

NEXUS AMID TAXATION AND HEALTH SERVICES: UNEQUIVOCAL INVESTIGATION FROM NIGERIA

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ABSTRACT

Health services of the country has been facing a lot of impediments because of the paucity of revenue and resources to upsurge and make it available for human consumption from government ends. Collection of taxes have been recognized by the government as income to financing health services in Nigeria. This study examined the effect taxation on health services in Nigeria. Data collected from FIRS bulletin and CBN statistical bulletin ranging from 1981 to 2019 were analysed through regression model, Cointegration, analysis, VECM and granger causality wald test. Petroleum profit tax (PEPTAX), Value added tax (VADTAX), company income tax (COITAX), and Custom and Excise Duties (CUEDTAX) have positive significant impact on health services both in the short run and in the long run in Nigeria. It is concluded that taxation positively ignited health services. Also taxation has positive significant impact on health services both in the short and long run in Nigeria. The huge revenue earned by the government through taxation assisted government to improve her health services delivery. It is recommended that resources channeled to health sector should be properly monitored, and judiciously utilized so that its effectiveness will be properly comprehended in the magnitude of health services provision and sustainability.

Key Words:

Taxation; Health services; Theory of realization; VECM;

INTRODUCTION

Health services of the country has been facing a lot of impediments because of the paucity of revenue and resources to upsurge and make it available for human consumption from government ends. Collection of taxes have been recognized by the government as income remittance which are unavoidably charged or levied on individual and private organizations' product, income, or activity. It is referred as direct tax if it is unavoidably charged directly on personal or corporate income, but if it is unavoidably charged on the goods or services; then it is pronounced as indirect tax. The disposition behind taxation is to funding government expenditure, wealth redistribution, essential services, and health services delivery which produce country development. The income realized when spending judiciously it emits country development in terms of health services provision and enhancement. These health services are bifurcated into health services provision and sustainability. Most countries source for revenue internally to funding these health services provision and sustainability in the country. The enormous health services sustainability and provision of any country relies on the revenue generated from taxation and other incomes sources in such country. However, well-structured tax policy generates revenue for health services development and sustainability. Pressing obligations such as health services are absolutely fulfilled through taxation if it is well structured, managed, monitored and controlled (**Adegbite, 2020**). The tax system, which is the government opportune channel for additional revenue collection, needed in offsetting its fiscal obligations fulfillment. A tax system presents itself as

the most operative and dynamic channels that garner a nation's resources which generates conducive environment for health services promotion for economic growth (Ogbonna & Ebimabowei, 2012).

Health care financing has now a global plight to all nations irrespective of developed and underdeveloped nations. The capability of any governments to garner funds for health care delivery and sustainability is an herculean tasks and responsibility in which Nigeria is not exclusive. Health care in Nigeria has a challenges and talks of the country in Nigeria. Many hospital infrastructures have been dilapidated including necessaries equipment which have been outdated in the country. More so, impertinent drugs for healthy consumption are unavailable in the hospitals. Despite the high level of turnout by the tax payers fulfilling their fiscal responsibilities, Nigeria hospitals still ineffective, inefficient and less applauding. Despite the enormous income generated by government through taxation, education and health services are still not improved. Therefore, this study garnered the significant effect of taxation on Nigeria health services.

LITERATURE REVIEW OF THE STUDY

Effect of Taxation on Health Services (HEALTH)

