Adegbite, Tajudeen Adejare

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An Investigation on the Influence of Taxation on Economic Growth in Nigeria

Tajudeen Adejare Adegbite

Department of Accounting, AL-Hikmah University, Ilorin, Kwara State. E-mail: adetajud@yahoo.com

Abstract

This study examined taxation effects on economic growth in Nigeria. It also verified the causal direction amid economic growth and taxation engaging Johansen co-integration and the Granger causality tests method to analyse data collected from CBN statistical bulletin from 1970 to 2018. Results divulged that petroleum profit tax (PPTAX), company income tax (CORPT), and Value added tax (VATAX) have positive significant influence on GDP but Custom and Excise duties (CUSEXCD), has short run and long run positive insignificant influence on GDP. Taxation had causal nexus with GDP in Nigeria because VATAX, CUSEXCD, CORPT and PPTAX, jointly triggered GDP. Conclusively, taxation had short run and long run positive significant influence on economic growth in Nigeria. Also, bi-causality nexus existed amid Taxation and economic growth which translated that the existence of taxation income ignited economic growth in Nigeria, and economic growth also triggered taxation. It is postulated that government should lay much emphasis on the judicious utilization of cash inflow of taxation efficiently on economic growth so as to buttress the essence of fulfilling the civil responsibility by the taxpayers.

Keywords

PPTAX, CORPT, VATAX, GDP, CUSEXCD

JEL Codes: H24; H25, O40

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1. Introduction

The government of any nation is active in terms of promises fulfillment when the tastes and fashions of the populace are met. These promises called for the economic benefits to non- circumvent responsibilities of the government through effective income realizable machineries. One of such machineries is taxation which avail the government to implement their political and economic plans. This tax if properly monitored and projected, it avails cash inflow for the government which has been previously discarded through proceeds of oil price in the world market.

Taxation, according to Adegbite (2019), is pointed as the system in which part of the proceeds of private and individuals sectors are being forcefully collected by the government for the enhancement of the economy in terms of employment generations, effective resources allocation, infant industries protections, infrastructural and essential services provisions, inflation control, insecurity eradication, and achievement of other numerous responsibilities. The achievement of government dispositions on the economy depend on available funds and channels of funds. Availability of funds and effective utilization of these funds are equal to the economic growth of such country.

Economic growth is feasibly achieved when cash inflow generating from taxation are effectively and productively utilized to breed employment generation, insecurity eradication, infant protections, stability of economy, and achievement of price stability in the country. Since satisfactory capacity of government takings is crucial for economic growth, the proportion of tax revenue to GDP has been garnered frequently to examine the achievement of a country's fiscal management. Despite this taxation cash inflow, Nigeria economy still experience insecurity, galloping inflation, infrastructural facilities depreciation, essential services eradication, unemployment, and price instability.

The realizable benefits from the government by the populace are diminishing because of non-effective utilization of the cash inflow from taxation. It was in lieu of the forgoing that this study observed the taxation effect on economic growth in Nigeria. The following hypotheses stated were verified in lieu of above stated objective.

Ho1: Taxation has no momentous influence on economic growth.

Ho2: Taxation has no long run nexus with economic growth.

Ho3: There is no causal links between economic growth and taxation.

2. Literature review

2.1. Economic growth and taxation

According to Dwivedi (2004) economic growth is translated as a continued increase in national output and product over an extended era of time. It predicates that the proportion of upsurge in total production must be larger than the proportion of population growth. To quantify economic growth, the proportion of variation in real GDP from one year to another year must be examined and compared. GDP is the monetary value of services and goods created during an era of time regardless of the nationality in a country. It is habitually calculated without creating any stipend for capital consumption. In addition, GDP by expenditure is based on the summation of final expenditure at procurements' prices. Taxation has been perceived as the channel of subscribing to economic growth by the individuals and private organization. The role of taxation has been viewed in the following perspectives:

i Tax system is created to raise cash inflow for the government to actualize its public responsibilities.

ii To minimize inequalities through redistribution of wealth and income. This translated that higher income earners pay higher tax and vice versa through progressive tax.

iii To discourage certain undesirable goods such as tobacco, liquor and betting.

iv To ensure effective allocation and distribution of resources.

v To encourage and enhance infant private investment through tax grant and incentives.

vi To control the volume of inflation and deflation. Government employs tax to control the volume of money. Taxation can be engaged to reduce cyclical fluctuations of the economy.

vii To steady national revenue by engaging taxation as a demand management device.

