INDIRECT TAXES AND ROAD CONSTRUCTION : AN APPAISAL OF EFFICACIOUS RELATIONSHIP FROM NIGERIA

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ABSTRACT

The public constant drive for accountability has generated issues about the impact of tax income on road construction in Nigeria, as a result of perpetual collection of taxes by government without corresponding effect on good road network. Therefore, the motive of this study is to evaluate the impact of indirect taxes on road construction in Nigeria. The study looked into the effects of customs and excise duty, and value added tax on road construction from 1985 to 2020. Secondary data was gathered from the National Bureau of Statistics (NBS), the CBN and FIRS bulletins as well as other relevant official publications. To assess the causality among the variables used, the data was analyzed using Ordinary Least Square (OLS), ADF Unit root test, Co-integration analysis, VECM, and granger causality text. The study revealed that both VAT, and CED had positive and significant influence on road construction both in the short run and the long run. The study concluded that indirect taxes displayed positive impact of Nigeria road construction which is also significant. It is recommended that more efforts should be expended by the government to increase the coverage of value added tax in Nigeria for the uplifting of value added tax income mobilization, and ensures that revenue derived from indirect taxes are spent judiciously particularly towards provisions of good road infrastructure in Nigeria.

Keywords: Road Construction, Customs and Excise Duty, Value Added Tax, Investment, Gross Domestic Product, Nigeria.

Introduction
Taxation has been regarded as pertinent source of revenue for the government to cater for one responsibility to the other. It existed in Nigeria long before the arrival of the colonial men or the British(Adegbite, 2021; Minh Ha et al., 2021). Since independence, tax income has contributed significantly to federally collected revenue as advocated by Adegbite, (2020). Taxation is viewed as a burden that every citizen must fulfill in order for the government to

actualize their responsibilities as the government has numerous responsibilities for the wellbeing of people. Taxes are imposed not merely to generate income, but also to have an impact on economic activity (Panah et al., 2013).The success of government economic policies is evaluated on the availability of finances and funding channels. The availability of finances and their effective use are proportional to a country's economic progress, socio-political, road construction, and economic development globally.

Government relinquishes power for growth through strategies, plans, and legal frameworks in order to improve road transportation and others. Road maintenance and construction have been seen as the determinants of the country development which invariably impacted economic growth significantly. Road construction is considered as the key indicator to economy progress and development. Therefore, successful completion of road construction projects leads to wealth generation, socioeconomic development, and higher living standards. According to Uche and Ogbuefi, (2013), the annual loss in the country ascribes to bad roads is aggregately valued as N80 billion with additional vehicle operational costs stemming from bad roads evaluated to N53.8 billion, bringing the total loss per year to N133.8 billion due to the bad road. This statistics did not account for the additional forms of physical and mental trauma that people face when driving, as well as the resulting loss of productivity. As a result, tax income can be utilized to fund road construction, which is a non-negotiable indicator of economic progress and growth. As great and promising as taxation is, underperformance of taxation, ineffective tax administration system, onerous legislations, and apathy to tax payment in the official and informal sectors of the Nigerian economy, among other things, damage the tax net (Abiola, &Asiweh, (2012)

Through different projects and programs, the Nigerian government promised to make residents' life stress-free. One of the criteria that a government must achieve is bridging the country's growth is road construction, which makes citizens' lives easier, and helps designating the country as developed, undeveloped, or developing. As a result of the preceding, road development (and similar infrastructure) is one of the facilities that any Nigerian government must put in place in order to fulfill its economic responsibilities to its population. As a result, every government finds a way to increase resources by allocating huge amounts for road constructions and maintenances.

