Transformation in tax revenue and the economy: The Nigerian experience

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Abstract

In order to prevent market failure in the economy, public policy must supplement, regulate, and, where possible, correct market forces. With regard to this we investigate the impact of tax reforms on Nigerian economic stability. Petroleum profit tax to GDP and non-oil tax to GDP ratios are proxies for tax reform, whereas real GDP symbolizes economic stability. Macrotrends and the Federal Inland Revenue Services provided data between 2011 and 2022, respectively. The data were appropriately processed, checked for stationarity and co-integration, and a Variance Auto Regression was developed for this research. The estimation shows that the petroleum profit to GDP ratio is statistically significant, at the same time having positive relationship with to economic stability. On the other hand, non-oil tax to GDP ratio is not statistically significant; it has a positive coefficient, indicating that it has been connected with economic stability during the study period. This analysis therefore shows that the reform has statistical significance in association with economic stability. Consequently, this study believes that in order to reap significant benefits, the reform must be implemented in an effective and workable manner in order to enhance a sustainable and stable economy. According to the guidelines, the tax authority should be focused and have a solid understanding of the best rate at which tax income can be maximized. Furthermore, efforts should be directed on broadening the tax revenue base while minimizing collection costs and maximizing penalties for evasion.

Keywords: Economic stability, Market failure, Public policy, Tax reforms, Tax revenue

1. Introduction

A nation's economic landscape is largely shaped by fiscal policy and, fundamentally, by tax reforms. Thus, an examination of what connects the reforms in tax to economic stability in Nigeria, so as to look at some important tax reform metrics and the overall stability of the economy. It is observed that the issue of tax reforms vis avis economic stability in countries with complex and diverse economy such as Nigeria, has drawn increasing attention and concern. Nigeria has made numerous attempts to change its tax puzzle over the years in a determination to enhance economic growth, increase income, and guarantee general economic stability (Abiola & Asiweh, 2012, in Abiola 2016.)

In response to altering economic dynamics and fiscal concerns, Nigeria's tax structure has undergone substantial modifications. The nation has historically relied significantly on income from oil exports, rendering it vulnerable to changes in the price of oil throughout the world. As a result, there has been an increase in awareness of the need to diversify revenue streams and establish a reliable and long-lasting tax base. Tax reforms are viewed as essential measures for attaining long-term

economic stability in Nigeria and have been key in resolving this issue (Okonjo-Iweala & Osafo-Kwaako, 2007, in Okonjo 2014).

For a nation to have sustained growth, and development stability of the economy stands as vital requirement. A stable economy attracts both domestic and foreign investments, boosts corporate activity, and increases investor confidence. Additionally, it makes it possible for the government to efficiently plan and carry out social and developmental projects, raising living standards and lowering poverty rates (Afolabi, 2015). Tax revenue maximization is therefore to be backed up by promoting its fair distribution; only in that circumstance can tax reforms be a crucial tool in ensuring economic stability.

Many studies have looked at connections in-between stability in the economy and tax reforms and/or growth of various nations. Herbert et al. (2018), for instance, found that corporate and petroleum taxes had a significant positive relationship, while VAT reform had an insignificant but positive association with economic stability. In another development, Ogbodo and Mehara (2021) analyzed the tax reforms and its effects on, specifically the Petroleum-Profit-Tax (PPT) and Value-Added-Tax (VAT), on Nigeria's domestic revenues. Though, the results indicated absence of any discernible impact from PPT on revenues generated, while VAT, on other hand, did. The Nigerian tax system faces numerous challenges, including multiple taxes, poor administration, lack of database, tax fraud, complex tax laws, minimum tax requirements, accounting date changes, and unpaid tax refunds (Osemeke, Nzekwu, & Okere 2020).

On this note, our study embarks on critical topic of reforms related to tax and their impact on the Nigerian economic stability. Thus, having specific objectives to determining the various tax reforms undertaken in Nigeria over the past decades (to be proxied by ratios of oil and non-oil revenues to (GDP) and their implications

for economic stability (proxied by the real GDP). This study is therefore intended to provide valuable perceptions of the overall influence of tax policies, bringing to bear, the contributions of reform relative to real GDP. Most of the studies reviewed used the value of revenue from tax as a proxy for reform, but in this study, however, thought differently and considered the value addition of tax reform to GDP to be the gap. The following two hypotheses are therefore raised in order to proffer additional knowledge in this area of study;