2.1.1. Petroleum Profit Tax

This is tax collected by government on the excess of the proceeds of the petroleum and the cost incurred on the petroleum by the corporation involved and engaged in upstream operation. This tax has lager proportion on the income realized from taxation for successful implementation of government predetermined objectives for the nation (Adegbite, 2019). The rate of this types of tax is 85% for the company operating as joint venture. Also, 50% rate is forcefully collected from the income realized by Production Sharing Contract (PSC).

2.1.2. Company Income Tax

This is the tax forcefully realized from the assessable income of corporate organization. The tax rate is 30% which must be forcefully deducted from the fractional part of revenue accrued in corporate organization. Corporate organizations sometime do legally avoid this tax through capital allowance, initial allowance and investment allowance. This tax is pertinent and germane to the actualization and fulfillment of promises made to the populace because is the pertinent ways by which corporate organizations support the government.

2.1.3. Value Added Tax

This tax is consumption tax forcefully collected from goods services bought by the final consumer. This tax is previously 5% on the goods and services before it was increase to 7.5% in 2019. The burden of this tax falls on the final consumer. It is charged on good like electronic, imported goods and services, bank transactions, just to mention few. VATAX is established to replace Sales tax by 103 of 1993 decree which effectively took effect in 1994. It is charged from the production stages to the final consumer.

2.1.4. Custom And Excise Duties

This tax is forcefully charged on the import and export goods and services which employed by the government to enhance revenue generated. There is no clear rate charged on these types of tax. Excise duties are the tax forcefully charged on the specific production and consumption of goods and services within the state. These charges are also ignited to discourage consumption of certain goods and services, and to elongate government revenue capability. In 2019, excise duties on tobacco and liquor were increased from 10% to 20% by Nigeria government.

2.2. Theoretical underpinning

2.2.1. The socio-political theory

According to Adolph Wagner political and social factors should be a yardstick in selecting factors to choose taxes. He did not support individualist approach as a yardstick in taxes chosen. Each problem economic should absolutely be observed based on social and political context. Individuals are the subset of society, therefore they had an entity and existence of their own which desired preservation and caring from the government in terms of promise fulfillments. Tax system must not be solely designed to serve subset in the community alone, but also must be employed to treat the problem in a society. Wagner advocated approach of modern welfare in developing and accepting a tax procedure and policy. He supported employing taxation to reduce income disparities. He insisted that inheritance and private property were the outcome of state guidelines and not because of gift of nature. The State only had the veracious right to superintend the property ownership and inheritance with the society interests in mind. This theory was harnessed by this study because of its buttress in employing tax policy to upsurge economic growth, stabilization, development, employment generation, and investment in the republic.

2.3. Empirical Review of Related Study

Abiola and asiweh (2012) looked at the capacity of administration of Tax in reducing tax evasion to upsurge revenue for development desired of populace. The study administered 121 questionnaires employing descriptive statistics to analyse respondents' opinions. The study predicted that tax income increment is subjected to effective enforcement stratagem which is the absolute and germane duties of tax authority. Atah (2013) studied taxation influence on inflation and unemployment from 1970 to 2008. Data garnered were analysed engaging OLS method. The outcome of analysis showed that the inflation and unemployment had no significant nexus on tax policy. Taxes had a negative influence on inflation rate. However, the study was on taxation influence on inflation and unemployment which is limited to 2008 but the findings cannot extend to Economic growth.

