

Assessment of the Long-Run Equilibrium Relationship Between Economic Growth and Direct Tax Revenue in Nigeria: 1970 – 2021

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Abstract: - Direct taxes cover all aspects of society, especially in terms of resource allocation and economic growth. In reality, tax revenue is often used to measure the quality of a country's economy and vice versa. The relationship between economic growth and tax revenue has been paid little or no attention by academic circles. This article seeks to analyze the relationship between economic growth and tax revenue. Annual datum from 1970 to 2021 were employed to conduct an empirical analysis under the Autoregressive Distributed Lag Model (ARDL). The company income tax (CIT) explained by selected economic activities variable (Gross Domestic Product growth rate (GDP), Total Education expenditure by the government (EDU), Inflation Rate (INF), Exchange Rate (EXR), Production Capacity proxied by Manufacturing; value added (% of GDP)(POC), Oil Price proxied OPEC Basket Price (\$))(OP), Oil Production (OPR) and Unemployment rate (UE)) as the regressors. Consequently, using the Autoregressive Distributed Lag Model and the co-integration test (ARDL), the results report that economic growth has a positive and significant effect on direct tax revenue in the long run. Through the ARDL model, there exists lengthy link exists between the variables, and the model demonstrates that economic growth indicators have significant impact on Company income tax (LNCIT) revenue in Nigeria, with the F-statistic of 3.614164, a p-value of 0.001096 (less than the threshold of 0.05) (5%) significant level to the tune of 72.80% as reported by the model R-square with about 88.07% and 55.49% adjusting speed back to equilibrium in the long-run. Therefore this study provides a view that economic growth is a determinant to promote tax revenue. Therefore, the Nigerian government should pay much attention to the improvement of its economic activities so as to maintain an increased taxable revenue base.

Key-Words: - Direct Tax, Long-Run, Economic Growth, Company Income Tax

1 Introduction

The Nigerian economy is bequeathed with rich human and natural resources with relatively few tapped and much more untapped. Given the wealth and its economic potentials, it becomes particularly disturbing and ironic that Nigeria was and is still rated one of the poorest countries in the world, placed at 161 positions out of 189 countries (UNDP, 2020) reported in [1]. In many ways, optimal tax theory is a helpful and clarifying approach; nonetheless, It rarely yields apparent lessons for tax officials for a variety of reasons.

For example, it is commonly true that just a subset of feasible taxes is considered, leaving out key real-world phenomena like market failures, human capital development, and regulatory policy. Furthermore, most non-revenue objectives and the effects of differences, those responsible with implementing public policy routinely ignore the distinction between public and private interests, administrative constraints and transaction costs are typically ignored, and most potentially relevant non-revenue objectives and the effects of differences, those responsible for implementing public policy mostly ignore the conflict between public and private interests. Many studies have

sought to explain why rich and poor countries have such disparities in taxation. The most obvious explanation is the significant disparity in taxing capacity among countries varying in economic development stage.

As countries become wealthier, they are more likely to develop a sophisticated financial structure as well as a greater reliance on large, formal organizations as sources of employment and income for a growing portion of the population. Governments can track, quantify, and tax rising income and wealth simpler as a result of these changes. In contrast, in developing nations, a far higher proportion of economic activities take place in small-scale activities, which are frequently in the so-called informal sector; and hence outside the established financial system. Worryingly, to tax more, a country must be more developed.

Such news is unlikely to be helpful to developing countries, not least because they are frequently told that imposing higher marginal taxes on growing sectors of their economies will discourage growth. Taxation may accompany growth, but even the best tax policy is unlikely to generate significant revenue in the absence of growth. However, it is unlikely to be easy or simple to implement; this is because telling countries that want larger tax systems that they must first be better countries is not helpful. A similar method in the literature emphasizes the willingness to tax rather than the capability to tax (i.e., the amount or structure of GDP) (what might be called the demand side of the fiscal equation). Another problem of taxable revenue in Nigeria is that of taxation policies based on territory and jurisdiction; which has begun failing due to improved e-commerce. Concepts like permanent establishment, sale points, product, income classification, etc. that use the in-taxation process have remained inadequate. Whereas determining locations of producers and consumers at the transaction on the Internet becomes increasingly difficult, as such, leading to tax income loss. Electronic commerce allows businesses to get their revenue without any physical presence [2]. Because of the consequences of Due to the prevalence of E-commerce makes it difficult for tax authorities to get or estimate data on taxes that should be collected, resulting in lost revenue. The study's overarching goal is to assessment the Long-Run Equilibrium Relationship

Between Economic Growth and Direct Tax Revenue in Nigeria: 1970 – 2021 Specifically, the study will investigate the influence of economic growth on Company Income Tax (CIT) revenue in Nigeria.

