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Determinants of Tax Revenue: A Case of Nigeria

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Abstract:

Taxation is enforced payment from individuals, groups, and institutions to the government. Tax is one of the sources of revenue generation of any government to enable it to meet the need of the citizens. Several studies were carried out on the determinants of tax revenue in developing nations using panel data analysis without specific effect, but it seems not many were conducted in isolation in Nigeria. The study evaluated the influence of political stability and absence of violence as institutional factor jointly with economic factors which are industry share in GDP, the share of Agriculture in GDP, trade openness and inflation held as control variables on tax revenue in Nigeria.

The ex-postfacto research design was used for this study. The geographical coverage of the study is Nigeria. Using purposive sampling technique, secondary data were extracted from the reports of Central Bank of Nigeria statistical bulletin, 2018, and Political Risk Services International Country Risk Guide and the World Bank Development Index for a period covering 1984-2017. The study adopted descriptive and inferential (regression) statistics for data analysis. We checked for stationarity of all variables by Augmented Dickey-Fuller (ADF) and applied Autoregressive Distributed Lagged (ARDL) to estimate the short run and long run dynamics of the models.

The study revealed a significant relationship between Political Stability and absence of Violence/terrorism and tax revenue ($\beta = 0.0457$; $p < 0.05$; $t(34) = 2.92$; $R^2 = 0.99$) which align with a priori expectation. There were insignificant positive relationships with control variables which may be due to subsistence farming, a large number of small-scale enterprises that evades tax, trade restriction and nonpayment of personal income tax by a larger informal sector. The researcher recommended that government should improve on political stability and absence of violence/terrorism to improve tax revenue through voluntary compliance to tax laws

Keywords: Political Stability, Tax Revenue, Institutional factors, Economic factors,

1. Introduction

Taxation started in 20 century ago as crucial element to state building with revenue creation, redistribution of income, restriction of social ills by means of re-pricing of some goods and services such as tobacco and alcohol and, representation, which is the realm of democratic state building and the very need for revenues (Owens, 2015). The evolution of taxation over a period creates the nexus between taxation and government services in general. There will not be any upheaval as long as there are commensurate government services to the taxpayers with the level of taxes (Ross, 2004). In a virile economy that is reliant on taxation, the state is focused on improving its tax system to get more tax revenue (Gupta, 2007). Taxation is a critical component in the development of middle- and low-income nations (Russell, 2010). The generation of revenue in a country largely relies on its capacity to expand the tax both in an economic and administrative term. The existence of a gap between what is collected and what is expected to be received by law because of the shortcomings on the part of tax administrators depicts the need for reform in tax administration (Kebede & Tegegn, 2016).

It seems that tax revenue generated by developing countries is meager due to some institutional challenges such as corruption and weak administration, policies and laws of the tax system. It is believed that reforms of the tax administration and tax system are germane to improving the quantum of tax revenue generation in the developing countries coupled with political stability (Ajaz & Ahmad, 2010). Therefore, the primary determinant of tax collection in both developing and developed countries is institutional quality as institution problems are regarded in developing countries as the main reason for abysmal tax collection (Ghura, 1998). Several reforms have been carried out in the country's tax system to improve the tax revenue of the state but yielded little effect.

1.1. Research Problem

Nigeria's economy is challenged mainly on the need for diversification of its revenue from oil earnings base. The diversification is more important now than ever having realized that dependence on oil revenue can no longer sustain the finance of public expenditure (Dickson & Rolle, 2014). The decline in the price of oil in the global market and the reduction

in the demand of Nigeria's oil products by the major consuming nations is a big challenge for the country's fiscal operation which is driven by oil revenue (Omesi & Nzor, 2015). The quantum of revenue generated and expended on public infrastructure determines the level of development in any nation. The government generates revenue for the provision of public infrastructure which leads to economic growth (Appah & Eze, 2013). The oil revenue which comes in the form of rent as contributed over 90% of the nation's total revenue (Akintoye & Dada, 2013). It was further claimed that oil revenue boom was discovered from the 70s till recently that the country started experiencing revenue decline which was majorly caused by the decrease in the price of crude oil in the global market. The drop-in oil revenue call for the need to diversify the economy by improving on non-oil tax revenue generation to meet up with contemporary challenges. Tax revenue collected in developing countries over some decades were lower than budget which may be as a result of inefficiencies in our public institutions or economic ills. This study is embarked upon to determine other institutional and economic factors that influence tax revenue in Nigeria. It is considered essential to examine the influence of political stability, share of agriculture in GDP, industry share in GDP and trade openness on tax revenue.