Chigbu & Njoku (2015) inspected the taxation impact on Nigerian economy from 1994 to 2012. The data garnered from the CBN and FIRS bulletins were subjected to ADF Unit Root, and cointegration test. Findings demonstrated that taxation is significantly contributed economic growth. The study endorsed total reorganization of taxation system, and suppliying of rudimentary amenities to encourage corporate organizations and individuals to fulfill tax obligations in Nigeria. This study was on taxation and economic growth but limited to 2012, nevertheless, its empirical outcomes cannot be materialized to 2018. Onakoya & Afintinni (2016) inspected the cointegration nexus amid tax income and Economic growth from 1980 to 2013 in Nigeria. ADF, VECM, Engle-Granger and Cointegration test were actively engaged. Findings indicated that a long run nexus existed between economic growth and taxation in Nigeria. However, this study was limited to 2013 but not elongated to 2018.

Osman & Yamak (2018) determined the tax rates influence on Turkey economic growth rate from 1980-2015. ARDL model Bounds test approach was employed. Findings brought out that U-shaped curve nexus existed amid longrun economic growth and average tax rate in Turkey. The approach materialized in this study was ARDL model which is extremely difference from Co-integration analysis; therefore the result cannot be given elongated perception. Owino (2018) established the relationship between indirect and direct tax on Kenya economic growth from 1973 to 2010. Regression examination, Cointegration and Error correction modeling test were engaged. It was concluded that a negative connection emerged between economic growth and direct tax, and a positive connection emerged amid indirect tax and economic growth. Causal links ignited from tax income to Kenya economic growth. It was suggested that government should depend on indirect tax extensively than direct tax because of the fewer distortionary nature and growth prospect of indirect tax. Notwithstanding, this study is restricted to 2010 and was carried out in Kenya, the results cannot be given wider perspective.

Egbunike *et al.* (2018) examined the tax income effect on Ghana and Nigeria economic growth. The results of Multiple regressions tool divulged a positive and significant influence of tax income on Nigeria and Ghana GDP. The study suggested that adequate measure should be taken in ensuring that tax revenue generated are utilized effectively to upsurge economy of both nation. Anyway, the study was conducted on both Nigeria and Ghana, thus the outcomes cannot be streamlined to only Nigeria. Adegbite & Fasina (2019) observed taxation effects on revenue generation in Nigeria. Causality and Johansen co-integration tests were utilized to analyse secondary data sourced from CBN from 1970 to 2017. Results divulged that taxation had short run and long run positive and significant influence on income realized by government. The study endorsed that the monitoring authorities saddled with the obligation and accountability of collecting tax should be reinforced and empowered further by government to impose compliance on taxpayers, and bring tax evasion and avoidance into tax net so as to make more income for the government to implement its fiscal responsibilities.

Nevertheless, this study was on revenue generation not on Economic growth. Therefore the results are confined to revenue generation but not extended to economic growth. Ngwoke (2019) gauged the taxation effect from 2007 to 2017 on Nigeria economic growth. The data acquired from CBN Bulletins for the relevant years. The hypotheses were tested engaging unit root test and regression analysis statistical tool. The study finalized that taxation had positive significant influence on GDP. The study further recommended that given the dwindling fortunes of revenue from petroleum related sources, the government should embark on the strategic pursuit of broadening the economy to enhance economic development and growth, and be meticulous in the fight against corruption in Nigeria as it is one of the factors that led to diversion of public fund especially from petroleum profit tax to other sectors. However, this study limited its scope to 2007 and 2017; these results cannot be generalized to 2018.

Majority of the studies reviewed were carried out in Nigeria with dissimilar scope, concepts and methodology. This study is extremely distinct and inimitable because of different scope, methodology and concepts garnered to gauge taxation effect on economic growth in Nigeria.