To attain growth and development in any nation, it is expedient that health services and infrastructural facilities are in place. By infrastructural facilities, it means all activities which include all government services meant to serve the masses such as education, transportation, security, and power supply. In Nigeria, evidence proliferates as to the deficiency in health services, which has inhibited country growth and development. This is germane to the country's development. The adequacy of health services determine a country's success, reduce poverty, and improve welfare of citizens. Thus, every country struggles for revenue to attain health services provision, development and achievement which can be sourced domestically through vital taxation. Taxation is understood by Aguolu (2004), as government obligatory levy, through designated agencies, on consumption, capital and income of private and individual sector. These levies are forced on business profits, salaries, interests, discounts, royalties and dividends. It is similarly levied forcefully against capital gains, and capital transfer. It is a notion of imposing tax on residents which is generally referred as civic responsibility. The taxation imposition yields enormous income which is utilized on services provision, such as health services, social, education and security for the upsurge of societal economic wellbeing. Sunday, Arzizeh, and Okon (2013) stated that taxation are absolutely regarded as a fiscal policy's tool employed by government to influence health services positively, and to attain desired objectives.

Recently, revenue mobilization in Nigeria through taxation has become imperative because of the paucity of expected revenue influx through crude oil. Taxation has turn out to be a dynamic source of income to finance government expenditure on health. It has contributed significantly and consistently to revenue since independence to federal purse. It is not only imposed for revenue generation sake, but also to upsurge, influence and determine health services provision and sustainability. Health services provision and sustainability are the developing countries' primary economic goals which emit economic growth, and development, which ultimately leads to standard of living improvement.

Health care, without doubts, is financed absolutely through revenues collected from both secondary and primary sources such as taxes and budgeting. This opined that health service delivery is financing through taxation, for instance, in United Kingdom and Belgium, local or regional taxes are the pertinent sources of health care financing in Denmark, Bulgaria, Finland, Sweden and Norway. Italy, according to Mossialos, Dixon, Figuera and Kutzin, (2002), has also been financing health care delivery since 2000 with local taxes. In fact, financing of health care delivery through taxation has been described as reliable and stable revenue generation.

Empirical Review of Related Study

Gruber (2002) examined tax system impact on coverage of health insurance in US. Data were collected and analyzed through Current Population Survey and OLS respectively. The findings suggested that tax system impact is significant on health insurance in US. In particular, the findings divulged that firm's decision on health insurance is substantially affected by insurance tax price in US. Thus, this study was executed in US in which the policy is domiciled in US which is not trespassed to Nigeria.

Addae-Korankye (2013) examined the problems of Ghana health care financing. The study further determined varieties of funding mechanisms to Ghana health care finance. 250 respondents were selected through Stratified sampling technique. It was generated from the findings that insufficient premium and funding source were the paramount problems of health care financing in Ghana. However, this study were restricted to Ghana in which the policy recommendation is out of service to Nigeria.

Osundina and olarenwaju (2013) critically examined Nigeria taxation welfare effect on economy employing theory of consumption function. The study designated total consumption expenditure (TCE) as the proxy of taxation welfare effect while private investment and revenue collected were the proxies of Nigeria economy which were analyzed with Jarque Bera normality tests, ADF and OLS analysis. It was concluded based on findings that there exist negative and significant effect of revenue on consumption expenditure. The negative effect was emanated due to funds mismanagement, absence of policy implementation, and persistent corruption in Nigeria. But this study majorly focused taxation welfare effects on consumption but not streamlined to health services, therefore the results garnered were irrelevant to health policy making in Nigeria.

William and Andrew (2014) examined individual income tax on economic growth. The results advised that tax changes had significant trend on growth. It was further advised that improved incentives, existing subsidies, tax reduction, windfall gains, and deficit financing avoidance have more propitious long-term size effects on economy, but would also generate trade-offs between efficiency and equity. This study was confined to economic growth but not health services in Nigeria.

Adisah-Atta (2017) appraised Ghanaian taxation effects on public health care. Cross tabulation, multiple linear regression and correlation analysis were implemented to examine the willingness of Ghanaians to response to higher tax to upsurge public health care. Findings showed that the influence of government's performance on health care is higher taxes in Ghana. In addition to the findings, corruption showed negative connection with higher taxes payments from the presidential office in Ghana. Therefore, the findings of this study is absolutely limited to Ghana. Hence, the results lack generalization to Nigeria economy.