1.2. Research Objective, Question and Hypothesis

The objective of the study was to determine the impact of Political Stability and absence of violence on tax revenue in Nigeria, The research question and hypothesis were stated below:

- To what extent do Political Stability and absence of violence impact Tax Revenue in Nigeria?
- H_0 : Political Stability and absence of violence have no significant influence on Tax Revenues in Nigeria.

2. Review of Literature

Bhatia (2012) maintained that principles of taxation mean the required suitable standards that must be used in the development and assessment of tax structure. According to Jhingan (2009), these principles are ideas resulting from welfare economist to accomplish the broader aims of social justice. He further affirms that the first economist to lay down four of the principles also known as the canon of taxation was Adams Smith. The additional few canons were added by subsequent economists. Isola (2011) listed the principles of taxation as equality, convenience. Certainty, economy, productivity, flexibility, simplicity, and diversity.

Taxation is one among other sources of revenue generation of any government to enable her to meet the need of the citizens (Chinwe, 2013). In French laws, public force and administrative running expenses are the purpose of taxation in the opinion of Public Finance General Directorate (Oyebanji and Oyebanji, 2016). Akintoye and Tashie (2013) maintained that tax revenue is needed to enable the execution of public expenditure. It is vital to note that the government has order means of generating revenue which includes borrowing, foreign aids, etc. Since public spending can be executed by taxation, the consumption of public goods should be equal among citizens. Tax was also defined as enforced transfer or payment sometimes in the form of goods and services from individuals, groups, and institutions to the government (Zubairu, 2014). Raising revenue to meet government expenditure and redistribution of wealth are the main reasons for the payment of taxes. It is important to note that tax is for the good of the economy and a payment by the society to the government. Taxes enforced a general responsibility on citizens on the assumption that citizens may not receive the corresponding benefit in terms of goods and services for the payment made. Tax is not also paid by taxpayers because the government has provided certain services to them or their family (Bhatia, 2012). It has been explained in the literature that there are numerous roles played by a good tax structure in the economic development of nations among which are the effect of public savings by tax with the size of resources available for capital formation and the level of private savings (Blanthorne,2000). The efficiency of resources utilization may be influenced by a designed system of tax incentives and penalties. The distribution of the proceed of economic development is aided by the distribution of tax burdens; the tax affects the size of capital inflow from investment outside the country ant the reinvestment of the earnings (Jhingan, 2009). In the opinion of Ogbonna and Ebimobwei (2012), Existence of relationship between tax paid and benefit received from state actions need not be before taxation theory can be derived. This assumption is premised on the following theories: socio-political theory and expediency theory. The provision of this assumption was further bolstered by the connection between tax liability and state activities. It is on this premise that tax imposition to generate revenue for government activities became justified. This assumption gives room for a benefit received theory, cost service theory, faculty theory of taxation fiscal exchange theory, economic deterrence theory, political legitimacy theory.

2.1. Fiscal Exchange Theory

Fiscal exchange theory was postulated in 1976 by Buchanan J.M.in his study, taxation in fiscal exchange to prove that the two sides of fiscal account (taxes and expenditure) must be analyzed simultaneously and that the analysis is viewed from the ambit of the political framework. Fiscal exchange theory rests on the whims that government spending is a vital tool for motivation of compliance to pay taxes. The government can harness more revenue through its expenditure in providing goods and services that are required by the citizens in an efficient and accessible form.

Syadullah and Wibowo (2015) purported that the level of tax revenue will increase by way of compliance when there is an improvement in the provision of goods and services. The citizen would want to pay taxes for the sake of public goods which they enjoy as they are very concern about what they get in exchange for the levy they pay. The presence of positive benefits can increase the possibility that the taxpayer will conform willingly. Corruption on the part of tax collectors causes the taxpayers' unwillingness to pay taxes which is at variance with the assumption that taxpayer is unwilling to pay taxes hence the resolve to use force (Lien, 2015). Several factors affect taxpayers' attitude to paying taxes such as the presence of tax morality otherwise known as ethical factor which results from the existence of good governance. Imam and Jacobs (2007) argue that tax revenue generation is an exclusive function of tax administrators and

the collection can be improved by the presence of good governance that is executed by the executive arm of government.

