up with the challenges of her expenditures in terms of provision of social amenities and the running cost of the government. Also, the effects which theory suggests that the level and composition of taxes can have on efficiency and long-run growth via investment, human capital acquisition, and innovation, have proved hard to identify as meaningful.

For OECD countries, Arnold (2008) concludes that property taxes are least damaging for growth, followed by consumption taxes, the personal income tax (PIT), and the corporate income tax (CIT); this is as theory suggests, with the taxation of capital income having a potentially strong impact on investment. However, there has been much less work for developing countries, and that there tends to find no significant effect from either the overall level of taxation or the direct-indirect tax mix (Adams & Bevan, 2005).

Lee and Gordon (2005) find lower CIT rates are associated with faster growth, including in non-OECD countries although other tax variables are insignificant. Furthermore, several countries have shown the feasibility of substantially increasing domestic revenue mobilisation. While some (such as Egypt, Pakistan) show little movement in tax ratios over extended periods, others have made impressive progress. Peru, for instance, increased its tax ratio from 6 to 13 percent over the 1990s and to around 17 percent now. Some have achieved sustained revenue increases of 4–5 percent of GDP over just a few years.

Omesi and Nzor (2015) hinted that Nigeria needs diversification revenue from the tax, because reliance on oil would no longer give a sustainable growth to the Nigerian economy. Similarly, Unegbu and Irefin (2011) investigate the impact of VAT on economic performance in States in Nigeria. He advised that increasing VAT induces the consumption pattern in the short run. The overall conclusion, lack of sufficient empirical studies especially in developing countries on VAT affects the consumption which by itself affects the savings and capital accumulation and growth consequently.

As our contribution to existing literature, we investigated the relationship between VAT and Economic growth in Nigeria using Autoregressive Distributed Lag (ARDL) Models with the inclusion of institution quality (corruption) which affect the method of the tax system in Nigeria.

5. Theoretical framework

The concept of VAT revolves around the consumption of goods and services which was basically derived from consumption model. Consumption function can take several forms. The most common form of short-run consumption function is where α is the intercept and represents autonomous consumption whereas β represents the slope of the consumption function.

Under the consumption theory,

$$C = \alpha + \beta (Yd) \quad (1)$$

Where;

C = Consumption

α = Autonomous consumption non-dependent on income

β = the Marginal Propensity to Consume

Yd = Disposable Income

According to Keynes' theory, current consumption expenditure depends primarily on current income. Further, according to Keynes, the chief factor that determines consumption expenditure is disposable income that is, income after taxes. Increase in personal taxes reduces personal disposable income and therefore consumption expenditure. The disposable income part is further explained as follows;

$$Yd = Y - T \quad (2)$$

This part introduces the concept of taxation which comprises two components; T_0 and tY , where T_0 is the autonomous taxation that is non-dependent on income and tY is the taxation that is based on the income of the individual. This then modifies the equation as:

$$Yd = Y - (T_0 + tY) \quad (3)$$

In this model, VAT is classified under the induced part of taxation (tY) and this means that it depends on income.

Also, we adopt expediency theory for this study, Adam Smith argues that every tax proposal must pass the test of realism (must be achievable) and consideration should be given to government authority in choosing a tax policy. The theory argued effectiveness and efficiency of tax administration. Ibadin and Oladipupo (2016) hinted that taxation is a robust set of policy tools to the policymakers need to be used judiciously as a remedy for economic and social ills like income inequalities, unemployment and regional disparities, and so on (Ibadin & Oladipupo, 2016).

6. Methodology

The study used time series data obtained from the World Bank databank and federal inland revenue service of Nigeria for the period 1977-2015 to attain its objective. Descriptive analysis of the macro variables is to be expected in pointing out the pattern that costs have taken over the years while a simple regression model will be used to determine the overall effectiveness of the Value Added Tax using its relationship with the GDP of Nigeria for the various years since its inception and to observe any statistically significant effect of VAT on revenue generation in Nigeria.

