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The Quality of Institutions and Tax Effectiveness on Nigerian Economy

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Abstract The paper investigates the roles of institution in the effectiveness of tax revenue on the economic growth in Nigeria using ARDL to analyse data and employed principal component analyses to generate institutional quality index. The results show there are short-run significance of tax on the economic growth regardless of the level of the quality of institution. However, there are no evidence of joint cointegration among the economic growth, tax revenue and the institutional quality which could be attributed to poor policy coordination to foster synergy. Meanwhile, the long-run individual effects shows strong significant role of institution in a sustainable economic growth, which implies that growth enhancing variables would be ineffective when the institutional quality is poor. Specifically, the threshold analysis revealed that tax and other macroeconomic variables would be ineffective on the economic growth if the institutional index in the country is below 1.92. However, the higher the institutional quality index, the higher the effect of growth enhancing variables on the economic growth.

Keywords: *nigeria economic growth, institutional quality, tax revenue, corruption*

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1. Introduction

The relationship between government fiscal policy and economic growth has attracted robust debate among scholars in the past few decades [1,2,3,4,5,6,7]. Governments at different periods have relied on fiscal adjustment as a key economic policy thrust to attain desired macroeconomic objectives irrespective of a country developed or developing. Fiscal policy by definition is associated with the use of government revenue (taxation), government expenditure (spending), borrowing and public debt management to influence the pattern and direction of economic activities and also the level of growth, output and employment in a country [8,9].

The major fiscal policy instruments usually adopted to achieve any targeted economic growth and stability are government expenditure and revenues. It is argued in development theory that economies require varied proportions of government spending to enhance capital formation such as, construction of roads, housing, education and health care among [10,11,12]. However, before spending, revenues are generated. In this case, government revenues come mainly through tax. Meanwhile, taxation is not only meant to raise funds for government expenditure, but also as an instrument to readjust income distribution, economic stabilization, optimum allocation of available resources and control of inflation. Ultimately, it aims at enhancing economic growth, [13].

Several authors have supported the argument that tax positively enhance economic growth [5,14,15]. However, some others argued against it. In their perspective, there are certain class of tax such as corporate, capital gain and personal taxes inhibiting investment. In other way, if government in a bid to curtail inflation withdraw money from the economy through increase in tax, it could adversely affect private investment vis-à-vis prevention of ploughed back of profits to enhance investment [3,16].

In developing countries, Nigeria inclusive, there has always been mismatch between government expenditure and revenue, in most cases, it results in deficit budgeting (government expenditure higher than revenue). [17] argued that budget deficit portends serious dangers to the economy if not well managed. Deficit could be financed through increase in tax, seigniorage (printing of more money), borrowing (domestic or external), depletion of foreign reserves or through the sale of fixed assets. In financing deficit, most governments in developing countries have always relied on borrowing (domestic and foreign). Meanwhile the final burden of such borrowing after it accumulates into debt are shifted on the tax payers in the medium or long term. However, in recent literature, scholars have argued that increasing public debt may generate larger deficits as provision is made for debt servicing in the subsequent fiscal year, thus resulting in perpetual fiscal deficit, macroeconomic instability, low level of private investment and low growth rates [18,19]. In most cases, deficits culminate into debt, more grievance, when the funds are expended on projects without inbuilt

potential for self-liquidation. Meanwhile, it is argued in literature that borrowing might not have positive impact in an economy with weak environment, where institutional qualities in terms of accountability and legal framework are weak and where corruption is prevalent. It is opined that if the quality of institutions in an economy is high, tax funds would be used judiciously to spur economic growth [4,20,21].

[22] submits that institutions are important because they influence the structure of economic incentives in society. They posit that without property rights, individuals will not have the incentive to invest in physical or human capital or adopt more efficient technologies that will bring about the desired growth. [23] observed economic institutions as important because they help to allocate resources for most efficient uses and determine who gets profits, revenues and residual rights of control. They conclude alongside some other studies that societies with economic institutions that facilitate and encourage factor accumulation, innovation and the efficient allocation of resources would prosper, [24]. The countries region in which private property rights have been protected and respected have prospered, while other countries have become or have remained poor [25,26,27].