Therefore, the null research hypothesis aimed at achieving the study objective.

H_{01} : There is no effect of Economic growth on Company Income Tax (CIT) revenue.

2 Literature Review

2.1 Conceptual Framework

Concept of Tax Revenues: Tax revenue is a source of financing developmental activities in a developing country. To effectively carry out its primary function and other subsidiary functions, the governments need adequate funding. Governments use tax proceeds to carry out their traditional functions such as the provision of public goods, maintenance of law and order, defense against external and internal aggressions, and regulating trade and business to ensure social and economic justice. Unfortunately, the government's responsibilities continue to increase over time especially in developing countries; as a result of the growing population of citizens, and technological development [3].

Tax Classifications: Taxes can be direct, or indirect, Direct taxes can be progressive, proportional, or regressive, while indirect taxes might be specific or [4]. The two major classifications of Tax are classified as follows:

Direct Tax: A direct tax is levied on the payer's income or earnings rather than on goods or services. The direct tax is the commonest type of tax in Nigeria and constitutes the most prominent source of revenue for the government. Direct Tax is levied directly on the income and property of individuals and companies. It varies with the status of the taxpayer and the burden is usually borne directly by the taxpayer. It includes Personal Income Tax (PIT), Company Income Tax (CIT), and Petroleum Profit Tax (PPT).

Indirect Tax: Indirect taxes are taxes normally levied on commodities or services and hence their incidence does not fall directly on the final payers. Apart from direct taxes, indirect taxes are another major sources of government revenue. They are taxes levied upon persons or groups whom they are

not intended to bear the burden or incidence, but who will shift them to other people. They include Import duties (and fees), Excise duties, Export duties, Value Added Tax (VAT) [5].

Concept of Economic Growth: Economic growth is defined as a rise in the production of economic commodities and services over time. It can be represented nominally or in terms of inflation. GNP or GDP have historically been used to quantify aggregate economic growth, although other indicators have also been utilized. Economic growth refers to an increase in the economy's output of goods and services. Economic growth is fueled by improvements in capital goods, labour force, technology, and human capital.

2.2 Theoretical Framework

This study adopts Wagner's theory on Tax. The law of increasing state spending was propounded by German Economist Adolph Wagner (1835-1917). He posited that an increased share of public expenditure in Gross National Product would accompany the development of an industrial economy. With the growth of an economy, new functions and activities emerge and are taken up by the government, while existing economic operations are carried out thoroughly. Wagner's law implies that there is a functional relationship between economic growth and the growth of government sectors, which tend to increase public expenditure [6]Wagner highlighted certain forms of government activities that lead to increasing public expenditure such as, keeping law and order, participation in the production of economic goods including the provision of certain social products, increase in demand for public goods, urbanization, and pressure on social amenities, social security, and provision of welfare [7], in their research on public expenditure in the United Kingdom between 1891 and 1955, Wiseman and Peacock advanced a hypothesis concerning the growth of government spending. They posited that government expenditure increases in a jerk and step-like manner rather than at a steady, continuous rate [8]

2.3 Empirical Review

Studies from developed countries like [9], [10], [11], [12], [13] [14] [15][15]), [16][17] worked on how economic growth affect total tax revenue. The empirical results show that economic growth has a significant impact on the total tax revenue and structure changes but also has a long-term stable relationship with total tax revenue. And in a long term, there is no extraordinary growth in tax revenue. Reviews from developing countries on the relationship between economic growth and tax revenue as explored by [18] and [19] found that there exist positive and significant impacts between the parameters of taxes and economic growth in the countries [19] therefore also concluded that value-added tax (VAT) revenue is a strongly determined by the economic growth in Pakistan. Although, [20] tax revenue does not effect long-term growth. [21] empirical study takes GDP growth and indirect tax in Bangladesh as its cynosure. It investigates the relationship between the GDP growth rate and the policy-related indirect tax problems in terms of long-term fiscal consolidation and Bangladesh's economic growth[21]paper empirically examines the key determinants of tax revenue in East African countries using a novel dataset ranging from 1992 to 2015 by employing panel data cointegration approach. The long-run estimated equation from the FGLS results indicates that per capita GDP, foreign aid, trade openness, the share of agriculture, the share of industry, and the share of services have positive contributions to the tax revenue of East African countries over the study period. [22], empirically examines the major determinants of tax revenue in Ethiopia for the period ranging from 1975 to 2013, using Johansen's maximum likelihood co-integration approach. Long-term tax revenue is influenced by real GDP per capita income, foreign aid, and the industrial value-added component of GDP. Further research conducted by [23]on taxation and economic growth in Nigeria, covering the period of 1994 to 2019 dis-aggregated taxation into value added tax, petroleum profit tax, personal income tax, and company income tax while GDP was used as a parameter for measuring economic growth. The findings indicate that there are significant short-run positive connections between taxing and economic growth, as well as bi-

directional causality between specific taxes as well as wage growth.

