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ARTICLES & AUTHORS

Customers' Brand Preference and Loyalty in the Choice of Automobile Brands in Benin City
- E. O. Odia, Ph.D. & C. I. Agbonifoh

The Size and Price-to-Book Effect in an Asset Pricing Model: Evidence from the Nigerian Stock Market
- E. I. Evbayiro-Osagie, Ph.D

Perception of the Moderating Effect of Technology on Performance of Quoted Manufacturing Firms in Nigeria
- I. H. Wokocha, Ph.D, & H. Opigo, Ph.D

Indirect Tax and Performance of the Nigerian Economy: an Empirical Assessment
- E. Eragbhe, Ph.D & S. O. Ogbeide

Effects of Audit Fees and Audit Client Size on the Choice of Auditors
- U. Obazee, O. Amede & A. Enofe, Ph.D

Talent Management: A Tool for Sustainable Competitive Advantage
- J. I. Ikharehon, Ph.D

Comparative Analysis of Cultures and Leadership Styles among Subgroups in Nigeria
- O. Iguisi, Ph.D & I. Iduozee

Corporate Social Responsibility: Performance Evaluation of a Brewery in Nigeria
- C. O. Igbinoba & E. Umemezia, Ph.D

Employee Satisfaction with Remuneration in a Nigerian Public University
- S. O. Obeki, Ph.D & B. Bila, Ph.D

Economic Recession and Marketing Effectiveness of SMEs in Nigeria
- E. C. Gbandi, Ph.D & S. J. Osifo, Ph.D

INDIRECT TAX AND PERFORMANCE OF THE NIGERIAN ECONOMY: AN EMPIRICAL ASSESSMENT

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Abstract
This study examines indirect tax and the performance of the Nigerian economy using times series data for the period 1985 to 2015. Data were extracted from the Central Bank of Nigeria (CBN) statistical bulletin. The data analysis techniques employed is regression analysis using the ordinary least squares, error correction mechanism (ECM) and co-integration techniques. This study reveals that there exist both long and short run dynamic relationships between indirect tax and the performance of the Nigerian economy. Custom and excise duty (CED) is positive and significant on the Nigerian economic performance. Value Added Tax (VAT) is positive and significant on the economy in the short run. Inflation as a control variable has a negative impact on the Nigerian economy and was statistically significant. The study recommends that the government has to come up with effective policies that could ensure the proper administration of VAT and custom and excise duty as well as fight every possible diversion of the revenues from these sources occasioned by systemic corruption. In this way, excess funds leakages resulting in too much money in circulation would be reduced so as to control inflation.

Keywords: Gross Domestic Product, indirect tax, custom and excise duty, value added tax, inflation rate.

Introduction

Taxation in literatures is made up of two broad components and several subcomponents. The two broad components are direct and indirect taxes. Each of these has its own components and varying influence on the growth of an economy. However, the debate between direct tax and indirect tax in fashioning out what could be best regarded as an optimal tax system appears protracted and polarized. At one extreme of the debate is the belief that indirect tax is a growth driver while at the other extreme of the debate is the view that there exists a negative relationship between indirect taxation and economic growth (Ilaboya and Mgbame, 2012).

While there are consistencies as to the relationship between indirect taxation and economic growth in the developed countries, the same cannot be said of Nigeria and other developing countries (Ilaboya and Mgbame, 2012). The researchers posit that in Nigeria and other developing countries, there appears to be dearth of indigenous empirical literature that robustly examined the nexus between indirect taxation and performance of the economy. The inconsistency in existing empirics in developed economies which are often generalized to developing economies and the wide knowledge gap occasioned by the paucity of empirical literature in developing economies have continued to stress the need to reconcile the different positions and also to close the gap (Ilaboya and Mgbame, 2012).