2. Literature Reviews

In the theoretical literature, most economists agree that higher tax rate initially leads to lower levels of economic output, and thus lower transitional growth rate. They argue that if increasing tax are not accompanied by a corresponding increase in tangible public goods and services but are used to pay down existing state debts, then, economic growth rate will certainly fall in the short run. On the other hand, an alternative theoretical view asserts that higher tax rates will influence economic growth positively. This alternative view argues that if increasing tax rate also causes public expenditure as a share of state income to increase, with a corresponding increase in tangible public spending that benefits households and/or businesses, the possibility exists that a state economy will experience at least short-run growth. Furthermore, there exist other different views about long run growth effect, with some authors claiming that fiscal policies have no long-run growth effect, [28].

Several authors have empirically investigated the impact of government revenue on economic growth [29]. However, they have ended up in conflicting conclusions depending on the data, the test procedure and the period studied. For instance, [5,15] found a significant positive effect of taxation on economic growth. While other studies like [3,7,12,28] [30,31,32,33,34] found a significant negative correlation between varioius tax rates and growth. Other studies have found no clear evidence or consensus about the nature and significance of such a relationship [10,14,35,36,37,38,39]. Thus, the controversies in the theoretical and empirical literature on the relationship between government revenue (taxation) and economic growth leaves the debate inconclusive.

Recently, the role of institutions in growth process has been established to be fundamental [24,40,41]. However, a close examination of most of the previous studies on the relationship between government revenue (tax) and economic growth in developed and developing countries reveal that the role of institutions has been aloof, meanwhile, it might be germane in enhancing the current position of knowledge in the empirical literature. As argued by [22], both the factor accumulation and the production efficiency are driven by the quality of a country's institutions, including the government policy making process.

Some empirical studies have supported the relationship between institutional quality and development, and less conclusively on the role of institutions in the relationship between government fiscal policy and growth [23,22,42,40,41]. However, the focus of most studies has been pooled data with mixed country characteristics [42,43,44]. [40] argued that most of the conclusions drawn from large samples consisting of a mix of developed and developing countries shows no significant and reliable evidence of impact of institutions on growth in clear terms. In deviation, this study allows institutional quality within a country specific frameworks.

3. Methodology

3.1. Model Specification

In line with [43], capital stock is identified as the main determinant of economic growth alongside other variables which include trade openness and institutional factors. Thus, equation (3.3) is estimated in linear form as specified in (3.4)

$$〖GDP〗_t = f(〖TR〗_t, 〖TO〗_t, 〖GCF〗_t, 〖INSTI〗_t) \quad (3.3)$$

Where GDP measures economic growth, TR is the total revenue, TO is trade openness, GCF is gross capital formation, while INSTI denotes institutional quality index.

$$〖InGDP〗_t = \alpha + 〖\beta InTR〗_t + 〖\lambda TO〗_t + 〖\pi InGCF〗_t + 〖\tau INSTI〗_t + \varepsilon_t \quad (3.4)$$

The (3.4) is estimated using Autoregressive Distributed Lag (ARDL) to evaluate the existence of a long-run relationship among the variables. The ARDL bounds test approach has been developed by [45]. It has several econometric advantages in comparison to other single cointegration procedures: first, the long and short-run parameters are estimated simultaneously; second, the endogeneity problems are avoided; third, it examines the long-run relationship among variables regardless of the mix of order of integration, I(0) or I(1). Finally, it provides better results with small sample than other cointegration techniques.