Osemeke, Nzekwu and Okere (2020) examined the problem affecting Nigeria tax collection on informal economy in Anambra state. Semi-structured interviews were utilized to garner the data from respondents. After scrutiny of data through ANOVA, the study found that lack/ absence of infrastructural development and pertinent amenities were responsible for civic irresponsibility of employees and trader in Anambra state towards tax payment. However, this study was basically on problems affecting tax collection on Anambra state's trader but not extended to health services in Nigeria.

The research gaps of this study emanated from the concept, methodology and the scope. This study examined the taxation effect on health services which has not been effectively researched in Nigeria. Most of the extant researchers confined their studies to taxation effects on economic growth, inflation, consumption expenditure, and investment in Nigeria. Other extant literatures on taxes and health services are from other countries such as Ghana, US and other African countries. This study is absolutely unique, standout and sacrosanct because of the thoroughness of econometric analytical tools employed to examine the deepest impact of taxation on health services in Nigeria.

Underpinning Theory

Theory of Realization and Exigent Implementation

This theory states that the income realized by government through taxation must have the motive of producing pertinent and favorable benefits for the tax payers and their dependents without stress. This shows that pertinent benefits received by taxpayer is the function of taxation, and vice versa. In addition, this further translated that the income realized from taxation must quench or extinguish the yearning of the populace in terms of health benefits and other indispensable ingredients to a fulfilling life. The tax system must devoid of victimization, economic frustration and inadequate health services provision if properly utilized and monitored. More so, this theory advocated that perception of exigent utilization and implementation of income realized from taxation by government through essential services provision like health services delivery, education and public goods provision, trigger taxpayers more in subscribing to government purse by fulfilling their civil responsibilities. Therefore, this study was executed on this newly formulated tax theory because health services delivery is one of the pertinent services which must be delivered by the government to the taxpayers and their dependents in a substitute for the payment of taxes to government purse. so as to protect infant industries. Therefore, this is hypothesized as

- HI: Taxation upsurge Health services delivery favorably and significantly in short run in Nigeria.
 HI: Taxation upsurge Health services delivery favorably and significantly in long run in Nigeria.

Methodology

VADTAX, PEPTAX, COITAX and CUEDTAX), and health services data were collected from FIRS bulletin and CBN statistical bulletin ranging from 1981 to 2019 in order realized the econometric impact of taxation on health services through regression model, Cointegration, analysis, VECM and granger causality Wald (GCW) test. PPMC also was employed to examine the rapport between taxation and health services indicator.

Model Specification

To survey the impact of taxation on health services in Nigeria, health services is taken as dependent variable while taxation components such as VADTAX, PEPTAX, COITAX and CUEDTAX are independent variables. The regression model is:

Model 1:

$$\text{HEALTH} = f(\text{Taxation})$$

(1)

$$\text{HEALTH} = f(\text{PEPTAX}, \text{VADTAX}, \text{COITAX}, \text{CUEDTAX})$$

(2)

$$\text{HEALTH} = a_0 + \phi_m \text{PEPTAX} + \phi_n \text{VADTAX} + \phi_1 \text{COITAX} + \phi_m \text{CUEDTAX} + \mu_1$$

(3)

Model 4:

VECM model are as follows:

$$\Delta \text{HEALTH}_t = \alpha + \sum_{i=1}^{k-1} \beta_i \Delta \text{HEALTH}_{t-i} + \sum_{m=1}^{k-1} \phi_m \Delta \text{PEPTAX}_{t-m} + \sum_{n=1}^{k-1} \phi_n \Delta \text{VADTAX}_{t-n} + \sum_{j=1}^{k-1} \phi_j \Delta \text{COITAX}_{t-j} + \sum_{s=1}^{k-1} \phi_n \Delta \text{CUEDTAX}_{t-s} + \lambda \text{ECT}_{t-1} + \mu_{2t}$$