3. Methodology of research

Data acquired from FIRS and CBN Bulletins from 1970 - 2018 were analyzed employing Regression, Granger causality, Units root, Johansen co-integration, and VECM tests to gauge the long run nexus and causal links amid the variables.

3.1. Model Specification

Economic growth (proxied Gross Domestic products (GDP)) is the reliant and dependent variable while explanatory and clarifying variables are, petroleum profit tax (PPTAX), company income tax (CORPT), Custom and Excise duties (CUSEXCD), and Value added tax (VATAX). This can be explicitly stated as;

$$GDP = f(PPTAX, VATAX, CORPT, CUSEXCD, \mu) \quad (1)$$

$$\sum_{i=1}^{n} GDP = a0 + \sum_{i=1}^{n} a1PPTAX + \sum_{i=1}^{n} a2VATAX + \sum_{i=1}^{n} a3CORPT + \sum_{i=1}^{n} a4CUSEXCD + \mu 1 \quad (2)$$

Equ (2) was transformed using natural logarithm, thus changed to

$$\sum_{i=1}^{n} LOGGDP = a0 + \sum_{i=1}^{n} a1LOGPPTAX + \sum_{i=1}^{n} a2LOGVATAX + \sum_{i=1}^{n} a3LOGCORPT + \sum_{i=1}^{n} a4LOGCUSEXCD + \mu 3 \quad (3)$$

4. Results and Discussions

Table 1. The Effect of Taxation on Economic Growth in Nigeria

Dependent variable	Independent variables	Coefficient	Standard error	t	P>/t/	(95% conf. Interval)
LOGGDP	LOGPPTAX	1.186434	.1362681	8.71	**0.000**	-9.733067 22.25484
	LOGVATAX	.9656151	.3251229	2.97	0.018	.1917787 1.739452
	LOGCORPT	.0669927	.0208051	3.22	0.024	-.3031029 .1691175
	LOGCUSEXCD	-.3923626	.4302272	-0.91	0.376	-1.30937 .5246449
	CONSTANT	7.675327	1.576564	4.87	0.000	4.31496 11.03569
R-squared = 0.6582	Adj R-squared = 0.6231	Prob> F = 0.0000	Root MSE = 3.9e+07	F(4, 39) = 50.74		

Source: Author's computation (2020)

Table 1 shows the effect of taxation on economic growth in Nigeria. A percent upsurge in PPTAX enhances economic growth (GDP) by 1.18%. This advocates that PPTAX has positive and significant influence on GDP (β=.1864346, t = 4.99, P>|t| =0.000). A percent upsurge in VATAX enhances GDP by 0.9 %. This translates that VATAX influenced GDP significantly and positively (β=.9656151, t = 2.97, P>|t| =0.018). That is VATAX ignited GDP increment. More so, a percent increment in CORPT triggers GDP by 0.6% (β=.0669927, t = 2.92, P>|t| =0.024). This advocates a positive and significant influence of CORPT on GDP. In contrary, A percent increment in CUSEXCD decreases GDP by 0.39%. This divulges a negative insignificant influence of CUSEXCD on GDP (β=-.3923626, t = -0.91, P>|t| =0.376).

Coefficient of determination (R^2) is 0.6582 (66%) supported by adjusted R^2 as 62%, it displays that the explanatory variables observed explain taxation influence variation on economic growth to 66%, the residual 34% is error terms. The

confirmation of Prob> F = 0.0000 less that 0.005 divulged that alternative hypothesis is endorsed. Therefore, taxation effect is momentous on economic growth in Nigeria.

Table 2. Test of Unit Root

Variables	ADF stat	1% critical value	5% critical value	10% critical value	Order of integration	Remark
GDP	3.773	-3.522	-2.853	-2.545	I(0)	Stationary
PPTAX	3.762 ***	-3.522	-2.853	-2.545	I(0)	Stationary
VATAX	4.643***	-3.522	-2.853	-2.545	I(0)	Stationary
CORPT	3.867***	-3.522	-2.853	-2.545	I(0)	Stationary
CUSEXCD	3.641	-3.522	-2.853	-2.545	I(0)	Stationary

Stationary at 1% (*). 5% (**) and 10% (***).