Defective designs, limited carriage capacity, a bad drainage system, inadequate income for road maintenance, and nonchalant attitude of citizens have all contributed to a reduction in the efficacy of Nigerian roads. Most roads in the country have potholes, dislocated pavements, and destroyed bridges, among other things which has resulted into numerous fatal accidents. According to Uche and Ogbuefi, (2013), development remains a pipe dream because of bad road had resulted into poverty, unemployment, low standard of living, and inadequate infrastructure. The increment in budgeted and allocated income to road construction and maintenance to drive its transformed mandate, the tempo, and the quality have remained stagnant if not degenerating. CBN (2020) exposed that government spent ₦619.14 billon on road construction in 2010 which was increased to ₦2,368.88 billion in 2020 while income realized from nonoil revenue is ₦1,907.6 billon and ₦4,570.7billon in 2010 and 2020 respectively. Despite the large sums of money raised by government through taxation with considerable annual huge allocations for road construction, Nigeria roads still remained in

bad condition with obvious potholes, dislocated pavements, and destroyed bridges. Therefore, the main motive behind this study is to examine taxation's impact on road construction with reference to indirect taxes in Nigeria.

Literature Review
Road Constructions in Nigeria
The government, through its agencies, ministries or in collaboration with commercial groups or international communities, constructs roads and highways for the benefit of society. It is one of the methods for promoting economic growth and development. Construction is a complicated and dynamic sector which entails the successful coordination of numbers of different business entities, including experts, tradesmen, manufacturers, trade unions, investors, local governments, specialists, trade contractors, and so on.

Road construction projects have an economic impact on a country's economy, and their successful completion leads to wealth generation, social expansion, and higher living standards. The quantity and quality of completed road construction projects in a country determines whether it is developed, developing, or underdeveloped. The road construction project is widely recognized as the major and central pillar around which country's development is built. It is also regarded as a live wire as well as a country's pertinent tool for economic and infrastructural development. The value and capability of a country's products depends on good road networks which determine her growth and development to a greater extent(Adegbite & Azeez, 2021).

Road networks facilitate access to employment, social, health, and education services, all of which are critical components of any development strategy. Tax remittances emanated from thriving economies and development all over the world through good road networks. This continually boosts economic activity and productivity in their individual jurisdictions. However, accomplishing industrialization and economic development necessitates a number of key aspects, including road construction. It was advocated by the World Bank that the strengthening infrastructure is critical to decreasing poverty, promoting growth, and attaining Millennium Development Goals.

Indirect Taxes
According to Adegbite, (2019); Adegbite and shittu, (2017), taxation has been seen as a system in which the government collects a portion of the earnings of the private and individual sectors in order to develop the economy in terms of job creation, efficient resource allocation, insecurity eradication, infant industry protections, infrastructural and social service provisions, inflation control, and the fulfillment of other various responsibilities such as road constructions. This is spilt into direct taxes and indirect taxes. Direct tax are collected from the source directly whereas indirect taxes are levied on the expenditure of goods and services entering and leaving the country (Coskun & Bekçioglu, 2018). It is a tax levied on the exchange of commodities and services, regardless of the position of the buyers and sellers at the time. The burden of these taxes is borne in part or entirely on final goods or services. Indirect taxes are levied on the transactions of goods and services at various rates, such as VAT and customs duties (import, export, and excise duties) (Adegbite & Olatunji, 2021). It is described by Khalafalla & Elbeely, (2019) as a tax levied on goods. In other words, indirect taxes are taxes

that the government collects indirectly from the sale of products, services, and commodity imports and exports. Indirect taxes are bifurcated into custom and excise duties, and VAT. The aggregate of VAT and CED are expected to be benefited by road construction and maintenances. Therefore:

HO₁: Indirect taxes have significant influence on road construction in Nigeria.

Custom and Excise Duties (CED)
Customs duties (CD) has been imposed on imported and exported goods and services. Custom duties, according to Adegbite (2016), and Inyiama et al., (2017), is another variety of indirect tax placed on commodities and services produced and consumed, as well as those imported and exported into Nigeria. Custom duties also perceived by Khalafalla & Elbeely, (2019)as one of the indirect taxes that generates more income than any other indirect tax. The Nigerian Customs Service is in charge of administering, assessing, and remitting CD to the government. Import tariffs are therefore charges paid on goods and services entering the country. The burden of this sort of tax is moved to consumers of certain goods and services, resulting to price increment for those commodities and services consumed(Osho et al., 2019). Excise duties, on the other hand, are levies imposed on goods produced and sold within the country. It is also tax imposed on some dangerous goods and services produced in the country in order to discourage their consumption such as cigarettes and alcoholic beverages. These taxes are levied as a percentage of the value of commodities imported into the country, or as a fixed amount on a specific number of items. This indirect tax not only helps the country raise revenue, but it also helps to discourage the consumption of specific commodities(Akhor & Ekundayo, 2016). Custom duties and excise duties which are collected from the imported goods are expected to have favorable impacts on road construction.