The ARDL corresponding to (3.4) is specified as follows:

$$\Delta \ln GDP_t = \psi_0 + \sum_{k=1}^{n} \alpha_k \Delta \ln GDP_{t-k} + \sum_{k=1}^{n} \beta_k \Delta \ln TR_{t-k} + \sum_{k=1}^{n} \chi_k \Delta \ln \mathrm{TO}_{t-k} + \sum_{k=1}^{n} \delta_k \Delta \ln INSTI_{t-k} + \sum_{k=1}^{n} \mu_k \Delta \ln GCF_{t-k} + \pi_k \ln GDP_{t-k} + \pi_k \ln TR_{t-k} + \pi_k \ln \mathrm{TO}_{t-k} + \pi_k \ln INSTI_{t-k} + \pi_k \ln GCF_{t-k} + \lambda ECT_{t-k} + \varepsilon_{1t} \quad (3.5)$$

Where Δ and εt are the first difference and the error terms respectively. The long run relationship between the variables will be tested for joint significance of estimated coefficients of the lagged level. This can be done after determining the number of optimal lag length for regression which is to be selected by lag order selection criteria. Based on the wald test, the Fisher-statistics will be calculated to test for the existence of cointegration among the variables [45]. Pesaran and Shin developed this approach of cointegration on the null hypothesis of no long–run relationship between the variables against the alternative hypothesis of long-run relationship.

3.2. Principal Component Analysis (PCA) for Institutional Quality Index

Principal Component Analysis (PCA) is used to generate an index of institutional quality in this study. It is recalled that PCA is the general name for a technique which uses sophisticated underlying mathematical principles to transform a number of possibly correlated variables into a smaller number of variables called principal components. The origins of PCA lie in multivariate data analysis, however, it has a wide range of other applications. It is efficient in generating fewer numbers of variables that explain most of the variation in the original variables [46]. The PCA technique achieves this by creating a fewer number of variables which explain most of the variation in the original variables. The new variables that are being created are linear combinations of the original variables.

The Eigenvector with the highest eigenvalue is the first principal component of the data set. In general, once eigenvectors are found from the covariance matrix, the next step is to order them by eigenvalue, highest to lowest. This gives the components in order of significance. Now, we can decide to ignore the components of lesser significance. By doing this, we do lose some information, but if the eigenvalues are small, we do not lose much. If some components are left out, the final data set will have fewer dimensions than the original.

All the eigenvectors of a matrix are orthogonal i.e. are perpendicular, at right angles to each other, no matter how many dimensions in the matrix. An orthogonal solution is one in which the components remain uncorrelated. In PCA, the number of components extracted is equal to the number of variables being analyzed. The first component can be expected to account for a fairly large amount of the total variance. An eigenvalue represents the amount of variance that is accounted for by a given component [47]

For the purpose of this study, PCA is applied to create institution index. Institution index is created from the synthesis of Control of corruption, Rule of law, Government effectiveness, Political stability, and Regulatory quality.

In its procedurial derivation, suppose n variables A1,…,An, measured in k observations, the n principal components B1,…,Bn are uncorrelated linear combination of the original variables A1,…,An, given as:

$$b = Qa \quad (3.6)$$

Where $b = (B1,\ldots,Bn)$ is the $(n*1)$ vector of uncorrelated linear combination of the original variables, Q is the $(n*n)$ matrix of coefficients of the principal components and $a = (A1,\ldots,An)$ is $(n*1)$ vector of the original variables. Thus,

$$\begin{pmatrix} B_1 \\ B_2 \\ . \\ . \\ . \\ B_n \end{pmatrix} = \begin{pmatrix} \alpha_{11} & \alpha_{12} & . & . & . & \alpha_{1n} \\ \alpha_{21} & \alpha_{22} & . & . & . & \alpha_{2n} \\ . & . & . & . & . & . \\ . & . & . & . & . & . \\ . & . & . & . & . & . \\ \alpha_{n1} & \alpha_{n2} & . & . & . & \alpha_{nn} \end{pmatrix} \begin{pmatrix} A_1 \\ A_2 \\ . \\ . \\ . \\ A_n \end{pmatrix} \quad (3.12)$$