The majority of academics who investigated the relationships between economic growth and taxable revenue in Nigeria were able to identify the positive/negative and significant/insignificant impact of economic growth and tax revenue but they few tried to link tax revenue as a significant source of revenue essential to encourage economic growth and development. There have been reviews in China and other Asian countries where Taxable revenue was used as a major driver of growth but few of such research has been conducted on Nigeria and this study seeks to fill that gap.

2.4 Methodology

Research Design: The purpose of this study is to Assessment of the Long-Run Equilibrium Relationship Between Economic Growth and Direct Tax Revenue in Nigeria: 1970 – 2021, thus a quantitative research technique based on ex-post facto research design was adopted.

$$\Delta CIT_t = \alpha_0 + \sum_{i=1}^n \beta_{1i} \Delta CIT_{t-1} + \sum_{i=0}^n \beta_{2i} \Delta GDP_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta EXR_{t-i} + \sum_{i=0}^n \beta_{4i} \Delta INF_{t-i} + \sum_{i=0}^n \beta_{5i} \Delta OP_{t-i} + \sum_{i=0}^n \beta_{6i} \Delta OPR_{t-i} + \sum_{i=0}^n \beta_{7i} \Delta POC_{t-i} + \sum_{i=0}^n \beta_{8i} \Delta UE_{t-i} + \sum_{i=0}^n \beta_{9i} \Delta EDU_{t-i} + \beta_1 CIT_{t-1} + \beta_2 GDP_{t-1} + \beta_3 EXR_{t-1} + \beta_4 INF_{t-1} + \beta_5 OP_{t-1} + \beta_6 OPR_{t-1} + \beta_7 POC_{t-1} + \beta_8 UE_{t-1} + \beta_9 EDU_{t-1} + \varepsilon_t$$

..... 3.3

Where:

CIT_t = Company Income tax;
 GDP_g = Gross Domestic Product growth rate; EDU_t = Total Education expenditure by the government; INF_t = Inflation Rate;
 ExR_t = Exchange Rate
 PoC = Production Capacity proxied by Manufacturing; value added (% of GDP)

OP = Oil Price proxied OPEC Basket Price (\$); OPR = Oil Production (tbpd); UE = Unemployment rate; ε_t = Residual, fulfills the usual (CLRM) assumptions about the error.

Data Analysis Techniques: Basic descriptive statistics is used as one of the statistical instruments for data analysis in this study. An inferential kind of statistics, such as regression results and tests of correlation among multiple variants, were used. The analytical technique used is the ARDL modelling procedure. ARDL, an acronym for

Model Specification: According to [20], model specification Yamamoto (1995) to be consistent with analytical framework of ARDL entails determining the endogenous from exogenous variables required in the model, the theoretical expectations about the sign, and the size of the function's parameters (s). On that basis, the study modifies the works of [24]; [25][26] to formulate its structural equation as below; as a result, the modified structural equation is further approximated to that of [26]. As a result, equation 3.1 is transformed in the basic form of ARDL regression model thus:

$$y_t = \beta_0 + \beta_1 y_{t-1} + \dots + \beta_k y_{t-p} + \alpha_0 x_t + \alpha_1 x_{t-1} + \alpha_2 x_{t-2} + \dots + \alpha_q x_{t-q} + \varepsilon_t$$

... 3.2

Therefore, the model specification for objective is stated below in equations starting from 3.3.

Autoregressive Distributed Lag Model was first published by [27] where it was described as a major workhouse in a dynamic single equation regression. It was further popularized by [27] and extended by the duo of [28] and [28]. Unlike the OLS method, it incorporates both the I(0) and I(1) variables in the model. Whenever I(0) is violated, it became palpable for the variable(s) usage without necessarily being worried about the long run relationship amongst the regressor (variables) and the regressand including the possible appearance of spurious results i.e. non-consistent and non-efficient estimates.

As a result, many benefits become accruable (accessible) through the use of the ARDL analytical approach as against others within the sphere and nature of the study. We are able to use both I(0) and I(1) variables simultaneously. In other words, overcome the challenges of multiple specifications of models. If the bound test result suggests rejection of the null hypothesis, therefore, the long run relationship exists wherefore, both short run

(ARDL) and long run (ECM or VECM) is specified or otherwise. The expected lag lengths are scientifically or empirically generated without

having to bother about the parametrization problem.