$H0_1$: *Non-Oil-Tax (NOT) ratio to GDP does not significantly influence economic stability in Nigeria.*

$H0_2$: *Petroleum Profit Tax (PPT) to GDP ratio does not significantly influence Economic stability in Nigeria.*

2. Review of Literature
2.1   Theories of Interest
There are complex relationships among tax reforms and stability of economies, such that the relevance of various theories will vary depending on the situation and setting (Matheson, 2018). One can have a thorough understanding of the subject and contribute to policy discussions by consulting a number of theories. Therefore, there are several pertinent theories and viewpoints that can be used in order to analyze the subject of reforms in tax vis-a - vis the stability of economies. The following are thus some of the main theories considered for this study:

Supply-side economics: The theory is an emphasis on the importance of encouraging production as well as investment by reducing taxes, particularly on businesses and high-income individuals. Advocates argue the need for minimal tax rates in order to stimulate activities in the economy, which can heighten job creation and overall growth. Supply-side economics, which is also referred to as trickle-down economics, focuses on affecting the supply of labor and goods by encouraging people to work and generate goods through tax and welfare

reduction. The theory was documented by Arthur Laffer (1940), which was put into practice in the 1980s by President Ronald Reagan.

Keynesian economics: The theory as put forward by John Maynard Keynes (1930) is of the macroeconomic that hinges on the over-all spending in the economy. It capitalizes on roles played by government in order to stabilize their economies. The theory advocates that when there is an economic downturn, the government should apply fiscal policy instruments, such as taxes and/or higher spending, in order to stimulate total demand that promotes stability in the economy.

Public finance theory: The theory suggests that the government should take decisions on a preferred tax base and tax rate structure to be imposed accordingly. However, the tax codes are filled with additional provisions that seem to reflect uncertainties on the part of tax authorities. It is to be noted that this theory is part of public finance, a branch of economics that deals with government taxation and expenditure. It explores an optimal use tax structured to minimize economic distortions while at the same time maximizing social well-being. It embraces concepts such as equity, efficiency, and revenue generation, enhancing valuable bases for tax reform and its prospective influences.

Laffer curve: This theory suggests an optimal rate in tax that maximizes revenue for government. According to the curve (theory), the higher the rate in tax, the more depressed the activities in the economy which reduces revenues, while lower tax rates can potentially lead to higher economic growth and revenues. This theory is built on a supply-side as was proposed by Arthur Laffer (1974). The theory graphically depicts connections of tax rates to total amount of money governments take in from taxes. This curve commonly demonstrates assertions that tax-cut can considerably enhance total revenue derivable from taxation.

2.2   Empirical Review

In a study by Ogbonna, and Ebimobowei (2012) on the impact of reforms in tax and economic growth in Nigeria, found that reforms in tax were indicated to have a positive and significant relationship with economic growth. It was as well indicated that tax-reforms granger caused economic growth, and concluded that reforms in tax improves the revenue making apparatus of government. The study had a recommendation for a review of rate of taxes, and tax-laws in consonance with the macroeconomic goals of government.

Using secondary data from the Nigerian economy, Saibu and Olatunbosun, (2013) studied macroeconomic policy factors from 1970 to 2011. The empirical research demonstrates that changes in income level, exchange rate, and inflation rate do have a substantial effect on tax-revenue. The income elasticity of taxation explains that, a unit percent increase in income results in a 0.63% immediate rise and a 0.33% long-term gain in tax collection.

Aminu and Eluwa (2014) focused on personal, corporate, and customs duty taxes and analyze its effect on Nigeria's tax reform program on revenue-collection. It was concluded that the goals of the reform policies in tax significantly influenced the Nigeria's tax receipts. The study recommended for implementation of measures that enhances effective tax reform, hiring and training qualified tax staff, and coordinating government industrial and stabilization programs.

Osuala and Jones (2014) analyzed fiscal policy as it affects growth in the Nigerian economy using ordinary-least-squares multivariate-regression. The study found a presence of long-run-equilibrium in fiscal policy and economic growth relationship, and that recurrent and capital expenditures of government significantly influenced growth. Non-oil-taxes and government-

debts on the other hand, had insignificant impact on real-GDP. It recommended for establishment of a robust fiscal system, the implementation of tax reforms, channeling debts to infrastructure, and effective monetary policy.