Where are the principal components in order of significance arranged with the eigenvalues from the highest to the lowest. Thus, the coefficient of the first principal component, $a_{11}\ldots..a_{1n}$ are chosen such that the variance of B_1 is maximized subject to the constraint that:

$$\alpha_{11}^2 + \ldots + \alpha_{1n}^2 = 1 \quad (3.7)$$

The largest eigenvalue of Q is the variance of the first component which is represented by λ1. The second principal component is determined in the same way and it is totally uncorrelated with the first component but explains lesser variation in the original variables compared to the first component, it has λ2 as its eigenvalue and variance. The subsequent principal components are totally uncorrelated with the preceding components, with their respective eigenvalues as their variances. These components provide additional but less variation in the original variables than the preceding components given the same constraint.

Hence, this study makes use of the first principal component to create institutional quality index (INSTI) following [48], which is obtained from the equation below:

$$INSTI_t = \alpha_1 DA_t + \alpha_2 ESAV_t + \alpha_3 LO_t + \alpha_4 CC_t \quad (3.8)$$

Where DA = Democratic Accountability, ESAV = Ethnic Stability and Absence of Violence, LO = Law and Order and CC= Control of Corruption.

4. Estimation and Analyses

4.1. Institutional Quality Index (INSTI)

Institutional quality is a multi-dimensional concept which comprises many aspects and as a result, its measurement has raised critical issues in the literature. Most of the empirical studies that investigated the impact of institutional quality on economic growth have used various definitions of institutions or various indicators of institutional quality. However, it is noted that the omission of important indicators of institutional quality would most likely lead to invalid inferences due to omitted variable biases. To prevent this problem, this study involve the development of a composite index of major institutional quality indicators to examine the impact of tax revenue and institutional quality on economic growth. Principal Component Analysis (PCA) is used to create the Institutional Quality Index by taking four major indicators of institutional quality which are: (1) Democratic Accountability (2) Ethnic Stability and Absence of Violence (3) Law and Order and (4) Control of Corruption. Simply put, Principal Component Analysis (PCA) is a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called the principal components.

The Principal Component Analysis is used here for three basic reasons. First, modelling various indicators of institutional quality in the same equation may lead to a serious problem of multicollinearity. Thus, using the aggregate effect of these indicators is a better approach than using each indicator separately. Secondly, in measuring institutional quality, there is no general consensus about which measure is most appropriate for capturing institutional quality. With this, using a summary measure of institutional quality that includes all the important institutional quality proxies will provide better information on institutional quality. Lastly, various studies that have examined the relationship between institutional quality and economic growth do no uniformly agree on which of the proxies is most appropriate for capturing the examining effects; they used different measures and ended up with different results [21,49,50]. In the light of the various shortcomings, the indexing of institutional quality capture most of the information from the original data and provides a better indicator than the individual variables.

Table 1 below presents the results of principal component analysis with the four measures of institutional quality.

Table 1. Principal component analysis on four institutional quality subcomponents

Number of Observations			30
Number of Components			4
Component	Eigenvalue	Proportion of Variation explained	Cummulative
Comp1	2.222391	0.5556	0.5556
Comp2	1.085885	0.2715	0.8271
Comp3	0.535464	0.1339	0.9609
Comp 4	0.156261	0.0391	1

The result of principal component analysis is presented in Table 1, which includes four measures of institutional quality; democratic accountability, law and order, ethnic stability and control of corruption. Comp 1 represents first principal component, comp 2 represents second principal component, comp 3 represents third principal component, comp 4 represents fourth principal component. The Eigenvalue associated with the first principal component (Comp 1) is significantly larger than one. The first principal component explains approximately 55.5% of the standardized variance, the second principal component (Comp 2) explains about 27.1%of the standardized variance, the third principal component (Comp 3) accounts for 13.30% of the variation, the fourth principal component (Comp 4) accounts for 3.9%. Clearly, the first principal component (Comp 1) is the best measure of institutional quality in this case.