(4)

$$\Delta PEPTAX_t = \alpha + \sum_{i=1}^{k-1} \beta_i \Delta HEALTH_{t-i} + \sum_{m=1}^{k-1} \phi_m \Delta PEPTAX_{t-m} + \sum_{n=1}^{k-1} \phi_n \Delta VADTAX_{t-n} + \sum_{j=1}^{k-1} \phi_j \Delta COITAX_{t-j} + \sum_{s=1}^{k-1} \phi_s \Delta CUEDTAX_{t-s} + \lambda ECT_{t-1} + \mu_{3t} \quad (5)$$

$$\Delta VADTAX_t = \alpha + \sum_{i=1}^{k-1} \beta_i \Delta HEALTH_{t-i} + \sum_{m=1}^{k-1} \phi_m \Delta PEPTAX_{t-m} + \sum_{n=1}^{k-1} \phi_n \Delta VADTAX_{t-n} + \sum_{j=1}^{k-1} \phi_j \Delta COITAX_{t-j} + \sum_{s=1}^{k-1} \phi_s \Delta CUEDTAX_{t-s} + \lambda ECT_{t-1} + \mu_{4t} \quad (6)$$

$$\Delta COITAX_t = \alpha + \sum_{i=1}^{k-1} \beta_i \Delta HEALTH_{t-i} + \sum_{m=1}^{k-1} \phi_m \Delta PEPTAX_{t-m} + \sum_{n=1}^{k-1} \phi_n \Delta VADTAX_{t-n} + \sum_{j=1}^{k-1} \phi_j \Delta COITAX_{t-j} + \sum_{s=1}^{k-1} \phi_s \Delta CUEDTAX_{t-s} + \lambda ECT_{t-1} + \mu_{5t} \quad (7)$$

$$\Delta CUEDTAX_t = \alpha + \sum_{i=1}^{k-1} \beta_i \Delta HEALTH_{t-i} + \sum_{m=1}^{k-1} \phi_m \Delta PEPTAX_{t-m} + \sum_{n=1}^{k-1} \phi_n \Delta VADTAX_{t-n} + \sum_{j=1}^{k-1} \phi_j \Delta COITAX_{t-j} + \sum_{s=1}^{k-1} \phi_s \Delta CUEDTAX_{t-s} + \lambda ECT_{t-1} + \mu_{6t} \quad (8)$$

Where HEALTH is a proxy of money expended by federal government on Health services provision and sustainability. α is intercepts, $\beta_i, \phi_i, \phi_m, \phi_n$ and ϕ_s are taxation coefficients of HEALTH, COITAX, PEPTAX, VADTAX and CUEDTAX respectively while t, s, i, m, n, and s are lags numbers. μ_{1-6t} are stochastic (error term) with constant variance and zero mean.

RESULTS AND DISCUSSION

Table 1: Effect of Taxation on HEALTH in Nigeria

Dependent variable	Independent variables	Coefficient	Robust Standard error	T	P>|T|	(95% conf. Interval)
HEALTH	PEPTAX	.0015213	0.000394	3.86	0.002	.0007206.002322
	VADTAX	.0087429	0.002579	3.39	0.004	-.037259.0547448
	COITAX	.0123883	0.002614	4.74	0.000	-.0466202.0218436
	CUEDTAX	.297283	0.038309	7.76	0.000	.2632608.3313053
	CONSTANT	45.01128	4.460979	10.09	0.000	-12897.083894.822
R ² =0.7694		Adj R = 0.6658	Prob > F = 0.0000		F(4, 34) = 269.26	

Source: Author's Collation (2020)