Moreover, theoretically, the increase in the VAT would result in the reduction in the consumption that consequently causes an upsurge in saving which would increase the capital accumulation. Due to the share of consumption in the Total Demand Equation is further than the share of investment in the mentioned equation, the overall combination of consumption and investment would result in the reduction of Total Demand or the production. As a result, economic growth would be decreased. Econometric Model Estimation for the study followed Rioja and Valev 2004; Aizenman & Jinjarak, 2008 and Kolahi & Noor (2015) with a little modification. Thus,

$$GDP = \beta_0 + \beta_1 VAT_{generatedt} + \beta_2 CTRt + \beta_3 SCT + \beta_4 DI + \beta_5 EXTDTt + \beta_6 DOPN + \beta_7 CORRUPT + \beta_8 RINTt + \beta_9 REERT + \mu t \quad (4)$$

Where β_0 is the intercept or slope that measures the contribution to GDP without the effect of VAT while

GDP = Growth Rate of GDP per capita

DI = Domestic Investment

VAT generated = Value Added Tax

DOPN = Degree of Openness

Corrup = Index of Corruption

INTR = Interest Rate

REER = Real Exchange Rate

Ut = Error Term

The β_1 parameter measures two things which are the efficiency of the VAT.

Estimation techniques

The researchers employed the Augmented Dickey-Fuller and the Philips Perron tests for unit root to examine the stationarity of variables in order to curb spurious regression since literature has proved that most time series variables are non-stationary. After confirming that none of the variables was integrated of order 2 (I(2)), we moved on with the Autoregressive Distributed Lag (ARDL) model to investigate the short run and long-run impact of the various components of direct and indirect taxes on economic growth in Nigeria. However, following Khan et al. (2005) as well as Fosu and Magnus (2006), we specified the equation 1 below within the ARDL framework in a conditional error correction form to find out the long run relationship between the VAT with other control variables and economic growth in Nigeria as follows:

$$\Delta GDP_t = \gamma + \sum_{i=1}^x \psi \Delta GDP_{t-i} + \sum_{i=0}^x \phi_m \Delta M_{t-i} + \delta_1 GDP_{t-1} + \delta_m M_{t-1} + \mu_t \quad (5)$$

GDP is as defined already, m is the number of regressors, Δ is a difference operator, x is the optimal lag length, M is a vector of observations of independent variables, γ is intercept and μ_t is the error term.

This study employs autoregressive distributed lag (ARDL) technique developed by Pesaran et al. (2001) in order to assess the long run relationships and the changing nature of the key variables. Pesaran and Shin (1998) argue that ARDL model can have a different number of lag terms without the requirement of symmetry lag lengths like other co-integration estimation methods.

4. Findings and discussions

4.1. Unit root results

The validity to perform regression analysis based on the fact that, time series data assume are stationary. This is an empirical fact that many macroeconomic time series are nonstationary, to avoid spurious regression results or misleading conclusions. It is advisable to perform long-run dynamic model which is dependent on the outcome of time series stationarity results. This research did not consider the presence of unit root non-stationarity, has resulted to spurious regression problem with extremely high adjusted R^2 and very low Durbin-Watson statistic. In such a case, ordinary least squares OLS is not sufficient (OLS) parameter to estimate until the variables are co-integrated (Engle and Granger, 1987).

However, the data used in the study are time series data. We performed Unit root tests using ADF test. The results in Table 1 below confirm the existence of unit roots in some of the series at level but all stationary at I(1). We suspect the existence long-run association among the variables. Also, our result is mix results. The study will proceed to the ARDL model.

Table 1. Time series stationary test

Variable	Levels	Prob	First difference	Prob
GDP	2.211107	0.9999	-7.033127	0.0000
DI	-4.891938	0.0030	-6.127252	0.0002
DOPN	0.535697	0.9987	-8.650424	0.0000
VAT	-2.085178	0.4971	-3.850402	0.0615
CORRUP	-2.060315	0.5452	-5.226211	0.0012
REER	-2.048041	0.5517	-5.001268	0.0021
INTR	-5.897084	0.0002	-6.610124	0.0000

From Table 1, it is evident that none of the variables was I(2) and hence we moved on with the ARDL co-integration technique since it is capable of dealing with whether all variables are I(0) or all are I(1) or a mixture of both. So, we present the outcome of the bound test in Tables 2 and 3 below.