Source: Author's compilation (2019)

Table 2 divulges the results of unit root test. All the sampled variables are absolutely stationary at its level difference which advocated that they are cointegrated. Hence, equilibrium or long run nexus existed among the variables.

Table 3. Analysis of Selection-Order Criteria (SOC)

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-2998.56				1.1e+59	150.178	150.255	150.389
1	-2733.64	529.85	25	0.000	7.1e+53	138.182	106.6617	139.449
2	-2611.76	243.76	25	0.000	6.0e+51	133.338	105.7167	135.66
3	-2397.99	427.53	25	0.000	5.6e+47	123.9	125.121	127.277
4	-2044.41	707.17*	25	0.000	5.8e+40*	107.47*	109.073*	111.904*

Endogenous: GDP, PPTAX, VATAX, CORPT, CUSEXCD; Exogenous: _CONS.

Source: Author's compilation (2020)

From Table 3, Lags 4 were unanimously supported by Hannan–Quinn information criterion (HQIC), Schwarz Bayesian information criterion (SBIC), and sequential likelihood-ratio (LR) as showed by "*" in the output. This predicated that the approved and supported Lags to employ on the nexus amid GDP, PPTAX, VATAX, CORPT, CUSEXCD is Lags 4.

Table 4. Output of Vector Autoregression

Equation	Parms	RMSE	R-sq	chi2	P>chi2
GDP	21	82626.9	1.0000	5.38e+07	0.0000
PPTAX	21	10611.1	1.0000	1260970	0.0000
VATAX	21	25415.6	0.9999	357445.5	0.0000
CORPT	21	34808.7	0.9998	263618.3	0.0000
CUSEXCD	21	18551.5	0.9999	296675.2	0.0000
Log likelihood = -2044.41	Det(Sigma_ml) = 1.70e+38	FPE = 5.81e+40	AIC = 107.4704	HQIC = 109.0734	SBIC = 111.9037

Source: Author's computation (2020)

In order to endorse the result generated by Selection-order test in selecting suitable Lag, Vector Autoregression (VAR) was also tested. Lags four was likewise selected for this model because HQIC, SBIC and LR test also supported four lags in Table 4. This predicated that the approved Lags supported by VAR to employ on the nexus amid GDP, PPTAX, VATAX, CORPT, CUSEXCD is Lags 4. This translated that VAR and SOC harmoniously supported Lags 4.

Table 5. Co-integration Test

Rank	Eigen Value	Parm	LL	Trace statistic	5% critical value	1% critical	Eigen Value
0	-	30	-2867.8318	260.5845	68.52	76.07	-
1	0.94903	39	-2805.3234	135.5678	47.21	54.46	0.94903
2	0.87371	46	-2761.8716	48.6641	29.68	35.65	0.87371
3	0.48638	51	-2747.8798	20.6806	15.41	20.04	0.48638
4	0.35610	54	-2738.6353	2.1914*1*5	3.76	6.65	0.35610
5	0.05084	55	-2737.5395				0.05084

Source: Author's computation (2019)

Table 5 exhibited the appropriateness of null hypothesis and confirmation of postulation that there is four or fewer cointegrating vectors amid the variables, because the trace statistic at r = 4 of 2.1914*1*5 is below 5% and 1% critical value 3.76 and 6.65 respectively, henceforth, four or fewer cointegrating equation appeared among the variables examined.