The results of the regression was embedded with heteroskedasticity in the first regression which called for Breusch-Pagan / Cook-Weisberg test to test for heteroskedasticity. Table 1, that is, linear regression was employed to get rid of the problem of heteroskedasticity. Table 1 exposed taxation impact on HEALTH in Nigeria. It was divulged that 1% increase in PEPTAX increases HEALTH by 0.015%. This advocated that PEPTAX positively influence HEALTH ($\beta = .0015213, t = 3.86, P > |t| = 0.002$). VADTAX also enhanced HEALTH by 0.008%. This also advocated that VADTAX imparted HEALTH positively ($\beta = .0087429, t = 3.39, P > |t| = 0.004$). COITAX, and CUEDTAX increase HEALTH by 0.12% and 0.29% with the significant outcome of $t = 4.74, P > |t| = 0.000$; and $t = 7.76, P > |t| = 0.000 < 0.005$ respectively.

The Adjusted R² of (0.6658) 66.5% given specifically predicted the incorporated independent variables sufficiently determined taxation effect on HEALTH. It further indicated that taxation justified

66.5% short run health services determinant. However, the hypothesis that taxation significant influence HEALTH is upheld.

Table 2 Unit Root Test

Variables	ADF Statistic	Critical value (1%)	Critical value (5%)	Critical value (10%)	Integration Order	Decision
HEALTH	-6.401 ***	-3.675	-2.969	-2.617	I(1)	Stationary
PEPTAX	-2.986 **	-3.662	-2.964	-2.614	I(1)	Stationary
VADTAX	-3.310**	-3.662	-2.964	-2.614	I(1)	Stationary
CUEDTAX	-4.196**	-3.662	-2.964	-2.614	I(1)	Stationary
COITAX	-5.467 ***	-3.682	-2.972	-2.618	I(1)	Stationary

(**) means Significant at 5% and 10% only, but *** means significant in all (10%, 5% and 1%).

Source: Author's Collation (2020)

To circumvent 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 the long run associated existed among the variable. This also divulged that all variables are stationary at first difference. That is significant long run association existed between health and taxation. It showed further the test of the unit root for the residuals generated from ADF test results reported. It showed that residuals were stationary at levels I(1) and not stationary at levels I(0), rejecting null hypothesis of the presence of unit root at 5 percent significant level. By implication, there existed co-integration (long run association) between components of taxation and HEALTH in Nigeria. This also explained further that if components of Taxation and HEALTH drifted apart from equilibrium for a while in the short run, the taxation and/or revenue generation policies of the government would bring them back together in the long run.

Table 3: Selection Order Criteria (SOC) Test

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-2449.18				5.5e+54	140.239	140.316	140.461
1	-2318.95	260.46	25	0.000	1.4e+52	134.226	134.686	135.559
2	-2242.61	152.67	25	0.000	8.0e+50	131.292	132.136	133.736
3	-2174.28	136.67	25	0.000	8.7e+49	128.816	130.043	132.371
4	-1955.19	438.19*	25	0.000	2.3e+45*	117.725*	119.336*	122.391*

Endogenous: HEALTH, PEPTAX, VADTAX, CUEDTAX, and COITAX

Exogenous: _cons.

Source: Author's Collation (2020)

To avoid underestimate and overestimate of Lag employed in this study, test of Lag selection were carried out. In Table 3, AIC, FPE, HQIC and SBIC supported Lag 4 as the recommended Lag to be adopted in this model. That is 2.3e+45*, 117.725*, 119.336* and 122.391* of AIC, FPE, HQIC and SBIC respectively supported Lag 4 as vindicated in Table 3.