Abdurahman and Isik (2015) examined Nigeria's economic growth between 1986 and 2012. It was found that tax-reforms had a positive and significant impact on growth. The study concluded that favorable tax-reform enhances government revenue, with the capacity for socially desirable activities culminating in sustainable growth of the economy.

Adudu and Ojonye (2015) considered tax-policy implication on growth and development of the Nigerian economy. The study covered a period between 1990 and 2011, using the Granger causality method of analysis. They found justification for efficient tax reforms as a panacea for enhanced sustainable economic growth and recommended improvements in tax-regimes, tax distortions, and tax holidays for multinational Companies (MNCs). It was also recommended to diversify revenue base as necessity for catalyzing sustained growth and development of the economy.

Akhor, and Ekundayo (2016) looked at indirect tax-revenue, and its implication on growth in the Nigerian economy. Their results revealed that value-added-tax had a negative, but significant impact on real gross-domestic-product. There was also an indication that previous values of Customs and Excise duties had a negative but weak influence on real-gross-domestic-product. The Error Correction showed negative coefficient value and a statistically significant sign. It was recommended for tax administrators to block loopholes that are inimical to tax revenue generation.

Ogbonna, and Appah (2016) assessed a link that exist in-between tax-administration, revenue, and growth of the economy in Nigeria. A significant relationship was found to exist among various tax-revenues (Personal-income-tax, Company-income-

Tax, VAT revenue, and Petroleum-Profit-Tax) and economic indicators (per-capita-income and Gross-Domestic-Product). The paper suggests implementing reforms in tax administration and collection to eliminate potential revenue leakage and loopholes, which could hinder the nation's economic growth.

A study conducted by Onakoya, and Afintinni (2016) investigated tax revenue and Economic-growth in Nigeria. The result indicated existence of long-run, a significant and positive relationship between Petroleum-profit-tax, company-income-tax, but customs and Excise duties have negative influence on growth in the Nigerian economy. The study thus recommended sustainable institutional reforms to get rid of economic leakages.

An investigation into effects of VAT on growth of Nigerian economy was carried out by Oraka and Ezeijofor (2017). The study revealed that while VAT influences GDP negatively, it at the same time influences per capita income positively. More so, VAT and overall revenue generation were positively correlated. They recommended that for productivity growth, fiscal-policies that can increase industry investment, Agriculture, and Technology to be implemented.

Ogundana et al., (2017) examined the role of direct, and indirect taxation in the Nigerian economy. Ordinary-Least-Squares (OLS) was utilized in the regression, which provided results disclosing that direct, and indirect taxes influences growth of the economy in Nigeria positively. Thus, a recommendation for government to actively engineers a stimulus that improves activities of the tax system in Nigeria.

Olufemi, et al. (2018) examined connections existing between tax-income and economic-growth in Nigeria. The Value-Added-Tax (VAT), Petroleum-Profit-Tax (PPT), Company-Income-Tax (CIT), and Custom and Excise Duties (CED) were used to measure tax-income,

with Real-Gross-Domestic-Product (RGDP) served as proxies for economic growth. The study used ARDL (Auto Regressive Distributed Lag) as technique of regression, and discovered that CIT had a significant but negative association with economic growth, while VAT and CED had a strong-positive-relationship.

Yelwa, et al. (2018) investigated Effects of the Value-added-tax on Nigeria's economic growth in the period 1994-2016. The influence of VAT, Customs and Excise Duties (CED) on Gross Domestic Product was examined using ordinary-least-squares (OLS) and Granger causality approaches. According to their results, there was no discernible relationship between VAT, CED, and economic-development in Nigeria.

Using a modified econometric linear model, Herbert et al., (2018) investigated effects of tax-reforms on Nigeria's economic-stability. Their results showed existence of significant and positive relationship in corporate and petroleum-taxes, while VAT reform had an insignificant but positive association with economic stability. It was recommended that targeted initiatives and programs that boost productivity, competitiveness, efficiency, and employment be focused on.

Yahaya (2019) examined Impact of Non-Oil-Tax on growth of economy from 1993 to 2012. The results revealed a positive impact of tax-revenue on economic-growth in Nigeria. It thus recommended intensified efforts to increase non-oil tax collection, particularly from the informal sector, to boost the economy. Strengthening administrative machinery, specialized tax audit and investigation departments, and engaging professionals in public education on tax benefits are also recommended.