4.2 Co-integration results

Table 2. ARDL Bounds test output I for the Model (F-Statistic = 25.157)

K (no of regressors)	Percentage	Critical Values		Outcomes
		I(0)	I(1)	
6	10%	2.26	3.35	Co-integration
6	5%	2.62	3.79	Co-integration
6	1%	3.41	4.68	Co-integration

Source: Pesaran et al. (2001)

Table 3. ARDL Bounds test output II for the Model F-Statistic = 25.157

K (no of regressors)	Percentage	Critical Values		Outcomes
		I(0)	I(1)	
6	10%	2.57	3.86	Co-integration
6	5%	2.86	4.19	Co-integration
6	1%	3.43	4.79	Co-integration

Source: Pesaran et al. (2001)

Since the F-statistic (25.157) was above all the upper bound values at 10%, 5%, and 1%, we rejected the null hypothesis of no co-integration and hence proceeded with our ARDL model. We have evidence of long-run relationship. The result indicates that VAT would not distort household saving choices, nor would it distort business's choices but ensures revenue mobilisation throughout the production chain and would be a stable source of revenue in Nigeria and also would generate revenue on a sustainable basis if it is well designed and fully implemented.

Table 4. Estimated long-run coefficients using the ARDL approach.

ADJ	Coefficient	Standard Error	t-value	p > T
GDP	0.40	0.18	2.18	0.04
DI	3.99	0.34	3.05	0.004
DOPN	-1.64	1.54	-1.07	0.365
VAT	2.93	4.30	5.20	0.017
CORRUP	-3.56	3.48	4.34	0.024
REER	-1.46	1.98	-0.74	0.513
INTR	6.56	2.40	6.06	0.001
SR	1.66	1.27	1.31	0.283

R-squared = .993

Adj R-squared = .966

Root MSE = 9.496

Breusch-Godfrey LM Test for Autocorrelation:

Ho: no serial correlation, $\chi^2 = 0.689$ Prob > $\chi^2 = 0.4065$

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity:

Ho: Constant variance, $\chi^2 (1) = 0.68$, Prob > $\chi^2 = 0.4085$

The results from Table 4 above, show that there is no autocorrelation and heteroscedasticity in the model. However, the model converged back to equilibrium by 39 per cent, since the coefficient of correction term is negative and significant. There is long-run causality between the VAT and its component and economic growth in Nigeria. We can conclude that there is a long run association between VAT components and economic performance in Nigeria. Although tax policies may have a short-run effect on the people, in the long run, everything would come to normal.

From the long run results, VAT was positive and statistically significant at two percent. Additionally, one percent increase in the VAT was found to lead to a 3.99 percent increase in economic performance in

Nigeria. Also, significant in short run at one percent as well. This indicates that VAT is an essential variable when it comes to economic decision making in the country. The Nigeria government must be able to generate enough revenue to meet up with the challenges of her expenditures regarding the provision of social amenities and the running cost of the government. Also, the effects which theory suggests that the level and composition of taxes can have on efficiency and long-run growth via investment, human capital acquisition, and innovation, have proven hard to identify as meaningful. The finding is similar to that of Ayorinde et al. (2015). They found along-run relationship between VAT and growth in Nigeria. Domestic Investment and index of corruption were also significant at 4 percent and 2 percent respectively. These also indicate that an increase in domestic investment with low corruption will increase economic performance in the country since the coefficient of Domestic investments is positive and index of corruption is negative.

Nigerian government need to encourage domestic investment by providing enabling environments and minimise corruption because the cost of corruption has a negative impact on the domestic investors as it increases their cost of production. However, both real exchange rates are significant in the short run but not significant in the long run, while interest rate was not significant in the short run, but found significant in the long run. Since the interest rate is the cost of capital in the country, the government has the right as much as possible to reduce the cost of capital to encourage more investment in the country to boost economic performance. As for the exchange rate, the result shows that the government should be careful in implementing any economic policy on exchange rate because of the retaliatory effect from another country. This shows that it is a short run variable, in the long run people will adjust thus has no effect on the economy. Apparently, this finding supports the one obtained earlier by Babalola (2015); Ali (2015) as well as Jelilov (2016). Jelilov found a long run connection between interest rate and economic growth in Nigeria using VECM technique. This finding, however, contradicts with the one obtained by Rodrik (2016) who hinted that elastic substitution between interest rate and growth is less than one.