Table 4: Johnson Test for Cointegration (JTFC) on Taxation and Health Services

Rank	Eigen Value	Parm	LL	Trace statistic	5% critical value	1% critical	Eigen Value
0	-	55	5.8356605	161.6926	68.52	76.07	-
1	0.98367	64	53.156936	67.0501	47.21	54.46	0.98367
2	0.74055	71	68.672526	36.0189	29.68	35.65	0.74055
3	0.68054	76	81.795487	9.7730*	15.41	20.04	0.68054
4	0.33160	79	86.428421	0.5071	3.76	6.65	0.33160
5	0.02181	80	86.681963				0.02181

Source: Author's Collation (2020)

Table 4 created information on trend specification, the sample, and lags numbers involved in the model. The core table comprises a separate row for "r" value, and cointegrating equations numbers. The number of cointegration was considered where the trace statistic is less than critical value of 5% and 10%. When $r = 0, 1, 2,$ and 3 , the trace statistic are far greater that critical values. Contrarily, the trace statistic is less that critical values where $r = 3$ ($9.7730^* < 15.41$ and 20.04 of 5% and 10% critical value respectively). This exposed that there are three contegrating equations or vectors among the incorporated variables. This showed that they are conintegrated (incorporated variables). Once the incorporated variables are cointegrated, this show there is longrun connection among variables which further called for VECM.

Table 5.1: Vector Error-Correction Model (VECM) on Taxation and Health Services

Equation	Parms	RMSE	R sq	chi2	P>chi2
D_HEALTH	17	25401.3	0.7187	45.99374	0.0002
D_PEPTAX	17	3.9e+06	0.9169	198.5962	0.0000
D_VADTAX	17	44748.4	0.9325	248.7898	0.0000
D_CUEDTAX	17	36637.4	0.9410	287.0638	0.0000
D_COITAX	17	196123	0.7771	62.74787	0.0000
Log likelihood = -2096.214	Det(Sigma_ml) = 7.23e+45	AIC = 124.8694	HQIC = 126.2346	SBIC	= 128.8244

Source : Author's computation (2020)

Table 5.2: Vector Error Correction Model (VECM) Short run Effect

Dependent variable	Independent variables	Coefficient	Standard error	z	P>|z/	(95% conf. Interval)
	- Ce1 L1	-.469161	.1526817	-3.07	0.002	.7684116 -.1699103
HEALTH	HEALTH LD	-.9845119	.9521322	-1.03	-0.301	2.850657 .8816329
	L2D	-.967707	.4291102	-2.26	-0.026	-1.808748 -.1266664
	L3D	-.4030619	1.303804	-0.31	0.757	-2.958471 2.152348
	PEPTAX LD	.5243477	.1893484	2.77	0.006	.1532316 .8954638
	L2D	.1671063	.1719852	0.97	0.331	-.1699785 .5041911
	L3D	1388693	.1918337	0.72	0.469	-.2371179 .5148565
	VADTAX LD	.5696122	.5193263	1.10	0.273	-.4482487 1.587473
	L2D	-1.458836	1.231346	-1.08	0.236	-3.87223 .9545579
	L3D	-1.2319	.9354055	1.32	0.188	-3.065261 .6014613
	CUEDTAX LD	.492316	2.729702	0.18	0.857	-4.857801 5.842433
	L2D	1.676785	.9518245	1.76	0.078	-.1887573 3.542326
	L3D	.2240799	.8436746	0.27	0.791	-1.429492 1.877652
	COITAX LD	-1.182582	.400578	-2.95	-0.003	-1.967701 -.3974622
	L2D	-1.128689	.4377876	-2.58	-0.010	-1.986737 -.2706411
	L3D	-.5976652	.2519435	-2.37	-0.08	-1.091465 -.103865
	CONSTANT		.3281538	.1773889	1.85	0.064	-.0195222 .6758297

Source: Author's computation (2020)

Table 5.2 divulged the short run effect of taxation on Health services in Nigeria. It was shown that PEPTAX impacted HEALTH in the short run at lag1 (LD). That is a units increased in PEPTAX caused HEALTH to be upsurged by 0.5units. Also, VADTAX increased HEALTH by 0.56 units in the short run which is significant ($\alpha = .5696122$, $z = 1.10$, $P>|z/ = 0.273 < 0.05$) in lag 1. But CUEDTAX significantly and positively influenced HEALTH by 1.6 units in short run at lag2 (L2D) which entirely different to the influence of other variables. The effect of CUEDTAX on Health is significant ($\alpha = 1.676785$, $z = 1.76$, $P>|z/ = 0.078 < 0.10$, that is 90%). COITAX significantly and positively influenced HEALTH by 1.18 units. This tax is significant both in Lag 1(LD) and Lag 2 (L2D) ($\alpha = -1.182582$; -1.128689 , $z = 2.95$; 2.58 , $P>|z/ = 0.003$; $0.010 < 0.05$). This displayed short run connection between taxation and health service provision.