HO₂: CED has no significant supports on road construction in Nigeria.

Value Added Tax (VAT)
VAT is levied on a variety of goods and services purchased by individuals and businesses. It is also a tax which the final consumer of goods and services bear the burden. VAT, according to Ogundana et al., (2017), is a tax paid on the value added to services or goods throughout the distribution or production stages by an economic unit. It is assessed, charged, and collected at the point where services or items are sold. Whenever a consumer buys and pays for a product or service that is subjected to VAT, the consumer must pay 7.5 percent(7.5%) VAT which has been embedded in the price of goods. This is spilt into output and input VAT. It is output VAT when it is levied on the output/ finished products consumed by the final consumers which the burden has been shifted by the producers on the final consumers, but it is input VAT when is levied on the raw materials supplied to the company. The burden of this VAT is shifted from the suppliers to the organisation.

Federal Inland Revenue Services is responsible for the administration, assessment, and collection of VAT which was implemented in Nigeria by Decree 102 of 1993 after terminated the era of Sales tax since 1993 (Adegbite &Fasina 2016). It is postulated that VAT dispenses economic benefits on road construction in Nigeria

HO₃: VAT has significant dispensed benefits on road construction in Nigeria.

Investments
Real domestic investment boosts the economy's overall capital stock. This is accomplished by procuring additional capital assets as well as assets that can garner revenue within the economy of the country. Physical assets, in particular, contribute significantly to the entire capital stock, boost economic development and necessitates improvement in economic growth which can be achieved by savings. According to Tang, Selvanathan, &Selvanathan, (2008), any attempts to cut costs downwardly will definitely harm investment which will result into sluggish and slow growth, and will eventually affect savings performance. The National Bureau of Statistics (NBS, 2011) evaluated that the components of Nigerian capital formation, which include both tangible and intangible investment enhance economic output such as finished goods or industrial goods. Government realizes indirect taxes (VAT and CED) income from the finished goods or industrial goods which were borne by investment. It is expected that investment which dispenses taxation income through VAT enhances road construction. However, it is stated hypothetically as:

HO₄: Investment has significant benefits on road construction in Nigeria

Gross Domestic Products (GDP)
The amount of output is significant since it influences how much a country can afford to consume. Moreover, GDP is the market value of all finished goods and services produced within the specific period in the country. It is also the variance between the produced value of goods and services in the country, and the value of consumed goods and services. GDP includes government consumption expenditures, gross investment, net exports of goods and services, gross domestic investment, and Personal consumption expenditures(Karen &Louise, 2018).It should be noted, however, that GDP is not only to measure production output but also to determine the country's efficiency and health. Therefore, GDP at the end dispenses taxes income which is invariably spent on road constructions and maintenances.

HO5: GDP has significant benefits on road construction in Nigeria

Theoretical Review
Necessity or Life Blood Theory
The necessity or life blood theory states that the government existence is a necessity to the life of the citizen. This advocated that government cannot function without the means to offset her expenses. To obtain these needed means, government compel citizens and property within its jurisdiction to contribute to government purse in form of taxes. Taxes are the government's lifeblood, and they should be collected without undue delay. Without taxes, the government cannot function in terms of responsibilities fulfillments due to a lack of resources mobilization. Out of tax income realized, it is the responsibilities of the government to make public and social goods available to their citizen with the aim of improving lives of the populaces, and enhancing material and moral values. The importance of this theory to this study is that, road construction and maintenance is the life blood of any country which must be provided by the formidable government in order to network rural with urban town for effective delivery of pertinent essential commodities.