3 Analysis Results

Normality: This sub-section presents the descriptive statistics of the Country-specific economic growth indicators that determine the tax revenue in Nigeria. It displays their mean, median, maximum/minimum value, standard deviation, and

the Jarque-Bera normality test, which is a goodness-of-fit test to determine if the sample data has skewness and kurtosis that indicate normal distribution. This is a prerequisite for fitting the panel regression model.

Table 4.1: Results of Descriptive Statistics and Test of Normality

Statistic	CIT	EDU	EXR	GDPR	INF	OP	OPR	POC	UE
Mean	309.1801	116.3398	84.81600	0.241154	18.38346	37.49704	2013.058	15.49281	4.674904
Median	22.48915	10.71000	21.89050	0.150500	13.17350	28.03000	2061.000	17.75950	4.191500
Maximum	1747.992	639.3700	372.9800	2.189000	76.75900	111.6697	2631.000	21.09800	10.90300
Minimum	0.045800	0.130000	0.547000	-0.16	0.224000	1.800000	1241.000	6.553000	3.700000
Std. Dev.	498.3188	180.2646	105.4263	0.318586	15.81988	29.94202	336.3303	5.077220	1.591069
Skewness	1.487830	1.549935	1.207007	4.599974	2.074160	1.108328	-0.61	-0.42	2.624716
Kurtosis	3.855176	4.220980	3.561554	28.23973	6.809199	3.271636	2.825938	1.490636	8.755600
Jarque-Bera	20.76940	24.04996	13.30942	1563.647	68.72353	10.80592	3.308589	6.431626	131.4809
Probability	0.000031	0.000006	0.001288	0.000000	0.000000	0.004503	0.191227	0.040123	0.000000
Sum	16077.37	6049.670	4410.432	12.54000	955.9400	1949.846	104679.0	805.6260	243.0950
Observations	52	52	52	52	52	52	52	52	52

Source: Out of *EIEWS 12 Output*

Table 4.1 analyses the descriptive statistics of the variable profile. It is noted that the tax revenue of the country proxied with the Company Income tax (CIT). This suggests that the average tax revenue of the country is low compared to other developing economies. It also observed that the maximum and minimum TAX_R stood at 7594.400 and -4.04b. This is an indication that some of the country's tax revenue was once very low but has drastically picked up and hence an upward growth in the total tax revenue is observed in the country. As indicated in the Table, the Education Expenditure, Exchange Rate, Gross Domestic Product Growth Rate,

Inflation Rate, Oil Price, Oil Production, Production Capacity, and Unemployment Rate returns a mean value of 116.3398b, 84.816N/\$, 0.2411%, 18.38%, 37.497\$, 2013.058mbpd, 15.492% and 4.67% respectively. More importantly, regarding the test for normality, as observed in table 4.1, the test for all the variables returned a p-value less than 0.05 (5%) level of significance except for oil production (OPR), thus, implying that the variables are not normally distributed. As such, the variable natural logarithm transformation is used to correct for the non-normality seen in the series before modeling.

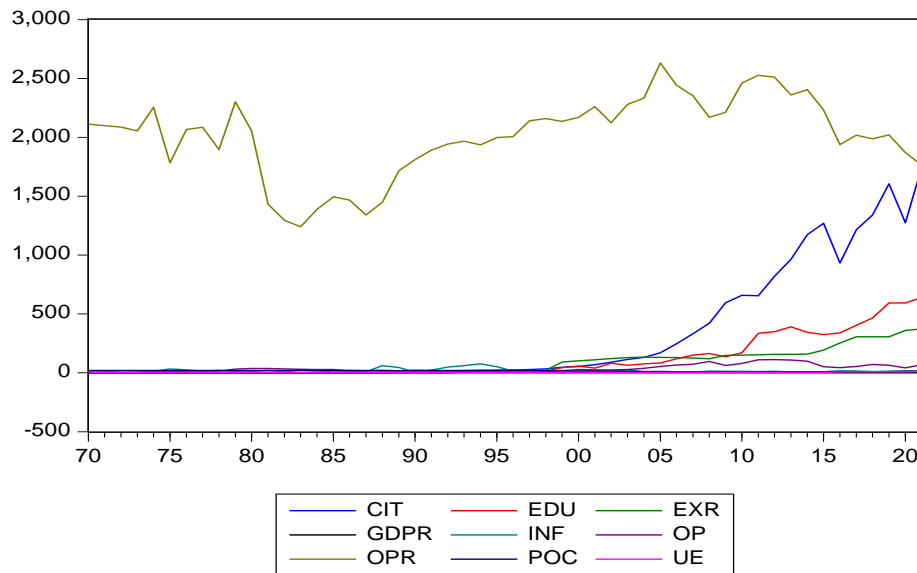


Figure: 4. 1 The time plot at level for the economic-growth and taxable revenue variables for the period 1970-2021; Source: EViews 12 Output