Harberger (1964), Poterba, Robteunber and Summers (1996); Madsen and Damannia (1996); Emran and Stiglitz (2005); Greenidge and Drakes (2009) have ascertained a significant and negative relationship between the indirect taxation and economic growth nexus. Contrary, Kneller, Bleamey and Gemmel (1999); Arisoy and Unlukaplan (2010); and Scarlet (2011) found a positive relationship between indirect tax and economic growth. Very recently, Ibadin and Oladipupo (2015); Izedonmi and Okunber (2014); Okoli and Matthew (2015), Saheed, Abarshi and Ejide (2014) studies on indirect tax and economic growth remain mixed, inconclusive and highly controversial due to estimation techniques used. Hence this study seeks to empirically re-assess the subject matter using different sample period and the inclusion of a control variable with a view to contributing to existing literature.

Review of Related Literature

The earliest work on the growth effect of indirect taxes was by Harberger (1964) who observed that the impact of indirect tax on investment is insufficient to stimulate economic growth. Koch, Schoeman and Van –Tonder (2005), using time series data from South Africa for the period 1960-2002, analyzed the relationship between taxes and economic growth, the effect of ratio of indirect taxes to total tax revenue on economic growth. The study revealed that an increase in indirect tax compared to direct tax reduces economic growth. The reason for the contrary finding was not advanced and this, among others, engendered the rationale for a further re-examination.

Poterba, Rotemberg and summer (1986) focused on the economy of the United Kingdom and the United States and investigated the economic consequences of the shift from direct to indirect taxes for the periods 1964 to 1984 for United Kingdom and 1948 to 1984 for United States. The research revealed that for the United Kingdom, the shift to indirect taxes reduced real output, increased prices and after-tax wages in the short run, but without a significant long run effect. Similar conclusion was reached for the United States. Standing on the same premise, Madsen and Damania (1986) replicated the Poterba *et* al (1986) study using a sample of 22 OECD economies over the period 1960-1990. Their research showed that for majority of the OECD economies, a revenue-neutral shift from direct to indirect taxes has no impact on economic activities in the long run. Although some selected few OECD economies presented a

contrary result, there is a correlation between the study and other existing studies with non-significant effect of indirect taxes on economic growth.

Greenidge and Drakes (2009), focusing on the economy of Barbados and using an unrestricted error correction model, examined the relationship between tax policy and macroeconomic activities. They found that total tax and indirect taxes have a contractionary impact on the economy in both the short run and long run. Musanga (2007) investigated the relationship between indirect taxes and economic growth in Uganda using data from 1987 to 2005, and adopted the co-integration regression technique. The study revealed that 1% change in indirect tax would decrease economic growth by 0.53%. The indirect tax variable had a t-value of (-2.588) which means there is a significant but negative relationship between indirect tax and economic growth in Uganda.

Arisoy and Unlukaplan (2010), focusing on the Turkish economy, investigated the relationship between direct and indirect tax and economic growth, using data from 1968-2006. The study adopted the ordinary least square econometric technique and it was found that real output is positively related to indirect tax revenue. They concluded that indirect taxes are significantly and positively correlated with economic growth in Turkey.

The proponents of indirect tax as a growth driver advanced the buoyancy and flexibility argument. To them indirect tax has the ability to generate higher tax revenue with changes in the rate and base of the tax (buoyancy) while flexibility connotes the ability of the tax system to generate higher tax revenue with changes in tax base.

Varying studies have examined the relationship between subcomponents of indirect tax and economic growth with mixed results. Onwuchukwu and Aruwa (2014) investigated the impact of value added tax (VAT) on the economic growth of Nigeria using ordinary least square multiple regression technique. They found that VAT contributed significantly to the total tax revenue of government and by extension the economic growth of Nigeria. Bakare (2013) investigated VAT on output growth in Nigeria using the ordinary least square regression technique. The results obtained showed a negative and significant relationship between VAT and output growth in Nigeria. Moreover, the study also revealed that the past values of VAT could be used to predict the future behaviour of output growth in Nigeria. The main conclusion of the study was that value added tax has the potential to assist in the diversification of revenue sources, thereby providing enough funds for economic growth and development and reducing over dependence on revenue from oil.

Ibadin and Oladipupo (2015) examined the impact of indirect taxes on economic growth of Nigeria using VAT, a component of indirect tax, and analyzing the data with the aid of error correction mechanism (ECM). The results show that VAT of a period lag exerts a significant and positive impact on the real gross domestic product, a proxy for economic growth.