According to Fjeldstad, Collette and Ingrid (2012); Moore (2004), the fiscal exchange theory submits that tax revenue is inspired by government expenditure and this assertion is well rooted in economics and political science. Tax compliance improves with the provision of infrastructures. The better the availability and accessibility of the goods and services needed by the citizens are, the better the taxpayer's readiness to pay tax. The receipt of public goods and services is also an attestation of the necessity of tax revenue to the government (Alm, Jackson & Mckee, 1992). The main interest of taxpayers is what they benefit in the form of public goods in exchange for the tax payment (*quid pro quo*). It is seen from taxpayers' perspective that the delivery of public goods and services is a contractual agreement between them and the government because the interest of taxpayers is on what they get from the government in returns for what goes out from their pocket in the form of tax (Fjeldstad et al., 2012). This theory can also be said to make compliance with payment of tax conditional; it varies with the performance of government on the provision of basic goods and services. Taxpayers see the tax payment as bartering purchasing power in the market in exchange for government goods and services. Fjeldstad et al. (2012) opine that the presence of favorable benefits is likely to improve the probability of voluntary compliance by taxpayers bringing favorable impact on tax revenue as it entails citizens and businesses to receive goods and services from government in exchange for extractions taken from them by the government. Fjeldstad et al. (2012) purported further that government performance, honesty, effectiveness, responsiveness to due process and government reliability all determine the degree of tax compliance as compliance becomes reduced without a material benefit even though the exact value of the benefit received in exchange for tax payment from Government cannot be quantified. It can be said that the volume of tax payment received by the government has something to do with the level of satisfaction/ lack of satisfaction with taxpayers' term of trade with the government. It means if there is a just perception about activities of the government tax evasion would invariably be at lowest ebb as citizens will adjust their activities in line with the term of trade with the government.

The establishment and improvement of good governance is an executive duty which can affect tax revenue positively. According to Alm and Torgler (2011), the factors that impact tax morality are the trust in government, fair tax administration, nationalism, and democracy.

The fiscal exchange theory is the underpinning theory of this study that government expenditure is an impetus to elicit voluntary tax compliance by the taxpayers. The theory emphasizes on taxpayers; attitude towards government expenditure as a vital tool for the motivation of compliance to pay taxes. The government can gather revenue through its spending in providing goods and services that are essential for the citizens in well-organized and reachable forms.

2.2. Measures of Political Stability and Absence of Violence

This study adopted the data of Political Risk Service (PRS) International Country Risk Guide as the only organization that has political risk data on Nigeria from 1984 to 2017. The organization used twelve variables to determine the governance risk of each country studied; the variables were, in turn, adapted into the six governance indicators of worldwide governance indicators of the World Bank. Political Stability and Absence of Violence/terrorism is measured with the sum of the metrics of the government stability, internal conflicts, external conflicts and ethnic tensions (Political Risk Services International Country Risk Guide)

2.3. Political Stability and Absence of Violence and Tax Revenue

Given the continuous political uproar, ethnic crisis and religious violence that is prevalent in Nigeria, it is considered suitable to examine the influence of political stability as institutional factor jointly with economic factors such as share of agriculture in GDP, trade openness, industry share in GDP and inflation on tax revenue. The political atmosphere of Nigeria is still a concern to the global community considering the series of pre and post-election violence, ethnic militias crisis, religious divides that bedeviled the country over time. According to Amin, Nadeem, Parveen, Kamran & Anwar (2014), the political challenge is majorly caused by institutional problems and bad governance in developing countries; poor policy formulation and implementation coupled with corruption and political instability. The presence of political crisis weakens the fundamental wheel on which the economic development of a country rests. Bad leadership with the unpatriotic disposition in government is the destructive mechanism that affected the economic development of developing nations in Africa, Asia, America, and other continents. Tax revenue improvement is subject to some factors among which is the political stability, trade openness, per capita income and decreasing inflation. Trade openness removes the quantitative barrier from goods and services which ultimately spur tax revenue to increase (Amin et al., 2014). An open economy is considered as established and well planned because it has sizeable international trade that boosts tax revenue. Inflation is expected to have an adverse effect on tax revenue collection due to its impact on the prices of goods and services. Inflation causes a hike in prices of commodities which in turn reduces the purchasing power of the citizens resulting in lower tax collection for the country. Inflation put inverse effect on the purchasing power of the public.