Optimal taxation theory (OPT)

The goal of this theory is to maximize the social welfare of individuals in society. The social designer is naturally treated as a functional in optimal taxation, with a social welfare function based on the values of individuals in society. According to OPT, government is the social developer, and responsible for developing a good tax system both for revenue creation and taxpayers' well-being. The primary objective is to select a tax system which enhances the wellbeing of citizens. However, government are saddled with provision of varieties of infrastructural facilities such as road construction and other indispensable facilities to fulfilling life through tax revenue. The connection of these theories to this study is that the revenues realized when allocated and spent judiciously dispenses good road construction and maintenance. Government are the custodian of the resources mobilized in which the better constructed road serves as the benefits paid in lieu of tax collected from the populaces for optimum usage.

Empirical Review of Related Theory

In the study of Ironkwe & Ndah, (2016) which looked into IGR effect on Rivers State local government performance. Ogba/Egbema/Ndoni Local Government Council was chosen for the study. Data from Ogba/Egbema/Ndoni Local Government Council's financial statements from 2006 to 2013 was used in the statistical analysis. The hypotheses were tested using a t-statistics analysis. One of the study's key findings was that tax income had a favorable but little impact on road development. Tax income has minor impact on road maintenance and construction. Also, it was found that both nontax and tax revenue are significant components in enhancing the performance in River State local government councils. Revenue creation impacts on government development activities were also investigated by Edogbanya and Ja'afaru (2013). Internally generated revenue has a favorable impact on government capital projects. According to Edogbanya and Ja'afaru (2013) study, the relationship between tax revenues and economic growth are cordially significant both in the federal and state levels. However, this study is confined to tax income and economic growth but not on indirect tax revenues and road construction.

Okoror et al., (2019) investigated the influence of corporate income tax on Nigerian infrastructure development empirically. Secondary data from the CBN statistical bulletin, National Bureau of Statistics, and Federal Inland Revenue Service (FIRS) were used from year 1981 to 2017. The dynamic Least Squares and co-integration equation analysis technique were used in the study. The study's findings showed that corporation income tax failed to exhibit fluctuations from year to year throughout time. This was a positive indicator for policymakers since it meant that company income tax collection remained relatively stable over the business cycle, and was relied upon in forecasting, budgeting, and fiscal coordination. The study concluded that CIT has significant influence on Nigeria's infrastructure.

Ayanduba and Aronwman (2015) analyzed how federal collected tax revenues affected Nigeria's infrastructure development. As previously stated, the study only looked at taxes collected by the federal government and not those collected by states or local governments. Because of the time series structure of the variables, the study's methodological approach included the use of a longitudinal research design which were estimated using the Error

Correction Model. Thus, the study concluded that CIT has a substantial impact on Nigeria's infrastructure development.

Inyiama et al., (2017), investigated tax revenue impacts on Nigeria's infrastructure development. The study focused on tax income from corporation income tax (CIT) as well as other taxes. The study's methodology included secondary data through ex-post facto research design spanning from 2006 to 2015. The data collected through CBN and FIRS were analyzed with the use of the multiple linear regression technique. According to the findings, there was no substantial association between corporate income tax and Nigerian infrastructure development.

Afolabi et al., (2018) investigated the effects of highway construction and extension on Abeokuta city population. The information was gathered through distribution of questionnaires to 545 people of Abeokuta who were chosen at random. Analysis of Variance (ANOVA) and simple descriptive statistics were used. The results enacted that traffic flow was smooth and free because of highway good condition and expansion which further allowed increment in residents, and businesses inflow. It was discovered that road expansion exposed the area in terms of business and other infrastructure. Inyiama et al. (2017) were able to look into the impact of the Federal Government of Nigeria's tax resources on Nigerian infrastructure development. The study adopted ex-post-facto research design and secondary data from 2006 to 2015. The outcome of using a multiple linear regression technique discovered that tax revenue have a positive but insignificant impact on Nigerian infrastructure development.