Figure 4.1 presents the trend analysis of the yearly data on all variables selected for the study (Economic growth and Tax revenue indicators) from the period 1970 to 2021. During these periods all the variables seem to be stable and low from 1970 through 2000. However, high volatility is observed from 2001 to 2021 and is more pronounced in the exchange rate variable. Although, the country's production capacity,

education expenditure, and petroleum profit tax have remained consistently stable with relatively low volatility in the past 10 years. Since the effect of the covid-19 on the global economy, the recovery process was continued up to the year 2021 as evident in the sharp rise in the country's GDP growth rate variable. Another upward shoot was experienced in 2015 due to instability in the real exchange rate in the economy.

Table 4.2 Augmented Dickey-Fuller Test Results at Level, 1st and 2nd Difference with Intercept but no trend.

		Augmented Dickey-Fuller test statistic					
Variable	Null Hypothesis	Level		1st Difference		2nd Difference	
		t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*
CIT	CIT has a unit root	1.761	1.000	-3.277	0.023	NA	NA
EDU	EDU has a unit root	2.744	1.000	-4.606	0.001	NA	NA
EXR	EXR has a unit root	2.892	1.000	-5.064	0.000	NA	NA
GDP	GDPR has a unit root	-6.158	0.000	NA	NA	NA	NA
INF	INF has a unit root	-3.622	0.009	NA	NA	NA	NA
OP	OP has a unit root	-1.623	0.464	-6.590	0.000	NA	NA
OPR	OPR has a unit root	-1.816	0.369	-7.303	0.000	NA	NA
POC	POC has a unit root	-0.995	0.749	-12.986	0.000	NA	NA
UE	UE has a unit root	3.183	1.000	-7.251	0.000	NA	NA

NA = test is not required since stationarity is obtained

Source: EViews 12 Output

Table 4.2 showed the results of the unit root test. The results revealed that time series were non-stationary at levels. However, some of the

variables/series became stationary at the 1st difference [I(1)] and none at the 2nd difference [I(2)] accordingly. The augmented Dickey-Fuller

unit root test demonstrated that mistakes were statistically independent and had constant variance. Therefore, meeting the precondition for the application of the ARDL model requires the series

to be of I(0) and I(1) only. As such, the ARDL bounds test is applied to the data series to see whether a short-run or long-run relationship exists.

4.2 Model Determination of Lag Length

Table 4.3: Vector Autoregressive Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-300.6427	NA	18120.81	12.63848	12.98595	12.77031
1	-295.0603	8.886223*	15053.66	12.45144	12.83753*	12.59792*
2	-293.7604	2.016195	14899.78*	12.43920*	12.86389	12.60033

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

HQ: Hannan-Quinn information criterion

AIC: Akaike information criterion

SC: Schwarz information criterion

Source: *EViews 12 Output*

As observed from Table 4.3, the Vector Autoregressive Lag order is two based on the Akaike Information Criterion (AIC). Hence, the lag of order-2 will be used in the model specification.

Bounds Co-integration Test: Co-integration tests were performed using [29] approach and autoregressive distributed lag (ADRL) bound test

approach to achieve the main aims and objectives of this study by recommending a short-run model or the long-run model with the error correction term (ECM). These models were used to explain the kind of relationship that exists between Nigeria's economic growth variable and its tax revenue variables in the short or long-run.

Table 4.4: Trace Cointegration test for Model 1 with (CIT) as the dependent variable

ARDL Bounds Test

Sample: 1973 2021

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	5.305834	8

Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	1.95	3.06
5%	2.22	3.39
2.5%	2.48	3.7
1%	2.79	4.1

Source: *EViews 12 Output*

In Table 4.4, the Regression analysis (5.306) is greater than the upper bound of the critical value (3.39) indicating the presence of cointegrating among the variables, denoting the rejection of the null hypothesis of no cointegrating equation between the tax revenues and economic growth variables at 5 percent level of significance. Because

the presence of a cointegrating equation suggested the existence of long-run interactions between the eight variables, the ARDL long-run model with the error correction term is used to investigate the long-run effect of independent factors on dependent variable.