Lunina et al., (2020) assessed how tax reforms affected the EU and Ukraine and highlighted the necessity of specialized strategies for developing nations. The study emphasizes the importance of making budget modifications to ensure long-term fiscal sustainability, bringing tax laws into compliance with EU standards, and proposing targeted innovative tax incentives to increase competitiveness and future revenue receipts. The outcomes in Ukraine show how traditional tax policies may impede economic investment and competitiveness due to specific tax consequences and significant levels of corruption.

Ogbodo and Mehara (2021) analyzed Effects of Tax-reforms, specifically, Petroleum-Profit-Tax (PPT) and Value-Added-Tax (VAT), on Nigeria's domestic revenues. Their results revealed that PPT had no discernible influence on revenues of government, whereas VAT did. The study recommended increasing taxation and money generation while also constructing the required infrastructure to support petroleum enterprises.

3. Methodology

The data for this study was generated through the Federal Inland Revenue Services (FIRS) and Macrotrends respectively. The period of coverage was from 2011 to 2022, and data were subsequently transformed on a quarterly basis to give 48 observations. The data were treated using the natural log of their values for standardization and the removal of any likely outliers that might be inherent in these values. Subsequently, a unit-root-test was conducted in ascertaining data levels of stationarity, which were all found stationary at first-difference or order 1.

In instance of data stationarity at the first difference, a test of co-integration is conducted to establish whether or not there is a presence of correlation. More so, in order to help ascertaining existence of long-run relationships amongst these variables of study. According to Hjalmarsson and Osterholm (2007), the application of co-integration tests is due to the fact that unit-root tests may not easily be distinguished between a unit-root and any close alternatives, which invariably presents a

warning about how co-integration study results should be interpreted.

3.1. Model Specification

This study makes use of GDP amidst numerous other variables to proxy economic stability as the dependent variable, while Petroleum-profit-tax, GDP ratio and Non-oil-tax, GDP ratio (NOT/GDP) were used as the independent variables. Thus, expressing the model as:

GDP = ∫(PPT/GDP, NOT/GDP)---------(1)

Where:

GDP represents the Gross Domestic Product

PPT/GDP represents Petroleum-Profit-Tax, GDP ratio

NOT/GDP represents Non-Oil-Tax, GDP ratio

Because the logarithmic transformation of the data, the model for this estimation is written as follow;

$LnGDP = \beta_0 + \beta_1 LnPPT/GDP + \beta_2 LnNOT/GDP + \mu$ ---------------------- (2)

Where:

LnGDP = Log of GDP

β_0 = Constant or intercept of the equation

β_1 and β_2 are representing the Coefficients of independent variables

μ represent the error terms

3.2 Variable Description and A priori Expectation

Table 3.1: Variables Description and A Priori

Variables	Types	Explanation & Measurement	Source	A priori
GDP	Dependent	The total value of goods and services produced in the economy is referred to as the GDP. The higher the GDP growth rate, the more stable the economy is, and it also indicates an expanding economy.	Macrotrends data (2021)	-
PPT/GDP	Independent	This is the annual petroleum-profit-tax, gross domestic product ratios. It expresses a country's total petroleum-profit-tax as a proportion of its GDP. It assesses a tax system's efficiency and efficacy in generating income.	FIRS, (2021)	β_1= **+ve** (**>0**)
NOT/GDP	Independent	This is the proportion of non-oil-tax to gross domestic product ratio in a given year. It expresses a country's total non-oil-tax as a proportion of its GDP. It assesses a tax system's efficiency and efficacy in generating income.	FIRS, (2021)	β_2 = **+ve** (**>0**)

Source: Authors' Design (2023)

Results and Discussion
Table 4.1: Unit-Root Test for Stationarity

Variables	Include in Test Equation	Test stat @ 5%	Tstat. @ 5%	Prob.	Integration order	Remarks
LnGDP	Intercept	-2.938987	-3.617002	0.0098	I-(1)	Stationary
LnPPT	Trend & Intercept	-3.510740	-6.698687	0.00000	I-(1)	Stationary
LnNOT	Trend & Intercept	-3.510740	-6.685293	0.00000	I-(1)	Stationary

Source: Excerpt of E-views Output (2023)

Table 4.1 depicts the test of stationarity for the data and showing that all the data were stationary at order one, I-(1)