Political Stability (PS) is professed to have a significant effect on the tax-to-GDP ratio. The instability in government by way of overthrowing a government, the higher the political tension and the incidence of terrorist acts which invariably will cause lower tax collection (Ajaz and Ahmad, 2010). This is in tandem with theoretical models built by Cukierman, Edwards and Tabellini (1991) cited in Syadullah and Wibowo (2015), where political instability and polarization determine the equilibrium effectiveness of the tax system and the arrangement occasioned by tax revenues. They offer evidence in support of a model that shows that a high degree of political instability and polarization leads to a decrease in high tax revenues. Another previous study that is in support of these findings is by Jafari, Rezanejad and Ariani (2010). It was found that the impact of political stability on Foreign Investment in the Middle East and North Africa (MENA) is positive and significant. Similarly, the result of the study by Biglaseir and Brown (2009), who assesses political

stability on Foreign Investment, is in support of these findings. Using a sample size of 113 countries from 1950 to 1982; Alesina, Sule, Nouriel & Phillip (1996) also established that the effect of instability on the rate of growth is negative and statistically significant.

Gupta (2007) studied the influence of GDP, share of agriculture, industrial share, trade openness as a percentage of GDP and institutional effects on tax revenue of 36 Sub-Saharan African countries from 1970 to 2010. The result then indicates that the effect of institution on tax to GDP ratio is significantly positive; though, the relationship turns declines with the inclusion of some new types of institutions and the economic growth. It was also debated that the present institution and policies in Sub-Sahara African countries are disadvantageous to the value and volume of direct taxation, despite that the institution there was deemed to be weak and inefficient, differently; Institutional quality does not have a significant impact on commercial tax revenue.

Using descriptive and cause-and-effect analysis, Syadullah and Wibowo (2015) study the effect of institutional qualities on tax revenue in ASEAN countries. The researcher used panel dataset from 2003 to 2012. Their result was also similar to existing research work as the controls of corruption, voice and accountability, and political stability are negatively and significantly related to tax ratio, but the rule of law and the regulatory quality in these countries show positive influence on tax to GDP ratio.

Ajaz and Ahmad (2010) purported further that the political instability in developing countries is reflective of unstable government and inconsistent and incoherent policies which form part of the clog on the wheel of any reform to be embarked upon in developing economies. The quality of the whole government institutions is also relevant in this context. It is a general believe that the peer tax administration in the area of tax evasion and corrupt practices of public officials is a social phenomenon that meaningfully decreases tax revenue and extremely affects growth and development of the economy.

Tiwari (2013) studied the effect of political stability and economic growth on tax revenue holding freedom of corruption and government effectiveness as control variables. Ninety-eight countries were studied with unbalance data and 57 states were studied with balance data from 2002 to 2008. It was discovered that political stability affected tax in the lower quantile and sparingly at higher quantiles but not impressive at most upper and intermediate quantiles. Government effectiveness influence tax at all quantiles but not at the very top level.

2.4. Gap in Literature

Several works have been carried out on the determinant of tax revenue across the global economies. Some examine the influence of political stability jointly with economic factors on tax revenue. A few of the existing literature reviewed the impact of political stability on tax revenue in developing economies using panel data. It seems not too many have considered in isolation the influence of political stability and economic factors on tax revenue in Nigeria. It was deemed to be appropriate to carry out this research with a priori expectation that Political stability, share of agriculture in GDP, trade openness, industry share in GDP and decrease in inflation will have a significantly positive relationship with tax revenue.

3. Methodology

The ex-postfac to research design was used for this study. The geographical coverage of the study is Nigeria. Using purposive sampling technique, secondary data were extracted from the reports of Central Bank of Nigeria statistical bulletin, 2018, and Political Risk Services International Country Risk Guide and the World Bank Development Index for a period covering 1984-2017. Nigeria. The study adopted descriptive and inferential (regression) statistics for data analysis. We checked for stationarity of all variables by Augmented Dickey-Fuller (ADF) and applied Autoregressive Distributed Lagged (ARDL) to estimate the short run and long run dynamics of the models.