*Table 6.*V ector Error-Correction Model

Equation	Parms	RMSE	R sq	chi2	P>chi2
D_ GDP	7	1.2e+06	0.9997	109244.5	0.0000
D_ PPTAX	7	271953	0.7665	114.879	0.0000
D_ VATAX	7	520405	0.7786	123.0692	0.0000
D_ CORPT	7	569297	0.8187	158.0695	
D_ CUSEXCD	7	355613	0.7684	116.0937	0.0000
Log likelihood = -2805.323	Det(Sigma_ml) = 7.14e+51	AIC = 135.444	HQIC = 136.0354	SBIC = 137.0575	

Variable	Coefficient	Std Error	Z	P>|z|	[95% Conf. Interval]
D_ GDP					
_ce1					
L1.	-.-.0488639	.0690395	-0.71	0.479	-.1841789 .0864511
GDP					
LD.	-..271178	.2070748	1.31	0.190	-.1346812 .6770372
PPTAX					
LD.	-2.584195	.5032131	-5.14	0.000	-3.570475 -1.597916
VATAX					
LD.	44.46469	7.347422	6.05	0.000	30.064 58.86537
CIT					
LD	-1.434563	1.29325	-1.11	0.267	-3.969288 1.100162
CUSEXCD					
LD	22.29489	10.18075	2.19	0.029	2.340977 42.24879
CONS	136250.9	210860.6	0.65	0.518	-277028.4 549530.1
D_ PPTAX					
_ce1					
L1.	-.0104075	.0161783	-0.64	0.520	-.0421164 .0213013
GDP					
LD.	.3371053	.0485245	6.95	0.000	.241999 .4322116
PPTAX					
LD.	-.922178	.1179196	-7.82	0.000	-1.153296 -.6910598
VATAX					
LD.	-10.01118	1.721746	-5.81	0.000	-13.38574 -6.636616
CIT				0.000	
LD	-.6197297	.3030518	-2.04		-1.2137 -.0257592
CUSEXCD				0.000	
LD	15.5969	6.54	2.38569		10.92103 20.27277
- CONS	-95629.35	49411.68	-1.94	0.053	-192474.5 1215.758
D_ VATAX	.1798569	.0309585	5.81	0.000	.1191794 .2405344
_ce1					
L1.					
GDP	-.2702725	.0928558	-2.91	0.004	-.4522665 -.0882785
LD.					
PPTAX	.8294471	.2256491	3.68	0.000	.387183 1.271711
LD.					
VATAX	-7.76222	3.294705	-2.36	0.018	-14.21972 -1.304716
LD.					
CIT	.2221557	.579915	0.38	0.702	-.9144568 1.358768
LD					
CUSEXCD	21.47283	4.565218	4.70	0.000	12.52517 30.4205
LD					
- CONS	2704.586	94553.4	6.03	0.000	-182616.7 188025.8
D_ CIT	.2335564	.033867	6.90	0.000	.1671782 .2999345
_ce1					
L1.					

GDP LD.	-.3927732	.1015795	-3.87	0.000	-.5918655 -.193681
PPTAX LD.	1.097769	.2468488	4.45	0.000	.6139544 1.581584
VATAX LD.	-8.363873	-2.32	3.604242	0.020	-15.42806 -1.299688
CIT LD	.1977062	.6343979	0.31	0.755	-1.045691 1.441103
CUSEXCD LD	25.42766	4.994119	5.09	0.000	15.63937 35.21596
- CONS	22289.55	103436.7	0.22	0.000	-180442.6 225021.7
D_ CUSEXCD _ce1 L1.	.116785	.0211551	5.52	0.000	.0753218 .1582483
GDP LD.	-.1718268	.0634519	-2.71	0.007	-.2961902 -.0474634
PPTAX LD.	.5596451	.1541946	3.63	0.000	.2574293 .861861
VATAX LD.	-5.231629	2.251398	-2.32	0.020	-9.644287 -.8189707
CIT LD	.151167	.396278	0.38	0.703	-.6255235 .9278575
CUSEXCD LD	14.21445	3.119587	4.56	0.000	8.100175 20.32873
CONS	-255.3804	64611.93	9.97	0.000	-126892.4 126381.7
Equation _ce1		- Parms 4	chi2 866.7517		P>chi2 0.0000
Identification: Beta is accurately recognized					