Table 5.3: Johansen Normalization Restriction Imposed Test on Taxation and Health Services. (Long run Effect)

Beta	Coefficient	Std Error	Z	P>|z|	[95% Conf. Interval]	
_ce1						
HEALTH	1	.	.	.	.	.
PEPTAX	-.024249	0.00445	-5.45	0.000	-.0026116	-.0022382
VADTAX	-.145801	0.01501	-9.71	0.000	-.1589334	-.1326159
COITAX	-.056814	0.00739	-7.68	0.000	-.0608489	-.0528028
CUEDTAX	-.131871	0.01127	-11.7	0.000	.1222974	.141444
-CONS	973.3728	.	.	.	.	.

Source: Author's Collation (2020)

Table 5.3 comprised information about, equation fitness, sample and fitness of overall model which possessed asymmetric and inverse explanation. According to Table 5.3, 1% triggers in PEPTAX increased HEALTH by 0.02%. It advocated a positive effect of PEPTAX on HEALTH which is significant ($\beta=.024249$, $t= 5.45$, $P>|t|=0.000$). 1% increase in VADTAX increased HEALTH by 0.145%. This means VADTAX imparted HEALTH positively and significantly ($\beta=-.1457746$, $t=-21.7$, $P>|t|=0.000$). This means that if VADTAX increases HEALTH increases. Furthermore, 1% surge in COITAX increased HEALTH by 0.06%. This however advocated a positive effect of COITAX on HEALTH which also significant ($\beta=-.0568258$, $t=-27.68$, $P>|t|=0.000$). Moreover, 1% trigger in CUEDTAX increased HEALTH by 0.13%. This disclosed a positive effect of CUEDTAX on HEALTH ($\beta=.1318707$, $t=27.00$, $P>|t|=0.000$).

Coefficient is econometrically significant as confirmed and supported by $P>|z|$ equals to 0.000. Overall output also advocated the model fitness. The incorporated variables coefficient advocated the long run association of taxation with HEALTH significantly and econometrically.

Table 6: Post-Estimation Test

Heteroskedasticity Test	Chi-sq 13.55412	df 25	Prob. 0.772
Serial correlation test	Lags 3	LM-Stat 5.534973	Prob 0.5935

Source: Author's computation (2020)

Table 6 showed heteroskedasticity and serial correlation tests' result for the VECM model. The null hypothesis of the two tests opined that serial correlation and heteroskedasticity are absent in the model. With probability (Prob.) values of 0.772 and 0.5935 for serial correlation and heteroskedasticity respectively, there present no sufficient proof to discard the null hypotheses. That is no serial correlation and heteroskedasticity existed within the observations.

Diagnosis Test

Table 7		Test of Autocorrelation	-	Lagrange-multiplier test
Lag	Chi2	Df	Prob > chi2	Decision
1	19.2060	25	0.78714	no autocorrelation
2	25.4272	25	0.43865	no autocorrelation

H0: no autocorrelation at lag order. Source: Author's computation (2020)

Lagrange-multiplier test was also carried out to test for autocorrelation. The null hypothesis is that the VECM has no autocorrelation at lag order. But null hypothesis cannot be rejected because Prob > chi2 of all three lags higher than 0.05. Therefore all two lags have no autocorrelation as shown in Table 7.