3.1. Model Specification

Three types of variables are involved in estimating the parameters of the model: Dependent variable, independent variable, and control variable. The dependent variable is Tax revenue (TR), the independent variable is Political Stability and absence of violence (VA) and the control variable

are: Share of Agriculture in GDP (SA), Trade openness (TOP), Industry share in GDP (IS) and Inflation (INF).

$$Y_t = f(X_t, Z_t)$$

Where;

$$t = 1, 2, 3, 4, 5, 6 \dots n$$

Y = Tax Revenue measured by tax revenue from the federal government (TR)

X = Political Stability and absence of violence/terrorism (PV)

Z = Controlled variables

z_1 = Share of Agriculture in GDP (SA)

z_2 = Trade Openness (TOP)

z_3 = Inflation (INF)

z_4 = Industry share in GDP (IS)

z_5 = lag of tax revenue of the federal government (lag TR)

The generic model is given as:

$$TR_t = \alpha_0 + \alpha_1 PV_t + \alpha_2 LTR_t + \alpha_3 SA_t + \alpha_4 TOP_t + \alpha_5 INF_t + \alpha_6 IS_t + \varepsilon_t$$

α_0 is the intercept while $\alpha_1 - \alpha_6$ are the coefficients

The equation specified above depicts a long run relationship between Political Stability and absence of violence/terrorism (PV) as well as structural factors and Tax Revenue in empirical forms. However, ARDL specification of equation following Pesaran et al. (2001) is as follows;

$$\Delta TR_t = \alpha_0 + \alpha_1 TR_{t-1} + \alpha_2 PV_{t-1} + \alpha_3 SA_{t-1} + \alpha_4 TOP_{t-1} + \alpha_5 INF_{t-1} + \alpha_6 IS_{t-1} + \sum_{i=1}^p \tau_i \Delta TR + \sum_{i=0}^{q_1} \phi_1 \Delta VA_{t-i} + \sum_{i=0}^{q_3} \phi_3 \Delta SA_{t-i} + \sum_{i=0}^{q_4} \gamma_i \Delta TOP_{t-i} + \sum_{i=0}^{q_5} \rho_i \Delta INF_{t-i} + \sum_{i=0}^{q_6} \theta_i \Delta IS_{t-i} + \mu_t$$

4. Results and Findings

4.1. Empirical Analysis Using ARDL Regression

This section presents the results of Autoregressive Distributed Lag (ARDL) regression analyses that clearly show the degree and direction of relationship that exists between Tax revenue (TR) and each of the following variables: Political stability and absence of violence/terrorism (PV), Share of Agriculture in GDP (SA), Trade Openness (TOP), Inflation (INF) and Industry share in GDP (IS). Explicitly, this is done to achieve the objective of this study.

4.2. Lag Order Selection Criteria for Political Stability and Absence of Violence and Tax Revenue

Table 1 presents lag order selection result for Political Stability and Absence of Violence and Tax revenue model. The lag length selection criteria begin with the specification of maximum lag of 3. An asterisk indicates the selected lag from each column of the criterion statistic. Based on the Final prediction error (FPE), Akaike information criterion (AIC) and Hannan-Quinn information criterion (HQ) the study considers the lag length of 2 as the optimal lag length.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-555.6198	NA	2.19e+08	36.23354	36.51108	36.32401
1	-419.1886	211.2482	353048.5	29.75411	31.69693*	30.38742
2	-372.6935	53.99431	238086.7*	29.07700*	32.68510	30.25315*
3	-320.2151	40.62850*	197693.3*	28.01388	33.28725	29.73286

Table 1: Lag Order Selection Criteria for Voice and Accountability and Tax Revenue

Source: Researchers' Computation, 2019

Indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion

4.3. Bounds Co-Integration Test for Political Stability and Absence of Violence and Tax Revenue

The result of the ARDL co-integration approach to investigate the presence of long-run relationships among the variables is presented in Table 2 below. The variables considered are Tax revenue (TR), Political Stability and Absence of Violence (PV), Share of Agriculture in GDP (SA), Trade Openness (TOP), Inflation (INF) and Industry share in GDP (IS). From the result, the computed F-statistic value is 4.051, and this value is above the upper critical bound values of 4.43. It suggests that the null hypothesis of no cointegration can be safely rejected at 1% significance level and concludes that there is a long run relationship among the variables.