However, the study revealed that the value added tax of two period lag exert a negative relationship on economic growth and was statistically significant. Based on the results obtained, the study concluded that some elements like change in consumption resulting from taste and fashion on the part of consumers or policy direction of the government might have affected the shift exhibited by this variable. The study further adds that one period lag of one suggests some caution on the part of the government to identify all administrative loopholes for leakages to plug and to continue to maximize the contribution of VAT revenue to economic growth.

Ebiringa and Emeh (2012) examined the impact of various taxes on the economic growth of Nigeria using a time period of 1985 – 2011. The result obtained revealed that customs and exercise duties was negatively related to gross domestic product, suggesting that an inverse relationship existed between customs and excise duties and economic growth in Nigeria. Salami, Apelogun, Omidiya and Ojoye (2015) empirically investigated the impact of taxation on the growth of the Nigerian economy from 1976 – 2006 using both simple and multiple linear regression analysis to determine the impact of the exogenous variables such as petroleum profit tax, company income tax, custom and excise duty and value added tax on the endogenous variables, gross domestic product. It was found that all the exogenous variables including custom and excise duty had a significant negative impact on the economy of the nation.

Methodology

The longitudinal research design was adopted in this study while the sample period is 1985-2015. The annual data set for the period was extracted from the Central Bank of Nigeria Statistical Bulletin (2015). The statistical technique employed includes the error correction model (ECM) and the ordinary Least Squares (OLS) multivariate regression to establish short run relationship between the variables; and also determine how the independent variables impact on the dependent variable. Johansen and Juselius (1988) approach was utilized in examining the presence or absence of long–run relationships among the variables. Various diagnostic tests were carried out to ensure stability of the model. Prior to estimation of the model, stationary tests were conducted to test for its stochastic properties in order to avoid producing spurious regressions results since estimating models using non-stationary variables based on ordinary least square could lead to spurious and inconsistent results (Aiyedogbon, 2012). The stationarity properties of the time series data are investigated in this study using the Augmented Dickey-Fuller (ADF) test. The null hypothesis of the existence of unit roots is rejected against the alternative if the ADF test statistic is greater than the critical value otherwise the test accept the null hypothesis at 5% level of significance.

Model Specification

The model employed is stated in deterministic form as:

GDPt = F (Indirect taxes) ..... (1)

Equation (1) is expressed in its econometric form as follows:

$$\Delta GDP_t = \beta_0 + \beta_{1\Delta CED_{it-i}} + \beta_{2\Delta VAT_{it-i}} + \beta_{3\Delta INFR_{it-i}} + \lambda ECM_{t-1} + \varepsilon_t \quad \text{.....(2)}$$

Where:

Δ *represents changes in each of the variables employed in the construct above*

GDP = Economic growth

CED = Custom and Excise duty.

VAT = Value Added Tax

INFR = Inflation rate as a control variable.

ε_t = Stochastic error term.

t = Time period

β_o = Intercept term

The apriori expectation in this study is $\beta_1 - \beta_{3>0}$. This portends that the set of the explanatory variables are expected to positively influence the economic performance of Nigeria in the period under consideration.

Empirical Analysis

Table A: Unit root test at level

Variables	ADF statistic value	Test critical value at 5%	Meaning
GDP	-6.121229	-3.88686	Stationary at first difference
CED	-5.57235	-2.220686	Stationary at secondary difference
VAT	-6.24957	-4.67970	Stationary at level
INFR	-8.77813	-6.32112	Stationary at first difference

Source: Computed from E-view 8.0 (2017)

The unit root test results in the table above showed that at level, only value added tax was stationary, gross domestic product and inflation were stationary at first difference while custom and excise duty was stationary at second difference all at 5% significant level. This is so given that ADF test statistic is greater than test critical value at 5% level. It simply indicates there is no likelihood of occurrence of or obtaining spurious regression result.