ARDL Model Estimation

Table 4.5: Estimated ARDL (2,2,2,2,2,2,2) Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.042308	0.065200	-0.648898	0.5219
D(LNCIT(-1))	0.416286	0.253921	1.639429	0.1127
D(LNCIT(-2))	0.625669	0.179819	3.479437	0.0017
D(LNEXR(-1))	0.141009	0.114239	1.234327	0.2277
D(LNEXR(-2))	0.170803	0.139385	1.225407	0.2310
D(LNEDU(-1))	-0.056775	0.040983	-1.385338	0.1773
D(LNEDU(-2))	-0.033215	0.039352	-0.844050	0.4061
D(LNGDPR(-1))	-0.189366	0.058226	-3.252275	0.0031
D(LNGDPR(-2))	-0.155369	0.055091	-2.820253	0.0089
D(LNINF(-1))	0.080971	0.030873	2.622703	0.0142
D(LNINF(-2))	0.049149	0.025921	1.896136	0.0687
D(LNOP(-1))	0.258199	0.090430	2.855249	0.0082
D(LNOP(-2))	-0.389858	0.137158	-2.842400	0.0084
D(LNOPR(-1))	0.298805	0.301374	0.991476	0.3303
D(LNOPR(-2))	-0.142286	0.303085	-0.469461	0.6425
D(LNPOC(-1))	0.354527	0.296765	1.194638	0.2426
D(LNPOC(-2))	-0.387981	0.301920	-1.285047	0.2097
D(LNUE(-1))	0.035434	0.324403	0.109228	0.9138
D(LNUE(-2))	-0.338823	0.297628	-1.138412	0.2649
ECM(-1)	-0.880729	0.292910	-3.006830	0.0057
ECM(-2)	-0.554866	0.297938	-1.862351	0.0735
R-squared	0.728051	Mean dependent var	0.207958	
Adjusted R-squared	0.526607	S.D. dependent var	0.220665	
S.E. of regression	0.151825	Akaike info criterion	-0.632537	
Sum squared resid	0.622374	Schwarz criterion	0.186113	
Log-likelihood	36.18090	Hannan-Quinn criteria	-0.323168	
F-statistic	3.614164	Durbin-Watson stat	1.965151	
Prob(F-statistic)	0.001096			

Source: EViews 12 Output

Discussion

H01: There is no effect of economic growth on company income tax (CIT) revenue in Nigeria.

In Table 4.5, the short-run part of the ARDL model with at a 5% level of significance, negative sign and statistical significance are required for the error correction term. The coefficient of $ect(-1)$ was -0.8807 and -0.5549 and indicated that the deviation from the long-run term Company Income Tax revenue (LNCIT) will be corrected by 88.07% and 55.49% in the model in the coming year and next, thus the speed of adjustment (first and second lag) towards equilibrium which also representing the long-run equation. The residuals are also free of serial correction and heteroscedasticity and were

normally distributed. Also, the CUSUM chart indicated that the model is stable statistically at 5%.

As a result, of the model, the exchange rate (LNEXR), inflation rate (LNINF), (oil price (LNOP)-1), oil production (LNOPR), and unemployment rate (LNUE) return a positive coefficient with the total tax revenue (LNTAXR), which means a unit increase in any of them will bring a corresponding coefficient magnitude increase in the company income tax revenue (LNCIT). Only the education expenditure (LNEDU), GDP growth rate (LNGDPR), (oil production (LNOPR) -2), company income tax revenue (LNCIT) and production capacity (LNPOC) return a negative coefficient in relationship with the company income tax revenue (LNCIT). It was also observed that LNGDPR(-1), LNGDPR(-2), LNOP(-1) and LNOP(-2) are observed to have a significant and positive impact on the company income tax revenue (LNCIT) at a 5% level, thus the relationship is not generalize. Furthermore, all other variables have no great impact on the corporation's income tax collection (LNCIT).

The model, therefore, has a substantial impact on economic growth indicators and company income tax (LNCIT) revenue in Nigeria since the ADRL model returns an F-statistic of 3.614164 with a p-value of 0.001096 (less than the threshold of 0.05) (5% significance level) As a result, the null hypothesis is rejected and the alternative hypothesis is supported, which states "Economic growth has an effect on company income tax revenue (LNCIT) in Nigeria" in the short-run with about 88.07% and 55.49% adjusting speed back to equilibrium in the long-run. Further, the economic growth indicators were also seen to be explaining/causing the company income tax revenue to the tune of 72.80% as reported by the model R-square and after correcting for the over-proliferation of regressor in the model the R-square adjusted returned just 52.66% variation caused by the economic growth variables on the company income tax revenue (LNCIT) in Nigeria.