Table 8 Test of Normality - Jarque-Bera test

Equation	Chi2	Df	Prob > chi2	Decision
D_ HEALTH	0.113	2	0.00637	Not normally distributed
D_ PEPTAX	0.773	2	0.67943	Normally distributed
D_ VADTAX	132.159	2	0.00000	Not normally distributed
D_ COITAX	25.690	2	0.00000	Not normally distributed
D_ CUDETAX	0.671	2	0.71496	Normally distributed
ALL	169.406	10	0.0000	ALL not normally distributed

Source: Author's computation (2020)

Jarque-Bera test was also carried out to detect the normality in the variables. It was shown in Table 8 that error are not normally distributed in D_ HEALTH because Prob > chi2 of 0.000637 is below 0.05. But error are normally distributed in D_ PEPTAX because Prob > chi2 of 0.67943 is more than 0.05. Contrarily, error are not normally distributed in D_ VADTAX and D_ COITAX because Prob > chi2 of 0.00000 are lower than 0.05. D_ CUDETAX showed that errors are normally distributed because the value of Prob > chi2 of 0.71496 which is more than 0.05. But in ALL, errors are not normally distributed as a results of Prob > chi2 0.0000 which is below 0.05.

Table 9 Test of Stability - Eigenvalue stability condition

Eigenvalue	Modulus
1	1
1	1
1	1
1	1
.0208282 + .5889275i	.589296
.0208282 - .5889275i	.589296
-.4945728 + .1584396i	519332
-.4945728 + .1584396i	519332
.5069463	.506946
-.03855151	.0385515

The VECM specification imposes 4 unit moduli.

Source: Author's computation (2020)

Stability test was also carried out to discover the stability of the model in Table 9. It was shown in the Table that VECM specification imposed 4 unit moduli which confirmed the stability of the model as shown in Table 9 with unit value (1) in four times both in Eigenvalue and Modulus rows

Discussion of Findings

This study econometrically examined the effect taxation on health services in Nigeria. The findings exposed that PEPTAX determined HEALTH positively and significantly both in the short and long run. The implication of this is that government realized income are being spent on the provision of good health services such as drug procurement, health care facilities, and health equipment. It was further revealed that PEPTAX ignited HEALTH and vice versa. This divulged that PEPTAX led to existence of health services provision, and PEPTAX was also collected for health services provision. In addition, VADTAX also increased HEALTH provision positively and significantly as exposed in the outcome. This expatiated that VADTAX which is being forcefully charged on the production stages enhanced HEALTH provision. This advocated that VADTAX are collected from the populace so as to establish effective HEALTH provision. More so, HEALTH provision also ignited VADTAX in the long run because healthy workers subscribe to VADTAX. More so, COITAX and CUEDTAX positively influenced HEALTH services provision. That is, the realized incomes from these taxes have been employed efficiently to upsurge country HEALTH provision. This translated that without HEALTH services provision, sustainability and enhancement, no income would be generated from taxation because healthy people works to pay tax in the long run.

Summary and Conclusion

This study examined the effect taxation on health services in Nigeria. Data collected from FIRS bulletin and CBN statistical bulletin ranging from 1981 to 2019 were analysed through regression model, Cointegration, analysis, VECM and granger causality wald test. PEPTAX, VADTAX, COITAX and CUEDTAX have positive significant impact on health services both in the short run and in the long run in Nigeria. It is concluded that taxation positively ignited health services. Also taxation has positive significant impact on health services both in the short and long run in Nigeria. The huge revenue earned by the government through taxation assisted government to improve her health services significantly. It is recommended that resources channeled to health sector should be properly monitored, and judiciously utilized so that its effectiveness will be properly comprehended in the magnitude of health services provision and sustainability.

Therefore future research on taxation can be strengthen to Sub-Sahara in African countries due to the paucity of resources from government ends that cuts across African countries. Also, the effect of Non-Oil taxation can also be examined on education services which is also integral part of social services provision in Nigeria.

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