4.2. Unit root Test

To avoid biased statistical inferences, it's crucial to ensure time series data are stationary. If the data show a trend, it must be removed [51]. The most common method for removing trends is first differencing, which is suitable for I (1) time series. Unit root tests help determine if trending data should be differenced once or at a higher order to achieve stationarity. This study uses the Phillips-Perron and Augmented Dickey-Fuller (ADF) unit root tests. The Phillips-Perron (PP) test differs from the ADF test in how it handles serial correlation and heteroscedasticity in errors. The ADF test uses a parametric autoregression to model the error structure in the test regression, while the PP test uses a non-parametric method that disregards serial correlation. Employing multiple unit root tests is important to ensure robustness and prevent erroneous conclusions from the limitations of a single test method.

The results of the two methods, ADF & PP in Table 2 shows identical results. It implies that existence of unit root could not be rejected at I (0), but it is rejected for the variables at I (1).

Tabe 2. The ADF and PP Unit Root Test Results

Variable	ADF			PP		
	Level	First Diff	Status	Level	First Diff	Status
RGDP	-1.3229	-5.4443	I(1)	-1.3229	-5.4443	I(1)
	[0.6062]	[0.0001]*		[0.6062]	[0.0001]*	
LGCF	0.579	-4.8506	I(1)	0.579	-4.8506	I(1)
	[0.9868]	[0.0005]*		[0.9868]	[0.0005]*	
TAX REV	-2.5945	-4.6127	I(1)	-2.5686	-7.8428	I(0)
	[0.1078]	[0.0018]		[0.0113]*	[0.0000]*	
TRADE	-2.292	-7.8961	I(1)	-2.0908	-7.8767	I(1)
	[0.1807]	[0.0000]*		[0.2494]	[0.0000]*	
INSTI	-1.570103	-3.524782	I(1)	-1.487686	-3.4878	I(1)
	[0.4842]	[0.0147]*		[0..5255]	[0.0160]*	

ADF is Augumented Dickey-Fuller Test, PP is Philips Perron Test; * is the refection of null hypothesis of non-stationary at 1% critical values

Table 3. Lag Order Selection

Included observations: 23

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-74.3	NA	58.25698	6.895691	7.142537	6.957772
1	-62.754	17.06939*	23.40693	5.978566	6.274782	6.053063
2	-60.779	2.747470	21.66810*	5.893805*	6.239390*	5.980719*
3	-60.013	0.998651	22.34478	5.914185	6.309140	6.013515
4	-59.495	0.630310	23.62516	5.956119	6.400443	6.067866

* 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

Table 4. Short-run ARDL Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LRGDP(-1)	0.722499	0.234763	3.07757	0.0072*
LRGDP(-2)	0.614446	0.3549	1.731319	0.1026
LGCF	0.853592	1.124595	-0.759022	0.0458**
TRADE	0.04264	0.099088	-0.430324	0.6727
TAX	-357.8536	168.1207	-2.128587	0.0492**
INS	-2.214632	1.39825	-1.58386	0.1328
C	30.11266	31.18515	0.965609	0.3486

* 1% level of significant ** 5% level of significant

Meanwhile, in estimating variables of order one I (1), optimal lag selection is critical prior to Autoregresive Distributed Lag (ARDL) cointegrating estimation. To the effect, the selection of right lag length is subjected to various lag length criteria and the result is shown in Table 3. As presented, most of the criteria support lag 2, consequently, the underlining Autoregressive Distributed Lag Estimation is carried out under optimal lag length of 2.

4.3. Autoregressive Distributed Lag (ARDL) Estimation Results

ARDL estimations assist in understanding how variables in the model individually affect the dependent variable both in the short-run and in the long-run. However, it further assists in understanding how the independent variables jointly cointegrate with dependent variable in the long run using the results of bound test and long-run cointegrating term. The short run individual variable effect on the dependent variable is presented in Table 4.