Test Statistic	Value	K
F-statistic	4.051	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Table 2: ARDL Bounds Test for Political Stability and Absence of Violence and Company

Source: Researchers' Computation, 2019

4.4. Short-Run and Long-Run Models for Political Stability and Absence of Violence and Tax Revenue

Following the result of the Bound Test in Table 2 the study carried out short-run, and long-run analysis and the results are presented in Table 3 with R-squared = 0.996, F-stat = 690.34, Prob(F-stat) = 0.000). The result shows that the coefficient of the lagged ECT (error correction term) is -0.347 (P = 0.005). This value is negative and significant at 1% level. It means that about 34.7 percent of the disequilibria from the previous year's shock is adjusted back to the long run equilibrium in the current year.

Based on the estimated coefficient of the model, the result shows that the coefficient of the current Political Stability and Absence of Violence (PV) in the short run is positive and statistically significant at 1% level [coeff. = 0.016; P – value = 0.001]. It means that change in current TR responds positively to change in current PV. Similarly, the coefficient of Inflation (INF) is negative with very low (approximately zero) probability values [coeff. = -0.005; P – value = 0.005]. These suggest that inflation is related to current Tax revenue (TR) significantly at 1% level.

The coefficient of Political Stability and Absence of Violence (PV) appears positive. This positive coefficient is statistically significant at 1% level [Coeff. = 0.045; P -value = 0.009] implying that in the long run, a unit increase in PV cause TR to increase by 0.046 units. However, the coefficient of Inflation (INF) is positive. This coefficient is statistically significant within 5% and 1% alpha levels [Coeff. = 0.019; P -value = 0.026]. These results show that only PV and INF appear to be a major determinant of Tax revenue (TR) in the long-run.

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PV)	0.015863	0.003959	4.006373	0.0008
D(SA)	0.019998	0.012322	1.622880	0.1211
D(TOP)	0.001358	0.003695	0.367387	0.7174
D(INF)	0.003967	0.001931	2.054058	0.0540
D(INF(-1))	-0.004957	0.002295	-2.159326	0.0438
D(IS)	0.014013	0.018053	0.776250	0.4472
CointEq(-1)	-0.347058	0.110087	-3.152575	0.0052
Cointeq = TR - (0.0457*PV + 0.0072*SA + 0.0039 *TOP + 0.0195*INF + 0.0404*IS -22.4059)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PV	0.045707	0.015643	2.921850	0.0087
SA	0.007163	0.021054	0.340230	0.7374
TOP	0.003912	0.011073	0.353269	0.7278
INF	0.019454	0.008029	2.423085	0.0255
IS	0.040377	0.047835	0.844091	0.4091
C	-22.405935	3.772070	-5.939957	0.0000

Table 3: Short-Run and Long-Run Models for Political Stability and Absence of Violence and Tax Revenue

Source: Researchers' Computation, 2019

Note. R-Squared = 0.996, Adjusted R-Squared = 0.995, F-Statistic = 690.34 And Prob (F-Statistic) = 0.000

4.5. Diagnostic Tests for Political Stability and Absence of Violence and Tax Revenue's Model

To check whether the residual (error term) of the estimated model is normally distributed or not, the study reports a histogram and descriptive statistics of the residuals, including the skewness, kurtosis and Jarque-Bera statistic for testing normality in Figure 1 Also, Breusch-Godfrey Serial Correlation LM Test with the null hypothesis of no serial correlation is applied to validate the model. Econometrically, a model is said to possess heteroskedasticity if the variances of error term are not equal over the various values of the independent variables. This suggests that during regression analysis the variance would be found to be non- consistent. To check whether the selected model in this study possesses heteroskedasticity or not, the study employed ARCH LM. As in Figure 1, all the test statistics that are not statically significant suggests that the residual is normally distributed, free from serial correlation problem and homoscedastic. Hence, we conclude that the model is fit.