4.3 Robustness of VECM and ARDL model

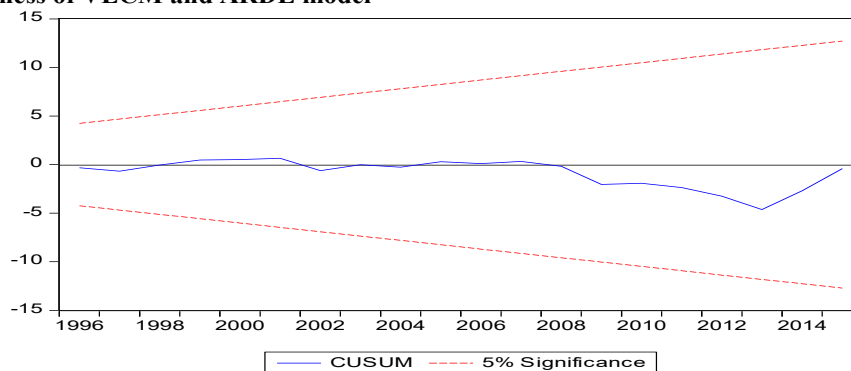


Fig. 1. Stability Test

The CUSUM tests on residuals of ARDL model have been carried out. Figure 1 shows the CUSUM of Squares, CUSUM, and Recursive Residuals tests for the parameter instability from ARDL model. The CUSUM of Squares, CUSUM, and Recursive Residuals tests are used to ascertain the parameter instability of the equation employed in the ARDL model. Since the plots in the CUSUM of Squares, CUSUM, and Recursive Residuals tests lie within the 5 % significance level or ± 2 S.E, the parameter of the equation is stable enough to estimate the long-run and short-run causality in the study. We concluded that the estimated parameters of ARDL from value added tax equation for Nigeria is stable over the sample period under study.

In the same vein, ARDL was subjected to several diagnostic tests. Results from the test show that the null hypothesis cannot be rejected at the 5 % significance level, meaning that no autocorrelation at lag order exists in the model (Breusch-Pagan-Godfrey Test) and the Jarque–Bera statistic confirms the normality behaviour of the estimated residuals.

Based on the findings on with one period lag of VAT, we recommend some advice on the side of the government to fish out all regulatory loopholes in connections to plug and to remain utilizing the contribution of VAT revenue judiciously, that is providing infrastructural facilities and investments in real sector to achieve economic growth in Nigeria. Since VAT has a significant influence on economic growth, policies regarding import and export should be implemented with caution to prevent using the policy as a counter-incentive to the economy. However, good interpersonal relationship is recommended for the professional associations involved in tax matters to reduce tax malpractices by taxpayers and other forms of tax evasion.

5. Conclusion

This study examined the impact of the VAT and its components on the economic growth of Nigeria. This research adopted the ARDL techniques in analysing the data, having observed mixed results in the time series stationary test. The findings revealed that VAT, domestic investment and openness exert a positive and significant relationship with the GDP and corruption index was negative and significant showing that reduction in corruption will boost economic growth in Nigeria. For future research, it is suggested that the effects of other forms of indirect tax beyond the VAT on economic growth should be examined. This may provide indirect tax options for economic growth in Nigeria.

References

- Abdul-Rahman, A., Joshua, R., & Ayorinde, O. (2013). Assessment of value added tax and its effects on revenue generation in Nigeria. *International Journal of Business and Social Science*, 4(1).
- Abiola, J., & Asiweh, M. (2012). Impact of tax administration on government revenue in a developing economy-a case study of Nigeria. *International Journal of Business and Social Science*, 3(8).
- Adereti, S. A., Sanni, M. R., & Adesina, J. A. (2011). Value added tax and economic growth of Nigeria. *European Journal of Humanities and Social Sciences*, 10(1), 456-471.
- Aizenman, J., & Jinjarak, Y. (2008). The collection efficiency of the Value Added Tax: Theory and international evidence. *Journal of International Trade and Economic Development*, 17(3), 391-410.
- Anyanwu, J. C. (1997). *Nigerian public finance*. Joanee Educational Publishers Ltd.. Easterly, W., & Rebelo, S. (1993). Fiscal policy and economic growth. *Journal of Monetary Economics*, 32(3), 417-458.
- Arnold, J. (2008). Do Tax Structures Affect Aggregate Economic Growth?.
- Ashraf, M., & Sarwar, S. (2016). Institutional Determinants Of Tax Buoyancy In Developing Nations. *Journal of Emerging Economies & Islamic Research*, 4(1).
- Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. *Econometrica: journal of the Econometric Society*, 251-276.