However, in the previous literatures examined, it was discovered that there were conceptual and contextual research gaps in the area of taxes and road development. Ironkwe and Ndah (2016) investigated the impact of River state IGR on the local governments performance; Okoror et al., (2019)investigated company income tax impacts on Nigeria infrastructural development; Ayanduba and Aronwman (2015) investigated the impact of federally collected tax revenues on Nigeria infrastructural development; Inyiama et al., (2017), Edeh, and Chukwuani (2017) investigated the impact of tax revenue on Nigerian infrastructure development; Afolabi et al., (2018), investigated the effects of highway development and expansion on Abeokuta city residents, and Inyiama et al., (2017)looked at the impact of the Federal Government of Nigeria tax revenues on infrastructural development in Nigeria from 2006 to 2015. The empirical literatures reviewed were conducted on infrastructure development and local government development. But the research on taxation impacts on road construction especially indirect taxes has not gotten attention in Nigeria. Thus, this study therefore contributed to the existing literature by exploring this gaps to appraise the impact of indirect taxes on road construction in Nigeria with econometric approach.

Methodology
The study relied heavily on realized data from the National Bureau of Statistics (NBS), the CBN and FIRS bulletins, and other government publications which are relevant to this study from 1985 to 2020.The regressions model was adopted to determine the effect of indirect taxes on road construction. In order to estimate the impact of indirect taxes on road construction in Nigeria econometric approach was used through Ordinary Least Square (OLS) technique.

Long run and short run effects of indirect taxes on road construction were investigated using time series, unit root test-ADF, regression method, co-integration analysis, VECM, heteroskedasticity stability test, and normality test, as well as granger causality test causality investigation among the variables.

Model Specification

The impact of indirect taxes on road construction in Nigeria was described using beneath model. Road construction was treated as a dependent variable, whereas other indirect taxes such as VAT and CED were treated as independent variables while investment and GDP were control variables. The econometric model stated that road construction is a function of indirect taxes, GDP and INV.

Road Construction (ROADCST) = f (IDT, GDP, INV, µ) (1)

Obtaining the OLS model from the above expression, we had:
ROADCST = a_0 + β_1VAT + β_2CED + β_3INV + β_4 GDP + µ (2)

This is transformed to
Log ROADCST = a_0 + β_1 Log VAT + β_2LogCED + β_3LogINV + β_4LogGDP + µ (3)

Where:

ROADCST	-	Road Construction
a_0	-	Constant Term
µ	-	Error term
β_1- $\beta_5=$	-	Coefficients of the explanatory variables.

Table 1: Effect of Indirect Taxes on Road Construction in Nigeria

Dependent variable	Independent variables	Coefficient	Robust Standard error	T	P>/T/	(95% conf. Interval)	
ROADCST	VAT	.0372735	.01766517	2.11	0.007	.0117116	.7337603
	CED	.1082806	.02713799	3.99	0.003	.9455399	1.162101
	INV	.0115241	.00423676	2.72	0.006	-.002805	.0058529
	GDP	.2038061	.02274625	8.96	0.000	.0009072	.0025243
	CONSTANT	1.660071	.15105287	10.99	0.000	8.492367	11.81251
R^2 =0.8838	Adj R = 0.8688	Prob > F = 0.0000		F(4, 31) = 58.92			

Source: Authors' Collation (2021)

Table 1 exposed indirect taxes' impact on road construction in Nigeria. It was divulged that 1% increase in VAT increases ROADCST by 0.037%. This advocated that VAT positively influence ROADCST significantly (β =.0372735, t = 2.11, P> |t| = 0.043). CED also enhanced ROADCST by 0.10%. This also advocated that CED impacted ROADCST positively (β=

.1082806, t=3.99, P>|t|=0.003). INV and GDP increase ROADCST by 0.01% and 0.20% with the significant outcome of t=-2.72, P>|t|= 0.000 and t = 8.96, P>|t|=0. 000 < 0.05 respectively.