Table 4.2: Descriptive Statistics

	LnGDP	LnNOT	LnPPT
-Mean	6.09933	1.739411	1.376013
-Median	6.074261	1.624755	1.446564
-Maximum	6.351562	2.362985	2.01955
-Minimum	5.921776	1.29915	0.412289
-Std. Dev.	0.114276	0.326823	0.45983
-Skewness	0.721432	0.417879	-0.63876
-Kurtosis	2.886568	1.736936	2.603953
Jarque-Bera	4.189446	4.587642	3.577808
Probability	0.123104	0.10088	0.167143
Sum	292.7678	83.49175	66.04861
Sum Sq. Dev.	0.613778	5.020225	9.937845

Source: Excerpt of E-views Output (2023)

The table, 4.2 shows descriptive statistics of the data set for this study. From all indications, looking at the means and median of the data; the standard deviation, skewness, kurtosis, and JB-probability, they all exhibited to be within their normal ranges. Standard deviations for all variables are less than one signifying a low dispersion around the mean. LNGDP and LNNOT showed to be positively-skewed (right skewed) while, LNPPT is negatively-skewed (left skewed). All the variables are shown to have low but positive signs (leptokurtic) or peaked. Their Jarque-Bera values and corresponding probability (above 5%) are signs of normal distribution.

Table 4.3: VAR, Lag-Order-Selection Criteria

Lags	Log-L	L-R	F-P-E	AIC	SC	HQ
0	-25.53504	NA	0.195591	1.206138	1.246688	1.221176
1	10.07742	67.98743*	0.040560*	-0.367155*	-0.286056*	-0.337080*
2	10.13718	0.111365	0.042337	-0.32442	-0.20277	-0.2793
3	10.20274	0.11921	0.044187	-0.28194	-0.11974	-0.22179
4	10.2681	0.115855	0.046127	-0.23946	-0.03671	-0.16427

Source: Excerpt of E-views Output (2023)

Table 4.3 depicts the lag selection, which is a condition for Variance Auto regression model. As indicated in the table, the asterisks (*) appear on row 1 for all the criteria (LR, FPE, AIC, SC & HQ). This is an indication that optimum lag for this model is one.

Table 4.4: Johansen-Co-integration-Test

Unrestricted Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.363628	30.20871	29.79707	0.0448
At most 1	0.202617	11.22589	15.49471	0.1980
At most 2	0.040039	1.716240	3.841466	0.1902

Unrestricted Co-integration Rank Test (Maximum-Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	None	None	None	None
At most 1	At most 1	At most 1	At most 1	At most 1
At most 2	At most 2	At most 2	At most 2	At most 2

Source: Excerpt of E-views Output (2023)

Table, 4.4 displays the unrestricted co-integration rank-test for Trace and Maximum-Eigenvalue. Both tests have shown absence of co-integration at the 0.05 (5%) level of significance. The asterisk (*) on none is denotes a rejection of the presence of co-integration.

Table 4.5: VAR Model Estimation - Dependent Variable: LnGDP

	Coefficients	Std. Errors	t-Statistics	Prob.
LnGDP(-1)	0.926331	0.068631	13.49732	0.0000
LnNOT(-1)	0.002811	0.024721	0.113705	0.9100
LnPPT(-1)	0.034094	0.016466	2.070569	0.0444
C	0.398951	0.441809	0.902995	0.3716
R-Squared	0.826897			
Adj. R-Squared	0.81482			
F-statistics	68.46879	**Durbin-Watson-Stats**		2.197574
Prob. (F-Statistics)	0.000000			

Source: Excerpt of E-views Output (2023)

Estimation of VAR is shown in Table, 4.5. The R-Square, which is coefficient determining relationships in the model, and its equivalent modified R-Square are 0.8269 (83%), and 0.81480 (81%), respectively, reflecting the model's goodness of fit. In other words, it explains how the explanatory variables – NOT and P—P-T, drive the variation in GDP. In other words, task reform influences 81% of the variation in economic stability. This model's F-test result and probability are 68.46879 and 0.000000, respectively, indicating model's overall statistical significance. The Durbin-Watson-statistics, which is a measure of serial correlation, is 2.19, indicating that there is no autocorrelation among the residuals of the selected variables.4.1

Hypothesis Testing

The GDP: Its lag as one of the independent variables is found to have a statistically significant value (0.0000), and a positive coefficient of 0.9263, indicating the current level of the dependent variable as positively and significantly determined by its past level. That is, the volatility in the present value of economic stability is substantially determined by prior GDP values.