Source: Author's computation (2019**)**

Table 7. Johansen Normalization Restriction Imposed

Beta	Coefficient	Std Error	Z	P>|z|	[95% Conf. Interval]
_ce1					
GDP	1	.	.	.	.
PPTAX	.0988897	.0173795	5.69	0.000	-1.293575 1.095795
VATAX	.0738752	.0109933	6.72	0.000	-22.46211 -12.31293
CORPT	.0297525	.0096599	3.08	0.002	-4.867925 -1.082578
CUSEXCD	-.0201411	.0040854	-4.93	0.000	-37.75185 -16.27638
-CONS	-161252.1				

Source: Author's computation (2020)

Table 6 and Table 7 exhibited the long run nexus amid economic growth and taxation. A percent upsurge in PPTAX jack up GDP by 0.9% in the long run. This translates that positive nexus emerge amid GDP and PPTAX. Also, a percent upsurges in VATAX, enhances 0.7% in GDP, this also predicted that positive significant nexus existed amid VATAX and GDP. Furthermore, a percent upsurge in CORPT jack up 0.29% in GDP in the longrun, this also foreseen that significant and positive nexus existed amid CORPT and GDP. In contrary, a percent improvement in CUSEXCD shrinks GDP by 0.2%, this displays that a negative significant nexus existed amid CUSEXCD and GDP in the long run.

Table 8. Granger Causality Wald Tests- Causality between Economic Growth and Tax Income

Equation	Excluded	chi2	Df	Prob> chi2	Decision	Remark
GDP	PPTAX	348.38	4	0.000	PPTAX granger caused GDP	Significant
GDP	VATAX	1796.5	4	0.000	VATAX granger caused GDP	Significant
GDP	CORPT	852.26	4	0.000	CORPT granger caused GDP	Significant
GDP	CUSEXCD	51.659	4	0.000	CUSEXCD granger caused GDP	Significant
GDP	ALL	80070	10	0.000	ALL variables granger cause GDP jointly	Significant
PPTAX	GDP	791.2	4	0.000	GDP granger caused PPTAX	Significant
PPTAX	VATAX	4125.2	4	0.000	VATAX granger caused PPTAX	Significant
PPTAX	CORPT	1257	4	0.000	CORPT granger caused PPTAX	Significant

Equation	Excluded	chi2	Df	Prob> chi2	Decision	Remark
PPTAX	CUSEXCD	255.6	4	0.000	CUSEXCD granger caused PPTAX	Significant
PPTAX	ALL	140550	10	0.000	ALL variables granger caused PPTAX jointly	Significant
VATAX	GDP	92.331	4	0.000	GDP granger caused VATAX	Significant
VATAX	PPTAX	1201.8	4	0.000	PPTAX granger caused VATAX	Significant
VATAX	CORPT	378.09	4	0.000	CORPT granger caused VATAX	Significant
VATAX	CUSEXCD	242.85	4	0.000	CUSEXCD granger caused VATAX	Significant
VATAX	ALL	40707	10	0.000	ALL variables granger caused VATAX jointly	Significant
CORPT	GDP	105.61	4	0.000	GDP granger caused CORPT	Significant
CORPT	PPTAX	497.38	4	0.000	PPTAX granger caused CORPT	Significant
CORPT	VATAX	648.22	4	0.000	VATAX granger caused CORPT	Significant
CORPT	CUSEXCD	213.85	4	0.000	CUSEXCD granger caused CORPT	Significant
CORPT	ALL	91664	10	0.000	ALL variables granger caused CORPT jointly	Significant
CUSEXCD	GDP	73.485	4	0.000	GDP granger caused CUSEXCD	Significant
CUSEXCD	PPTAX	1077.4	4	0.000	PPTAX granger caused CUSEXCD	Significant
CUSEXCD	VATAX	1198.4	4	0.000	VATAX granger caused CUSEXCD	Significant
CUSEXCD	CORPT	193.99	4	0.000	CORPT does not granger caused CUSEXCD	Significant
CUSEXCD	ALL	86299	10	0.000	ALL variables granger caused CUSEXCD jointly	Significant