Serial Correlation Test

Table 4.6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.557180	Prob. F(2,25)	0.5798
Obs*R-squared	2.048270	Prob. Chi-Square(2)	0.3591

Source: EViews 12 Output

Since the p-value associated with the Observed R-squared is higher than 0.05 (5%), indicating that doesn't have any serial correlation in the model.

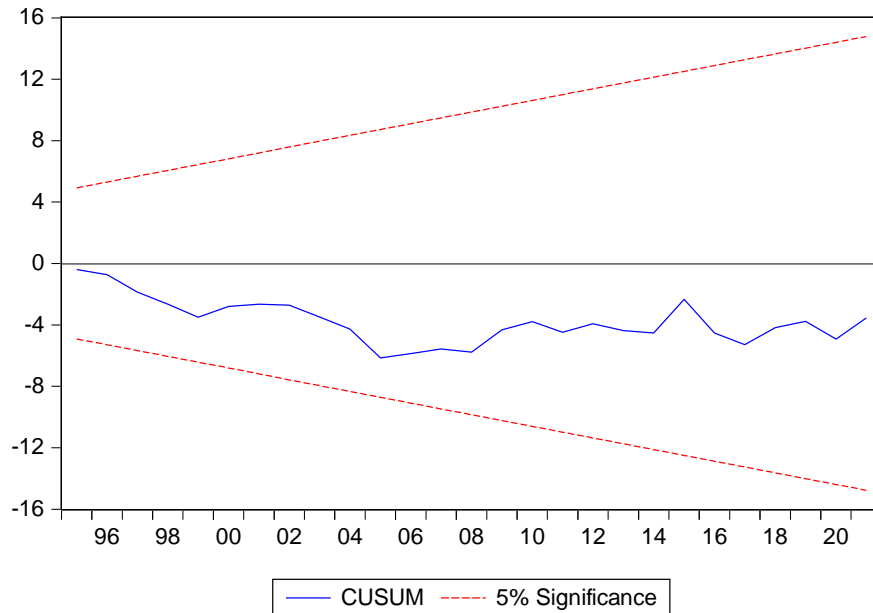


Figure 4.2: CUSUM Graph for Model

Source: EViews 12 Output

The report of the CUSUM chart indicated that the model was statistically stable at a 5% height of

significant. Therefore, no effect of hierarchical breaks is present in the mode.

Heteroscedasticity Test

Table 4.7: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.230612	Prob. F(20,27)	0.9994
Obs*R-squared	7.003232	Prob. Chi-Square(20)	0.9967
Scaled explained SS	2.939823	Prob. Chi-Square(20)	1.0000

Source: EViews 12 output

The model is also free of heteroscedasticity of the Observed R-square is observed to be greater than significance of 0.05 (5%).

Residual Normality Test

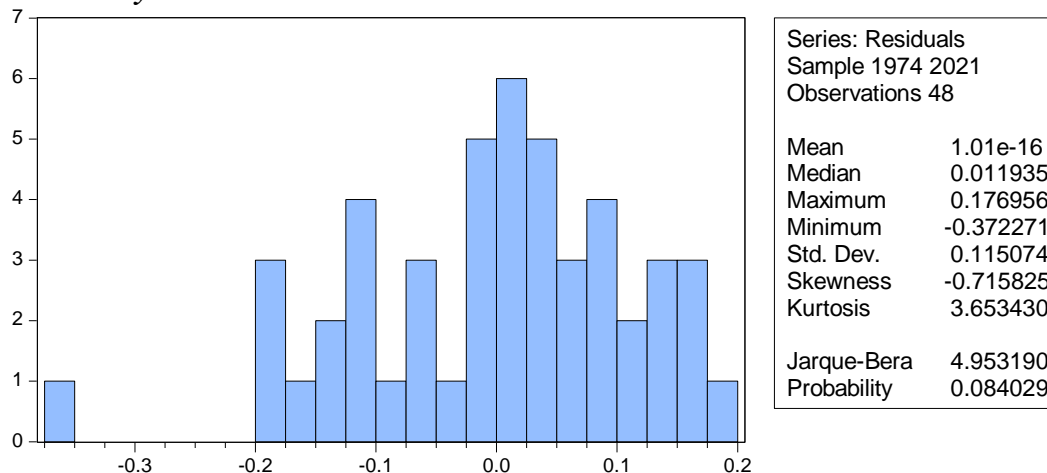


Figure 4.3: Histogram of Model; Source EViews 12 Output

As observed from the Jarque-Bera test with a test statistic of 4.953190 and 0.084029 p-value, which above the 0.05 (5%) criterion of significance implies that the residual of the model is normally distributed as expected and required for any ordinary least squares which is one of its fundamental assumptions.