Table B: Diagnostic tests

Variance inflation factors (VIFs)		
	Centered VIF	**uncentered VIF**
CED	5.11845	4.180975
VAT	3.42008	1.537014
INFR	4.96564	2.106430
Breusch – Godfrey – serial correlation LM test		
F-statistic = 0.325418	Prob. F(2, 9)	0.9565
Obs * R-squared = 1.116828		Pro. Chi-square (2) 0.0001

Heteroskedasticity test Harvey		
F-statistic 1.913002	Prob. F(3, 12)	0.0685
Obs * R-squared 6.371972	Prob. Chi-square 0.055	0.0265
Ramsey Reset Test		
t-statistic = 5.116344	Df = 10	0.0002
F-statistic = 28.26062	Prob. F(1, 10)	0.0002

Source: Researchers' compilation from E-view 8.0 (2017)

The diagnostic table above shows that the variance inflation factor statistic is less than 10 (centered VIF < 10) for each of the variables. This indicates absence of multicollinearity among the explanatory variables. The ARCH (Harvey) for heteroskedasticity test shows the presence of homoscedasticity (0.0255 > 0.05), thus confirming the constant variance assumption of the ordinary least square estimator. The Breusch-Godfrey serial correlation LM test result of 0.0001 > 0.05) points out the absence of higher order correlation. The Ramsey Reset Test result of (0.0002 > 0.05) substantiate validity of the regression model.

OLS Regression equation on the Long-run impact of indirect tax on economic growth

Table C: Ordinary Least Square Regression Result

GDP = 5.033C+ 5.032CED+ 7.333VAT -3.886INFR
(2.455) (7.398) (-2.789) (5.324)
(0.006) (0.005) (0.001) (0.003)
R-squared = 0.681
Adjusted R-squared = 0.643
F-statistic = 45.556
Prob (f-statistic) = 0.000
Durbin Watson statistic = 2.005

The regression table above shows that the R-squared is 0.681; implying that the explanatory variables account for about 68% systematic variation in the dependent variable, economic growth (GDP) in Nigeria, leaving 32% unexplained due to stochastic error term. After adjusting for the degree of freedom, the model reveals about 64% systematic variation against the dependent variable, economic growth in Nigeria. Empirical result indicates that the coefficient of determination is very strong. This suggests that indirect tax in Nigeria largely determines and contributes to the economic growth.

The F-statistic value of 45.556 compared with the Prob (f-statistic value) of 0.000 is statistically significant. This connotes that indirect tax in the long-run enhances performance of the Nigerian economy. A unit change in custom and excise duty is observed to positively increase Nigerian economic performance with a value of 5.032 units and is statistically significant at 95% level. A unit change in value added tax (VAT) increases economic growth with a value of 7.333units and is statistically significant at 99% level while a unit change in

inflation rate adversely impacts on economic performance of Nigeria and is statistically significant at 5% level. The Durbin-Watson value of 2.005 is approximately 2, and is an indication of the absence of serial correlation in the regression. It can be concluded here that the result is generally useful for policy prescription.

Co-integration Analysis

Table D: Unrestricted Co-integration rank test (Trace)

Null hypothesis	Trace statistics	Critical value at 5%	Maximum Eigenvalue	Critical values at 5%
R = 0	70.139	65.217	58.990	
R 1	55.847	54.453	28.788	27.384
R 2	28.109	43.766	19.936	21.231
R 3	13.322	17.434	9.348	16.274
R 4	1.47	3.441	2.17	3.841

The trace statistic values compared against the critical values indicates that there are at least 2 co-integration vectors. The maximum Eigen value statistics points out that there are also at least 2 co-integrating equations. Usually, the maximum Eigen value is used as a basis of establishing the long-run co-integration between variables. Therefore, from the result, it can be arrived at that there exists a long-run relationship between indirect tax and economic growth in Nigeria in the period examined.