The Adjusted R²of 88.38% (0.8838) was specifically predicted the incorporated independent variables sufficiently determinedindirect taxes' effect on ROADCST. It further indicated that indirect taxes justified 88.38% short run effect on ROADCST. However, the null hypothesis that indirect taxes are not significantly influence ROADCST is rejected while alternative hypothesis upheld.

Table 2   Unit Root Test

Variables	ADF Statistic	Critical value (1%)	Critical value (5%)	Critical value (10%)	Integration Order	Decision
ROADCST	-5-158 ***	-3.682	-2.972	-2.618	I(1)	Stationary
VAT	-8.341 ***	-3.689	-2.975	-2.619	I(1)	Stationary
CED	-5.088***	-3.689	-2.975	-2.619	I(1)	Stationary
INV	-2.697 ***	-3.689	-2.975	-2.619	I(1)	Stationary
GDP	9.990 ***	-3.682	-2972	-2.618	I(1)	Stationary

Source: Author's Collation (2021)
(**) means Significant at 5% and 10% only, but *** means significant in all (10%, 5% and 1%).

To avoid the spurious regression results, ADF unit roots test was analyzed. It was advocated in Table 2 that all the variables cohered has no element of unit root. Hence, they are all cointegrated which divulged that long run associated divulged among the variable. This also disclosed that all variables (VAT, GDP, INV, CED, and ROADCST) are stationary at first difference. That is significant long run association existed between road construction and indirect taxes.

Table 3: Selection Order Criteria (SOC) Test

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-1078.03				1.7e+23	67.6895	67.7654	67.9185
1	-916.618	322.83	25	0.000	3.5e+19	59.6191	59.6191	60.5378
2	-851.589	130.06	25	0.000	3.2e+18	56.6618	57.4969	59.181
3	-779.226	144.73	25	0.000	2.4e+17	53.7016	54.9162	57.366
4	-707.833	142.79*	25	0.000	2.9e+16*	50.802*	52.3962*	55.6115*

Endogenous: ROADCST, VAT, CED, INV, and GDP Exogenous: _cons.
Source: Authors' Collation (2021)

To avoid overestimated and underestimated of Lag employed in this study, test of Lag selection were carried out. In Table 3, FPE, HQIC and SBIC supported Lag 4 as the recommended Lag to adopt in this model. That is 2.9e+16*, 50.802*, 52.3962* and 55.6115* of FPE, AIC, HQIC and SBIC respectively advocated Lag 4 as shown in Table 3.

Table 4: Johnson Test for Cointegration (JTFC) on Taxation and Road construction

Rank	Eigen Value	Parm	LL	Trace statistic	5% critical value	1% critical	Eigen Value
0	-	80	-799.47335	183.2816	68.52	70.52	-
1	0.93450	89	-755.86099	96.0569	47.21	52.21	0.93450
2	0.84241	96	-726.2964	36.9277	29.68	31.68	0.84241
3	0.49448	101	-715.38156	15.0980*	15.41	20.41	0.49448
4	0.30316	104	-709.60246	3.5398	3.76	5.76	0.30316
5	0.10472	105	-707.83254				0.10472

Source: Authors' Collation (2021)

Table 4 created trend specification's information on the sample, and lags numbers involved in the model. The core Table 4 comprises a separate row for "r" value, and cointegrating equations numbers. The number of cointegration was accepted where the trace statistic is below the critical value of 5% and 10%. When r = 0, 1, 2, and 3, the trace statistic were greater that critical values. Contrarily, the trace statistic is less that critical values where r = 3 (**15.0980***< 15.41 and 20.41 of 5% and 10% critical value respectively). This exposed that there are three cointegrating equations or vectors among the incorporated variables. This explained that they are cointegrated (incorporated variables). Once the incorporated variables are cointegrated, it is an omen of long run connection among variables which further called for VECM analysis.