The short-run results presented in Table 4 show there are three relevant variables in the model, which are significant to the economic growth. These include the lag value of the gross domestic product itself, gross capital formation which is an intervening variable and the tax revenue. This shows that the presence of institutional

quality is not relevant in the short-run in determining either tax revenue would impact positively on the economic growth or otherwise. In other words, institutional quality is not relevant in the short-run within the frameworks of the model presented. However, the short-run irrelevant of the institutional quality might not completely implies that institutional quality does not play significant roles in the economy. Such a claim could only be verified within the frameworks of the long-run analysis. In most cases, the impact of some variables could only be reflected over lag periods, which may be extended into longer periods.

In order to cover the extended period, two key analyses were carried out within the frameworks of the Autoregressive Distributed Lag (ARDL) to cover the long-run. The first analysis is the Bound Test which examines the joint cointegration of the independent variables in the model with the dependent variable. The results are used to verify the co-movement of the variables in the long-run. The second analysis is the long-run individual variable's cointegration with the dependent variable.

Table 5. The Bound Test Results

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	0.715104	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.50%	3.25	4.49
1%	3.74	5.06

The results of bound test and critical values for [45] is presented in Table 5. The F-statistic is compared with the critical bounds at 5% level of significance under unrestricted intercept and no trend. In the table, the upper bound is 4.01 and lower bound is 2.86, however, the F-statistic (0.7151) is lower than the lower bound (2.86), hence, the null hypothesis of no long run relationship among the variables is accepted, and conclude that there is no long run equilibrium relationship among the variables in the specified models. The implication of the results is that the key variables in the analysis (tax revenue, institutional quality and economic growth) alongside the intervening variables could not cointegrate jointly or co-move in the long-run). However, as earlier reported, at the individual variable levels, tax plays key significant roles in the short-run on the economic growth.

In the same way, the long-run ARDL results are presented in the Table 6 to provide the assessment of individual variable's long-run impact on the economic growth in Nigeria.

It is observed in Table 6 that institutional quality index is significant for long-run economic growth in Nigeria. It is also observed in the results that tax and other intervening variables are not significant individually in the long-run. This results have significant implications on the economy, suggesting that tax or government revenues would have no significant effect on the economy when institutional quality is poor. More also, in the earlier results, the immediate impact of tax revenue on the economic growth does not require the presence of institutional quality. It implies that in the economy with poor institutional environment, regardless of the short-run level of financial resources mobilized, the economy would suffer long-run growth sustenance even if the economy is able to mobilize huge income. This is however logical, considering the components of institutional quality index which include, accountability, corruption, good governance among others. Poor accountability and corruption would channel funds away from long term project capable of placing the economy on the long-run sustainable growth path.

Table 6. ARDL Cointegrating and Long run Form

Variable	Coefficient	Std. Error	t-Statistic	Prob
CointEq(-1)	0.336944	0.262678	1.282726	0.2179
LGCF	2.533333	3.717152	0.681525	0.5053
TAX	1062.0734	651.9631	1.629039	0.1228
TRADE	-0.126549	0.288643	-0.43843	0.6669
INS	6.572696	2.856254	2.301159	0.0352**
C	-89.369857	108.4579	-0.82401	0.4221

* 1% level of significant ** 5% level of significant

The dwindling growth in the past few decades could be attributed to high prevalence of corruption, poor accountability and lack of political will of Nigerian political leaders and public administrators. They lack willingness and determinations to pursue genuine sustainable growth enhancing projects and infrastructural development.

4.4. The Institutional Quality Threshold and Tax Implications on the Economic Growth

The short-run and the long-run results presented in the previous section points to a critical question of interactive relevance of the tax revenue and institutional quality on the Nigerian economic growth. It could be inferred that at a level of institutional quality, the impact of tax might be much prominent, while it might be insignificant at another level. In an attempt to verify the level of the institutional quality at which tax revenue could impact the economic growth positively, results of threshold analysis are presented in Table 7.