4 Conclusion

This subsection discusses the findings of this dissertation concerning what is obtainable in the current available literature. The result for hypothesis one indicated that economic growth, which comprises of (the exchange rate, gross domestic product growth rate, education expenditure, inflation rate, oil price, oil production capacity, and unemployment rate) has mostly reported a positive coefficient value. This indicates that economic growth indicators in Nigeria significantly increased the company income tax (CIT) during the period under review. The result is robust given that the economic growth indicators have a substantial impact on Nigeria's corporate income tax throughout the time under consideration, from 1970 to 2021.

The findings corroborate the studies of ([30]; [31]; [32]; [33]; [34]and [35] paper who investigated the determinants of tax revenue performance in all 15 Southern African Development Community countries during 1990-2010, using panel data. The findings typically demonstrate the crucial importance of taxation factors (tax rates and tax

policy harmonization) with other major economic growth indicators.

The findings of hypothesis one further supports the results of [36] who investigated the link between tax revenue and economic growth in Nigeria from 1981 to 2019, with a focus on corporate income tax and value, added tax. Tax, and Petroleum Profits Tax. The impulse response functions and the variance decomposition analysis uphold the findings that the impact of the shock in the indirect tax (VAT) and direct tax (CIT and PPT) on GDP growth do not decrease over the specified period under consideration. Variance decomposition analysis found that the effect of the shock to the direct tax (CIT and PPT) on GDP growth tends to be low, whereas the effect of the shock to the indirect tax (VAT) on GDP growth tends to be significant to increase over the period.

Summarily, the study concludes that the economic growth variables (Gross Domestic Product growth rate (GDP) Total Education expenditure by the government (EDU), Inflation Rate (INF), Exchange Rate (ExR), Production Capacity (PoC), Oil Price (OP), Oil Production (OPR) and Unemployment rate (UE)) combined have an impact on the company income tax revenue of Nigeria, although education expenditure, exchange rate, oil production and the unemployment rate have not contributed positively to the country's company income tax revenue for the period of study.

In conclusion, large income collection is required to limit the borrowing of development funds, resulting

in an increase in the country's debt burden that may hamper the accomplishment of Nigerian government's Vision 2030. However, to increase the performance of tax revenue, unemployment and inflation rates must be reduced. Similarly, better policies have to be put in place by the Nigeria tax revenue authority (Federal Inland Revenue Service) to achieve maximum revenue collection.

4.1 Recommendations

Based on the study's findings, which established a positive relationship between most of the selected economic growth indicators and tax revenue performance, the study recommends that the Nigerian government when considering improving tax revenue performance should encourage more fiscal expansionary policies which include reduced tax rates on corporate profits and increased government spending on the manufacturing sector. This will attract more foreign investors due to reduced profit tax and ease of doing business in the country.

Similarly, the study concluded that GDP, exchange rate, and production capacity strongly and positively affects the performance of tax revenue in Nigeria. Based on the findings, the study recommends that the government should support innovative activities by youths through creation of innovative labs. This would help to create more job opportunities for the youths. Similarly, encourage public private-partnerships between the county governments and private investors.

According to the study findings inflation was found to negatively influence the tax revenue performance in Nigeria, therefore the Central Bank of Nigeria should ensure appropriate fiscal policies are put in place to moderate the fluctuations in exchange rates of the Naira against other foreign currencies. Similarly, the government should put more effort into fighting corruption and political instability.

Also, lending interest rates should be monitored through periodical interest rates capping to prevent rising interest rates that result in increase in cost of production and prices of goods. This would help to reduce inflation rates in Nigeria.

Furthermore, unemployment also had a negative and non-significant impact on tax revenue

performance. This implies that an increase in unemployment rates reduces savings which shrink funds available for investment. Therefore, the government should expand the informal sector by providing incentives and loans at low-interest rates which will help to absorb both unskilled and skilled labor force. This will lead to increased Personal Income taxation because more people would be employed.

The government should increase the state government's shares in the national income (FAAC) annual budget. This is because through the state governance, more jobs opportunities would be created therefore increasing their share of personal income tax.

Finally, a corrupt-free and effective administrative machinery with people who are appropriately taught, well-equipped, and motivated will allow Nigeria to make significant headway in revenue diversification. Tax administration apparatus should have an adequate redress and refund system in place so that disputes can be readily resolved and corruption can be avoided or reduced.

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