Ratio of Non-Oil-Tax (NOT) to GDP: This has a non-significant probability of 0.9100 with positive but weak coefficients (0.0028). It indicates that the reforms in the non-oil revenue tax have not had the desired influence on the economic stability of the country within this research period. This study fails in rejecting the null hypothesis which states; there is no significant relationship existing between NOT, GDP ratio and economic stability. This could be attributable to a variety of factors, the most notable of which being the ineffective implementation of the tax reform and its concomitant loopholes (leakages). In their investigations, Oraka and Ezeijofor (2017) and Herbert et al (2018) discovered a negative impact of VAT on GDP, which corresponds to the low coefficient value in this result. This conclusion, however, contradicts the findings of Ogbodo and Mehara (2021) and others, who discovered that VAT has a discernible influence on Gross-domestic-Product. However, in contrast to the ratio of tax income to GDP used in this analysis, their study used VAT revenue directly. Yelwa, Awe, and Mohammed (2018) discovered no link between VAT, Customs, and Excise Duties (CED), and economic progress.

Petroleum-Profit-Tax (PPT) to Gross-Domestic-Product (GDP) Ratio: The PPT is discovered statistically significant, with 0.0444 probability value and positive coefficients of 0.0341. It indicates that, during the study period, PPT/GDP had a favorable but limited influence on Nigerian economic stability. As a result, this analysis rejects null hypothesis which states; there is no significant relationship between Petroleum-Profit-Tax (PPT) ratio to GDP and economic stability. This may also be ascribed to poor execution of the PPT reform, which resulted in widespread corruption in the petroleum industry. Similarly, Herbert et al. (2018) discovered that petroleum-profit-tax had positive link with stability in Nigerian economy. This study as well corroborates Ogbonna and Appah (2016) that found significant relations existing between PPT and economic-growth.

4.2 Diagnostic Tests
Table 4.6: Variance-Inflation-Factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C(1)	0.004710	3365.479	1.180534
C(2)	0.000611	36.11171	1.154050
C(3)	0.000271	10.92797	1.099690
C(4)	0.195195	3747.335	NA

Source: Excerpt of E

Table 4.6 displays the coefficient diagnostic for variance inflation test, showing a low centred VIF of less than 2, signifying absence of multi-collinearity among the variables

Table 4.7: Breusch-Godfrey Serial-Correlation LM-Test

F-statistics	0.557708	Prob. F(1,42)	0.4593
Obs*R-Squared	0.615924	Prob. Chi-Square(1)	0.4326

Source: Excerpt of E-views

Table, 4.7 displays results of residuals serial correlation test, with F-statistics and Chi-square probabilities larger than 5%. This demonstrates absence of serial correlation among the residuals.

Table 4.8: Test of Heteroskedasticity: (Breusch-Pagan-Godfrey)

F-statistics	2.036527	Prob. F(3,43)	0.1229
Obs*R-Squared	5.847134	Prob. Chi-Square(3)	0.1193
Scaled-explained SS	12.43400	Prob. Chi-Square(3)	0.0060

Source: Excerpt of E-views Output (2023)