The threshold model is tested on the null hypothesis H_0: $\beta_1 = \beta_2$ (no threshold effect), and the alternative H_1: $\beta_1 \neq \beta_2$ (threshold effect does exist). The results presented in Table 7 indicates the estimator of the double-threshold model is (-1.079491, 1.921956) with 95% confidence interval. As presented, when the quality of institutions in Nigeria is less than -1.079491 (i.e. INS < -1.079491), change in tax revenue in Nigeria would cause Real Gross Domestic Product (RGDP) to fall or declines. However, when institutional quality lies between -1.079491 and 1.921956 (i.e. -1.079491≤ INS < 1.921956), tax revenue has no effect on Real Gross Domestic Product

(RGDP). The result however shows that when the institutional quality is equal or above a threshold point of 1.92 [i.e. INS ≥1.921956], an increase in the tax revenue would increase Real Gross Domestic Product (RGDP) in the country, in other words, at that level of institutional qualities, tax revenues would have positive and statistically significant impact on economic growth in Nigeria.

Table 7. Results of Institutional Quality Threshold and its Impact on Economic Growth

Threshold values used: -1.079491, 1.921956				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INS(-1) < -1.079491 -- 5 obs				
TAX	-36.95068	8.796613	-4.200558	0.0008
-1.079491 <= INS(-1) < 1.921956 -- 11 obs				
TAX	-3.002695	7.770377	-0.386429	0.7046
1.921956 <= INS(-1) -- 7 obs				
TAX	51.89267	5.80733	8.935719	0
Non-Threshold Variables				
TRADE	-0.009819	0.005002	-1.963017	0.0685
GCF	-5.47E-12	2.47E-12	-2.211304	0.043
R-squared	0.986131	Mean dependent var		0.036399
Adjusted R-squared	0.979659	S.D. dependent var		1.662351
S.E. of regression	0.237087	Akaike info criterion		0.227427
Sum squared resid	0.843152	Schwarz criterion		0.622381
Log likelihood	5.384592	Hannan-Quinn criter.		0.326757
Durbin-Watson stat	2.044265			

5. The Policy Implications and Conclusion

It is evident that key variables of GDP performances, investment level and tax revenues are fundamental to progress in any economy. The immediate reaction of the economy to the key variables is positive and enhances the economic performances. The argument surrounding this is that, private investment interacts with government tax effect to promote the increase in the economic growth. However, in the case of Nigeria, this is only sustained in the short-run regardless of the level of quality of institution.

The study also demonstrates the inability of key macroeconomic variables augmenting one another to foster long-run economic growth. Ideally, it is expected that policies which are concurrently tailored at enhancing institutional quality, promote investment and mobilize tax should enhance economic growth, but this is not the case in Nigeria. It is evidenced that the variables could not operate jointly to foster economic growth. This might also imply that, the policy makers and economic managers are not employing synergy in policy design and implementation, thus preventing holistic policy mix to foster growth. This doesn't mean there are no policy designs target at each of the growth enhancing variables, but there is no evidence of coherent synergy.

However, investigation into the individual variables' long run effects on the economic growth suggest that tax or government revenues would have no significant effect on the economy when institutional quality is poor. In other words, institutional quality plays critical roles in Nigeria economy if the various macroeconomic variable would have positive impact on the economic growth. Specifically, in the poor institutional environment, regardless of the short-run level of financial resources mobilized, the economy would suffer long-run growth sustainability, even if the economy is able to mobilize huge financial resources. Meanwhile, there is a level of institutional quality that could guarantee the ability of macroeconomic variables to impact economic growth sustainably in the long-run. The Nigeria performance in terms of institutional quality index of accountability, corruption, good governance among others is too low to ensure sustainable growth. The implication is obvious, poor accountability and corruption would channel funds away from long term project capable of leading the economy on the long-run sustainable growth.

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