Source: Authors' Computation (2020)

Table 8 displayed causal links among the variables examined. This null hypothesis cannot be admitted due to the fact that Prob > chi2 equal to 0.000 that is PPTAX, VATAX, CORPT and CUSEXCD, jointly, Granger-cause GDP. The findings exhibited that bidirectional causality existed between PPTAX and GDP because causal nexus ignited from PPTAX to GDP, and GDP to PPTAX. Furthermore, the findings exposed that the causal links ignited from VATAX to GDP, and GDP also triggered VATAX. This result exposed bidirectional causality amid VATAX and GDP. Also, CORPT and CUSEXCD triggered causal nexus with GDP. Conclusively, taxation and economic growth have bi directional causality. Therefore causal nexus existed amid economic growth and taxation in Nigeria.

Table 9. Causality Direction between Economic Growth and Taxation

Equation	Excluded	chi2	Df	Prob> chi2	Decision	Causality Direction
GDP	PPTAX	348.38	4	0.000	PPTAX granger cause GDP	PPTAX → GDP
PPTAX	GDP	791.2	4	0.000	GDP granger cause PPTAX	GDP → PPTAX
GDP	VATAX	1796.5	4	0.000	VATAX granger cause GDP	VATAX → GDP
VATAX	GDP	92.331	4	0.000	GDP granger cause VATAX	GDP → VATAX
GDP	CORPT	852.26	4	0.000	CORPT granger cause GDP	CORPT → GDP
CORPT	GDP	105.61	4	0.000	GDP granger cause CORPT	GDP → CORPT
GDP	CUSEXCD	51.659	4	0.000	CUSEXCD granger cause GDP	CUSEXCD → GDP
CUSEXCD	GDP	73.485	4	0.000	GDP granger- cause CUSEXCD	GDP → CUSEXCD

Source: Author's computation (2020)

Table 9 showed the direction of causal links amid VATAX, CORPT, CUSEXCD, PPTAX and GDP. The findings exhibited that bidirectional causality existed between PPTAX and GDP because causal nexus ignited from PPTAX to GDP and GDP to PPTAX versa. Furthermore, the findings exposed that the causal links ignited from VATAX to GDP, and GDP also triggered VATAX. This result exposed bidirectional causality amid VATAX and GDP. Also, CORPT and CUSEXCD triggered causal nexus with GDP. Conclusively, taxation and economic growth have bi directional causality as postulated by Table 8.

5. Conclusions

This study examined taxation effects on economic growth in Nigeria. It also verified the causal direction amid economic growth and taxation engaging Johansen co-integration and the Granger causality tests method to analyse data collected from CBN statistical bulletin from 1970 to 2018. Results divulged that PPTAX CORPT and VATAX have positive significant influence on GDP in Nigeria as supported by Onakoya & Afintinni (2016), Egbunike *et al.* (2018), and Owino (2018). But CUSEXCD has short run and long run positive insignificant influence on GDP as rejected the view of Ngwoge (2019). Taxation had causal nexus with GDP in Nigeria because VATAX, CUSEXCD, CORPT and PPTAX, jointly triggered GDP. Conclusively, taxation had short run and long run positive significant influence on economic growth in Nigeria. Also, bi-causality nexus existed amid Taxation and economic growth which postulated that the existence taxation income ignited economic growth in Nigeria and economic growth triggered taxation in Nigeria. It is postulated that government should lay much emphasis on the judicious utilization of cash inflow of taxation efficiently on economic growth so as to buttress the essence of fulfilling the civil responsibility by the taxpayers.

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