Table 5: VECM on Indirect Taxes and Road construction

Equation	Parms	RMSE	R sq	chi2	P>chi2
D_ ROADCST	7	23.6341	0.6239	44.79149	0.0000
D_ VAT	7	20.6697	0.7295	72.81645	0.0000
D_ CED	7	8.11976	0.5109	28.20193	0.0002
D_ INV	7	1559.97	0.7125	66.91189	0.0000
D_ GDP	7	2246.3	0.9031	251.7371	0.0000
Log likelihood = -943.5251	Det(Sigma_ml) = 8.74e+17	AIC = 57.7956	HQIC = 58.39268	SBIC = 59.54642	

Source: Author's Computation (2021)

Table 6:   VECM Model - Short Run Effect

Dependent variable	Independent variables	Coefficient	Standard error	z	P>/z/	(95% conf. Interval)
D_ROADCST	- Ce1 L1	-.6098262	.1633827	-3.73	0.000	-.9300504 -.289602
	ROADCST LD	-.174298	.1677973	1.04	0.299	-.5031746 .1545787
	L2D	-.1785035	.1467503	-1.22	0.224	-.4661289 .1091218
	L3D	.1043676	.0576485	-1.81	0.070	-.0086214 .2173566
	VAT LD LD	.1731626	.0532808	3.250	0.617	-.8518273 .5055021
	L2D	.0853525	.3028317	0.28	0.778	-.5081867 .6788917
	L3D	.0473842	.01128195	4.20	0.000	-.1857781 .2805466
	CED LD LD	-1.090512	.4714124	-2.31	0.021	-2.014464 -.1665609

	L2D	.8580554	.4122828	2.08	0.037	0.499961 1.666115
	L3D	-.5223209	.1619587	-3.23	0.001	-.8397541 -.2048877
INV LD	LD	.0069344	.0036181	1.92	0.055	-.0001569 .0140257
	L2D	-.0025452	.0031642	-0.80	0.421	-.008747 .0036566
	L3D	.0034728	.001243	-2.79	0.005	-.005909 -.0010365
GDP LD		.0040747	.0018006	2.26	0.024	.0005456 .0076039
	L2D	.0034258	.0015748	2.18	0.030	.0003393 .0065123
	L3D	.0021329	.0006186	3.45	0.001	.0009204 .0033453
	CONSTANT	-5.452089	6.029596	-0.90	0.366	-17.26988 6.365703

Source: Author's computation (2021)

Table 6 divulged the short run effect of indirect taxes on road construction in Nigeria. It was shown that VAT impacted ROADCST in the short run at lag1 (LD). That is, a units increased in VAT caused ROADCST to be upsurged by 0.17units. But, CED decreased ROADCST by 1.09 units in the short run which is significant (α = -1.090512, z = -2.31, P>/z/ = 0.027< 0.05) in lag 1. Further, INV significantly and positively influenced ROADCST by 0.03 units in short run at lag3 (L3D) which entirely different to the influence of other variables. The effect of VAT on ROADCST is significant (α = .0034728, z = -2.79, P>/z/ = 0.005< 0.05, that is 95%). In addition, GDP significantly and positively influenced ROADCST by 0.04 units. The GDP is significant both in Lag 1(LD) and Lag 2 (L2D) (α = .0040747; .0034258, z = 2.26; 2.18, P>/z/ = 0.024; 0.030< 0.05). This displayed short run connection between indirect taxes and road construction.

Table 7: Johansen Normalization Restriction Imposed Test on Taxation and Road construction. (Long run Effect)

Beta	Coefficient	Std Error	Z	P>|z|	[95% Conf. Interval]
_ce1 ROADCST	1	.	.	.	.
VAT	-.7465764	.0999387	-7.47	0.000	-.9424527 -.5507001
CED	-.9922739	.4782741	-2.07	0.038	-1.929674 -.054874
INV	.0149949	.001236	12.13	0.000	.0125724 .0174174
GDP	-.0005796	.0004364	-1.33	0.184	-.0014349 .0002757
-CONS	-8.314536	.	.	.	.