Table E: The parsimonious error correction model
Dependent variable: GDP

Variables	Coefficient	Standard error	t-statistic	Prob
C	-8.903	1.688	-1.567	0.161
DCED(-5)	9.152	1.473	-4.616	0.032
DCED	1.003	2.498	-1.082	0.015
DVAT(-1)	0.017	9.443	-4.036	0.001
DINFR	-5.740	30.883	0.995	0.002
ECM(-1)	-0.555	0.224	-2.250	0.001
	R-squared = 0.676		Prob (f-statistic) = 0.004	
	Adjusted R-squared = 0.633		Durbin Watson statistic = 2.346	
	F-statistic = 28.478			

The above table reveals that the error correction term or speed of adjustment coefficient for the equation is properly signed with the expected negative sign. It suggests that there is a tendency by the model to correct and quickly move towards the equilibrium path following any occurrence of disequilibrium in the short period. This portends that meaningful error correction is taking place. Meanwhile, the ECM equation accounts for the correction of about 55.5% of the error generated in the past period. Similarly, the t-statistic value compared with the p-value

indicates the error term's coefficient is statistically significant. This clearly underscores the fact that a short–run dynamic relationship exists between indirect tax and economic growth in Nigeria. The R^{-2} bar points out that all the explanatory variables explained short–run systematic variation in the Nigerian economic growth with about 67% leaving the other percentage unexplained because of the stochastic error term acting as a surrogate in the model. The f-statistic as can be observed from the regression table above is statistically significant at 5% level. This indeed reveals the goodness of fit of the model.

The current value of custom and excise duty is observed to positively affect the economy of Nigeria in the period covered by this study and it is statistically significant; however its five period lag increase of the Gross Domestic Product (GDP) of Nigeria is statistically significant at 5% levels. The one period lag of Value Added Tax positively affects the economy of Nigeria and is statistically significant at the 5% level. The current value of inflation rate (INFR) is observed to decrease the performance of the economy in the short–run and is statistically significant at the 5% level. The Durbin Watson statistic value of 2.346 is approximately 2, and it shows the absence of serial autocorrelation in the result.

Discussion of Findings

This decision to focus on the efficacy of the indirect tax and how it influences the Nigerian economy necessitated this study, and the empirical estimation arising here from is quite intriguing. The study found that indirect tax components such as custom and excise duty and value added tax have significant positive impacts on the performance of the Nigerian economy in the long-run. Specifically, there is a short–run and long-run relationship between indirect tax and the growth of the economy. Similarly, our results show that indirect tax components used in this study impact positively on Nigeria's economic performance for the period studied. Our findings robustly affirm that of prior studies like Arisoy and Mulukaplaw (2000), Green Idge and Drakes (2009), Ilaboya and Mgbame (2012). For example, the econometric result reveals that one period lag of Value Added Tax (VAT) impacts positively on the economy of Nigeria and is statistically significant. The finding is in tandem with that of Bakare (2013), Ibadin and Oladipupo (2015), Wuclukwu and Aruwa (2014). Inflation rate is ascertained to negatively determine the performance of the Nigerian economy. This suggests that inflation distorts the meaningful growth and performance of the Nigerian economy.

Conclusion and Recommendations

The thrust of this paper is to empirically assess the impact of indirect tax on Nigeria's economic performance. One of the ways the government can stimulate the economy towards achieving macro- economic goal is through the instrument of fiscal policy such as taxation. The global challenges rocking the economies of the world and Nigeria specifically have continued to compel every reasonable and responsible government to seek ways of increasing revenue with a view to meeting the expectations of the citizenry. Tax is obviously one of those ways through which government generates revenue. In a developing country like Nigeria, there

is much discussion with regard to indirect tax by the government. The study finding reveals that indirect tax has a significant impact on the performance of the Nigerian economy in the long run. Specifically there is a short–run and a long-run dynamic relationship between indirect tax and the growth of the economy. Similarly, the study finding shows that indirect tax impacts positively on the Nigerian economy.

Following these empirical findings, the study suggests that the government has to come up with efficient and effective policies that could ensure the proper administration of VAT and custom and excise duty. Furthermore, every possible leakage in the VAT, custom and excise duty should be closed. This will help ensure that adequate revenue is generated from these indirect tax components so as to enhance the performance of the economy. Finally, the federal government of Nigeria should constantly work on the inflation rate since it is a major macro-economic variable that adversely affects every segment of the economy.

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