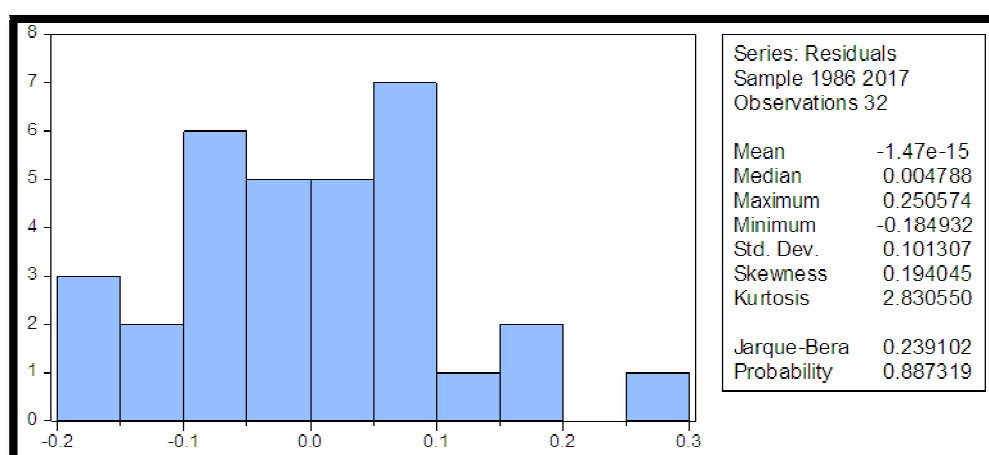


Figure 1: Diagnostic Tests for Political Stability and Absence of Violence and Tax Revenue's Model

Source: Researchers' Computation, 2019

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.195350	Prob. F(1,18)	0.6638
Obs*R-squared	0.343560	Prob. Chi-Square(1)	0.5578
Heteroskedasticity Test: ARCH			
F-statistic	0.161419	Prob. F(2,27)	0.8518
Obs*R-squared	0.354470	Prob. Chi-Square(2)	0.8376

Table 4

4.6. CUSUM and CUSUMSQ Tests for Political Stability and Absence of Violence and Tax Revenue's Model

Along with the diagnostic tests for the estimated ARDL model, this study also performed CUSUM and CUSUMSQ stability test for the estimated model. It becomes necessary to check whether the long and short run relationships among the variables are presented in Figure 2 for the entire period of study. The tests (Brown, Durbin, and Evans, 1975) are based on the cumulative sum of the recursive residuals. The plots of CUSUM and fall within the 5% critical bound, as a result providing evidence that the model does not suffer from any structural instability throughout the study. Alternatively, all the coefficients in the error correction model are stable.

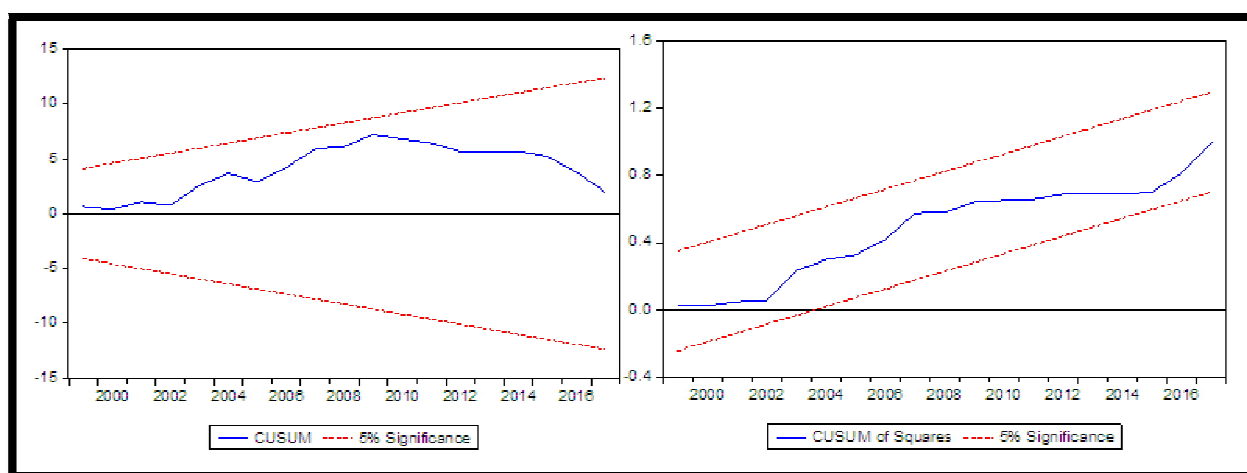


Figure 2: CUSUM and CUSUMSQ Stability Test for Political Stability and Absence of Violence and Tax Revenue's Model