Source: Author's Collation (2021)

Table 7 comprised information about, equation fitness, sample and fitness of overall model which possessed asymmetric and inverse explanation. According to Table 7, 1% triggers in VAT increased ROADCST by 0.07%. It advocated a positive effect of VAT on ROADCST which is significant (β= -.7465764, t= -7.47, P>|t|=0.000). In the long run, 1% increase in CED increased ROADCST by 0.99%. This means CED impacted ROADCST positively and significantly (β=-.9922739, t=--2.07, P>|t|=0.038). This means that when VAT increases ROADCST also increases. Furthermore, 1% surge in INV reducesROADCST by 0.015%. This however advocated a negative effect of INV on ROADCST which also significant (β= .0149949, t=12.13, P>|t|=0.000). Moreover, 1% surge in GDP increase ROADCST by 0.005% but not significant (β= -.0005796, t=-1.33, P>|t|=0.184.

Coefficient is econometrically significant as confirmed and supported by P>|z| equals to 0.000 but below 0.05. Overall output also advocated the model fitness. The incorporated variables coefficient advocated the long run association of indirect taxes with ROADCST significantly and econometrically.

Table 8: Test of Post-Estimation of VECM

Serial correlation Result's test	Lags 4	LM-Stat 6.8998	Prob 0.6675
Heteroskedasticity Result's Test	Chi-sq 13.55412	df 36	Prob. 0.884

Source: Author's computation (2021)

Table 8 explained that the VECM results are devoid of serial correlation and heteroskedasticity. The probability results of value of 0.884 and 0.6675 advocated that the study should reject the present of heteroskedasticity and serial correlation respectively.

Diagnosis Test

Table 9   Autocorrelation Test through the test of Lagrange-multiplier

Lag	Chi2	Df	Prob > chi2	Decision
1	95.3734	36	0.00000	Absence of autocorrelation
2	86.5100	36	0.00000	Absence of autocorrelation

H0: no autocorrelation at lag order. Source: Author's computation (2021)
Lagrange-multiplier test was also tested for autocorrelation. Test of Lagrange-multiplier advocated that there is emptiness of autocorrelation in VECM results because 0.00000 is the value of Prob > chi2 which drastically below 0.05 sig. figure.

Discussion of Findings
The impact of indirect taxes on road construction in Nigeria was investigated in this study. The study looked into the effects of CED and VAT on road construction from 1985 to 2020. It was discovered that VAT has positive effect on ROADCST which is significant. This explained that ROADCST benefited from the income realized from VAT. This in line with the studies of Ironkwe and Ndah (2016);Edeh, and Chukwuani (2017). CED is also played significant role on the implementation of ROADCST because of its positive impact on ROADCST. This means CED impacted ROADCST positively and significantly. That is when VAT increases ROADCST also increases. This is in consonance with the conclusion of Ayanduba and Aronwman (2015); and Inyiama et al., (2017). It was also deduced investment reduced ROADCST implementation in Nigeria. This however advocated a negative effect of INV on ROADCST. The policy implication is that the more the investment, the lesser will be the residual income from taxes to be expended on ROADCST. The income spends on investment by the government downplays the construction and rehabilitation of road. This further

indicated that the higher the investment, the lesser will be the volume of income realized from the taxes which will invariably spend on road construction in Nigeria.

Conclusion

The impact of indirect taxes on road construction in Nigeria was investigated in this study. The study looked into the effects of CED and VAT on road construction from 1985 to 2020. Secondary data was gathered from the NBS, the CBN statistics bulletin, the Federal Office of Statistics (FOS), and other relevant official publications. To assess the causality among the variables used, the data was examined using Ordinary Least Square (OLS), Unit root test-ADF, Co-integration analysis, and VECM. The study revealed that both VAT, and CED had long run and short run positive and significant influence on road construction. The study concluded that indirect taxes displayed positive impact which is also significant on Nigeria road construction. It is recommended that more efforts should be expended by the government to increase the coverage of value added tax in Nigeria for the uplifting of value added tax income's mobilization, and ensures that revenue derived from indirect taxes are spent judiciously particularly towards provisions of good road infrastructure in Nigeria.

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