Residual test of heteroskedasticity is shown in Table 4.8. Both the Fstatistics and Chi-square probabilities are more than 5%, showing the absence of heteroskedasticity among the residuals. The residuals of these variables are hence homoscedastic.
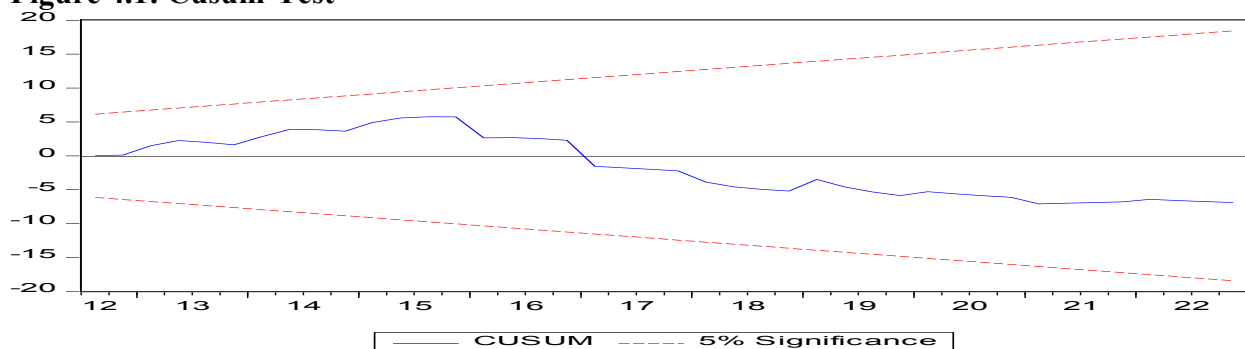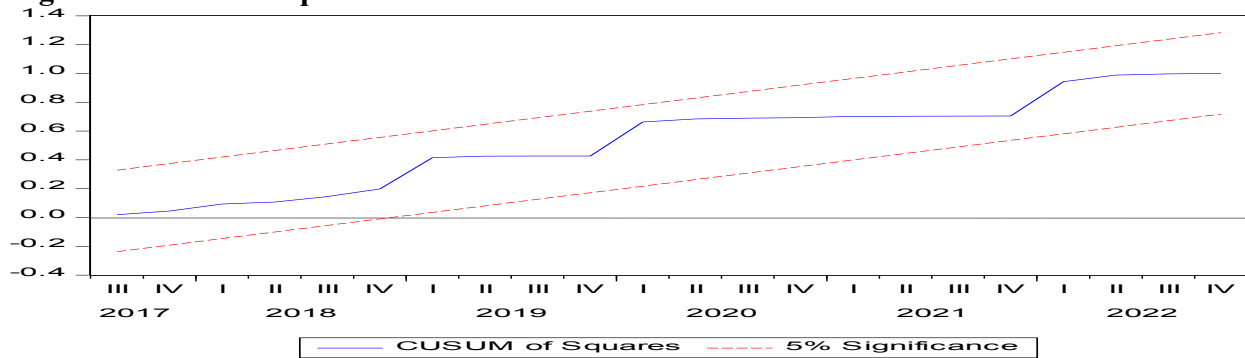
Figure 4.1: Cusum-Test

Figure 4.2: Cusum Square-Test

Figures 4.9 and 4.10 show the stability diagnostic tests, having their lines lied between the lower and upper bounds of the 5% boundary, signifying absence of structural breaks.

Table 4.9: Pairwise-Granger Causality-Test

Null Hypothesis:	Obs	F-Statistic	Prob.
LnNOT does not Granger Cause LnGDP	47	0.11793	0.7329
LnGDP does not Granger Cause LnNOT		1.57387	0.2163
LnPPT does not Granger Cause LnGDP	47	4.50206	0.0395
LnGDP does not Granger Cause LnPPT		8.71912	0.0050
LnPPT does not Granger Cause LnNOT	47	3.44940	0.0700
LnNOT does not Granger Cause LnPPT		0.37663	0.5426

Source: Excerpt of E-views Output (2023)

Table 4.9 displays causal relationship between the response and the explanatory variables. LnPPT and LnGDP have probability values less than 5%, signifying they granger cause each other. In other words, they operate dependently and so they support and promote each other in the economy. LnNOT and LnGDP on the other hand do not granger cause or are independent of each other as their probabilities are greater than 5%. Similarly, LnPPT and LnNOT appear to be independent of each other with probability greater than 5%.

5. Conclusion and Recommendations

This study explores the connection between tax reforms and the stability of the Nigerian economy. Real GDP is considered a good proxy for economic stability, with the idea being that the higher the value, the more stable the economy is. On the other hand, the division of revenue between oil and non-oil taxes serves as a stand-in for tax reform. Therefore, their percentage of the whole GDP was determined. As a result, a model was created that considers real GDP as a function of petroleum profit tax and non-oil tax. In addition to descriptive statistics, stationarity, and co-integration tests were run. The first difference (order one), where all of the data were discovered to be stationary, gave rise to the VAR estimation model. The model was determined to be fit with a coefficient of determination of 0.83 and to be statistically significant with F-statistics and probability values of 68 and 0.000000, respectively. Durbin-Watson coefficient was 2.19, indicating that residuals are devoid of autocorrelation. The estimation results show that the petroleum-profit-tax ratio to

GDP is statistically significant and connected with economic stability, whereas the non-oil tax ratio to GDP is not statistically significant but has a positive coefficient. This study shows tax-reform to have a statistically significant association with economic stability, but in order to gain significantly; the change must be implemented well and sustainably. According to the guidelines, the tax authority should be focused and have a solid understanding of the best rate at which tax income can be maximized. Efforts should be directed on broadening the tax base while minimizing collection costs and maximizing penalties for evasion.

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