Source: Researchers' Computation, 2019

4.7. Hypotheses Testing and Decision

- Hypothesis two (H₀₂): Political Stability and absence of violence/terrorism have no significant influence on Tax Revenues in Nigeria

To test the hypothesis using ARDL approach, the short run and long run equations used are;

$$\Delta TR_t = \beta_0 + \sum_{i=1}^p \tau_i \Delta TR_{t-i} + \sum_{i=0}^{q_1} \phi_i \Delta PV_{t-i} + \sum_{i=0}^{q_2} \phi_i \Delta SA_{t-i} + \sum_{i=0}^{q_3} \gamma_i \Delta TOP_{t-i} + \sum_{i=0}^{q_4} \alpha_i \Delta INF_{t-i} + \sum_{i=0}^{q_5} \theta_i \Delta IS_{t-i} + \lambda ECM_{t-i} + \alpha_t$$

$$TR_t = \beta_0 + \beta_1 PV_t + \beta_2 SA_t + \beta_3 TOP_t + \beta_4 INF_t + \beta_5 IS_t + \epsilon_t$$

Based on the results in Tables 4.3 showing coefficient = 0.016 (P-value = 0.001) and coeff. = 0.046(P-value = 0.009) for both short run and long run equations the null hypothesis which states that Political Stability and absence of violence have no significant influence on Tax Revenues in Nigeria is safely rejected, therefore, the study concludes that Political Stability and absence of violence have significant influence on Tax Revenues in Nigeria.

4.8. Discussion of Findings

The findings from the regression result in Tables 4.3 show that the estimated coefficients of current and past values Political Stability and Absence of Violence are negatives and statistically significant at 1% levels of significance in the short-run. On the other hand, the estimated coefficient of the Political Stability and Absence of Violence in the long-run turns positive and still significant at 5% level. Alternatively, it shows that the tax to GDP ratio fails to increase with higher Political Stability and Absence of Violence score in the short-run as depicts by the variable in the long-run. The estimated negative coefficients in the short-run may be because the level of Political Stability and Absence of Violence documented in the given short time is not enough to produce a positive influence on the tax revenue. The significant long-run Political Stability and Absence of Violence is mostly consistent with the findings by Ajaz and Ahmad, (2010) and the Cukierman, Edwards and Tabellini (1991) cited in Syadullah and Wibowo (2015) earlier theoretical models who stressed that a higher degree of political instability and polarization causes a decrease in higher tax revenues. This finding conforms with the apriori expectation.

5. Conclusion and Recommendations

The Political Stability and Absence of Violence/terrorism were found to have a positive and significant relationship with tax revenue at the long run. This advocates that improvement in Political Stability and Absence of Violence/terrorism improves tax revenue in Nigeria. The estimated coefficient of Inflation mostly suggests positive relationships with Tax revenue. This indicates that the factor increases tax revenue in Nigeria. Conversely, the estimated coefficients of Share of Agriculture in GDP, Trade Openness, and Industry share in GDP (IS), suggested negative relationships with Tax revenue. These relationships are not significant for some specifications. The positive and significant relationships found between Inflation and Tax revenue support Epaphra and Massawe (2017) assertion that says if inflation is low and does not change too quickly, business profits increase in line with inflation in the economy, and this suggests that tax revenue increases with inflation. The negative and significant relationships that exist between the shares of agriculture in GDP, share of industry in GDP and Tax revenue is in tandem with the results of Macha, Rasiel, Pitia & Nyansera (2018). These results are also similar to Imam and Jacob (2001) and Amin et al., (2014) results except the share of industry in GDP that is found to be positive. These negative relationships may be due to an increase in some subsistence agricultural practices and small-scale business establishment which are largely untaxed. We recommend that the government should enhance more political stability in Nigeria. Concerted efforts should be made to reduce the spates of religious, ethnic and electoral violence in every geopolitical region of the country resulting in improved tax revenue for Nigeria.

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