- Ibadin, P. O., & Oladipupo, A. O. (2015). Indirect Taxes And Economic Growth In Nigeria. *Ekonomiska Misao i Praksa*, 2, 345-364.
- Jalata, D. M. (2014). The role of value added tax on economic growth of Ethiopia. *Science, Technology and Arts Research Journal*, 3(1), 156-161.
- Jelilov, G. (2016). The Impact of Interest Rate on Economic Growth Example of Nigeria. *African Journal of Social Sciences*, 51-64.
- Khan, M. A., Qayyum, A., & Sheikh, S. A. (2005). Financial Development and Economic Growth: The Case of Pakistan. *The Pakistan Development Review*, 44(4), 819-837.
- Kolahi, S. H. G., & Noor, Z. B. M. (2015). The Effect of Value Add Tax on Economic Growth and Its Sources in Developing Countries. *International Journal of Economics and Finance*, 8(1), 217.
- Lee, Y., & Gordon, R. H. (2005). Tax structure and economic growth. *Journal of Public Economics*, 89(5), 1027-1043.
- Lehmus, M. (2011). Labor or consumption taxes? An application with a dynamic general equilibrium model with heterogeneous agents. *Economic Modelling*, 28(4), 1984-1992.
- Magnus, F. J., & Fosu, O. A. E (2006). Modelling and Forecasting volatility of returns on the Ghana stock exchange using GARCH models. *American Journal of Applied Sciences*, 3(10), 2042-2048.
- McGowan, J. R., & Billings, B. A. (1997). An analysis of the European community VAT: Implications for US tax policy. *Journal of International Accounting, Auditing and Taxation*, 6(2), 131-148.
- Ojo, E. O. (2010). The politics of revenue allocation and resource control in Nigeria: implications for federal stability. *Federal Governance*, 7(1).
- Oladipupo, A. O., & Ibadin, P. O. Indirect taxes and infrastructural development in nigeria.
- Omesi, I., & Nzor, N. P. (2015). Tax Reforms in Nigeria: Case for Value Added Tax (VAT). *African Research Review*, 9(4), 277-287.
- Oseni, A. I. (2008). Simplified principles of taxation. *Benin-City: Jireh Publishers Limited*.
- Pesaran, M. H., & Shin, Y. (1998). An autoregressive distributed-lag modelling approach to cointegration analysis. *Econometric Society Monographs*, 31, 371-413.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, 16(3), 289-326.
- Rioja, F., & Valev, N. (2004). Does one size fit all?: a reexamination of the finance and growth relationship. *Journal of Development economics*, 74(2), 429-447.
- Rodrik, D. (2016). An African growth miracle?. *Journal of African Economies*, 1-18.

- Rotimi, O., Udu, U. S. A., & Abdul-Azeez, A. A. (2013). Revenue generation and engagement of tax consultants In Lagos state, Nigeria: Continuous tax evasion and irregularities. *European Journal of Business and Social Sciences*, 1(10), 25-35.
- Saeed, A., Ahmad, A., & Zaman, K. (2012). Validity of the Value Added Tax in the SAARC Region. *Romanian Economic Journal*, 15(45).
- Samimi, A. J., & Abdolahi, M. (2011). Value Added Tax & Export: the Case of Selected Countries around the World. *Journal of Economics and Behavioural Studies*, 2(6), 298-305.
- Smith, A., Islam, A., & Moniruzzaman, M. (2011). Consumption taxes In Developing Countries-The case of the Bangladesh VAT.
- Summers.v, Ebrill L, Keen.M & Paul-Bodin. J (2002). The Allure of the value-added tax. *A quarterly magazine of the IMF*. 3(2).
- Unegbu, A. O., & Irefin, D. (2011). Impact of VAT on economic development of emerging nations. *Journal of Economics and International Finance*, 3(8), 492.