INTERNALLY GENERATED REVENUE AND INFANT MORTALITY RATE IN NIGERIA

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Abstract

All over the world, national economic development has always been a major challenge especially among the developing countries. However, many studies from developed economies had shown that internally generated revenue though in structured regions, provinces and states had contributed in solving the national economic development, but Nigeria is yet to focus in this area. Therefore, the study examined the effect of internally generated revenue on infant mortality rate in Nigeria. The study adopted *ex-post-facto* research design. Using total enumeration sampling technique, the population covered the evaluation of the effect of IGR on national economic development of Nigeria from 1989-2019. Data were extracted from the audited financial statements of the government for a period of 30years.Validity and reliability were premised on the statutory audit of the financial statements by the office of the Auditor General of the Federation and approval of data by the Central Bank of Nigeria. Descriptive and inferential (Multiple Regression) statistics were used to analyze the data. Findings revealed that internally generated revenue has significant effect on infant mortality rate in Nigeria (with *Adj. R^2* =0.9258, *F-stat* =22.14157, *p* =0.000031<0.05). Therefore the study concludes that Internally Generated Revenue significantly affects the Infant Mortality Rate in Nigeria. Thus the study recommends that the government should also introduce strategies such as establishment of a dependable data base which is accessible, eliminating all sources of revenue leakages through the automation of revenue collection system, tracking the underground economy for more revenue generation, diversification of the revenue base through wealth creation among others so as to enhance internally generated revenues.
Keywords: Internally Generated Revenue, Infant Mortality Rate, Value added Tax, Internal Revenue, National Economic Development.

Introduction

Globally, it is the expectation of every stakeholder that governments at all levels and their policies should be targeted at improving and sustaining real national income that will guarantee economic and political stability, extensive cash flow from investments, technological advancements and excellent infrastructures since these are the panacea to national economic development. In the economic literature, preference is given to economic development because the overall wellbeing of any society depends on its level. However, the importance of job creation, improvement in the standard of living to reduce poverty level cannot be whisked away by policymakers, as promoting social welfare, good health facilities and optimal utilization of the internally generated revenue are essentially vital to attain national economic development. Every nation should make every effort to ensure development; however, it is a passionate drive that many countries take for granted especially the Italian experience (D-Agosto, Marco, Stefano, Filippo & D'Arcangelo, 2018).

Though the problems associated with national economic development are obvious, yet they must be solved by making efforts to raise sufficient revenue that will benefit the taxpayers in the long run. For example, the growth and development of the state, the provinces and their capacity to extract significant revenue from the residents are striking economic features that must be done, though collection of taxes could be displeasing to the payers (Besley, Ethal & Persson, 2013). From the Internally generated revenue viewpoint, Olatanwa (2017) posited that though economic development problems are perennial issues, however, internally generated income can come to the rescue at each segment of the tiers of government because of its potential role in alleviating poverty level. A quite good number of options of line items (or potential revenue sources) assigned to states by the constitution are yet to be tapped into for the generation of the desired and robust internal revenue. Saddening as it is, many states and local governments largely depend on the federation account to pay salaries while others resort to external loans yet cannot handle common infrastructural provisions that could aid economic development. Some studies had shown that internally generated revenue is capable of resolving national economic development, stressing that the government at all levels should raise the bar in the internally generated revenue.

Alade and Tule (2017); Cornelius, Ogar and Oka (2016) posited that internally generated revenue affects national economic development. However, on the contrary, Obara and Nangih (2017) and the study of Ofurum, Amaefule, Okonya and Amaefule (2018) asserted that internally generated revenue is inversely related to national economic development in Nigeria. Consequent to these mixed opinions and divergent results, this study intends to investigate economic development further and believe that adequate internally generated revenue could come a long way in solving the problems of national economic development in Nigeria. Thus, this study investigated the effect of internally generated revenue on Nigeria's national economic development from the perspective of Infant Mortality Rate (INFMR) using the identified internally generated revenues in Nigeria.

Literature Review
Conceptual Review
Infant Mortality Rate

Infant mortality rate is defined "as the death of an infant before his or her first birthday. It is a useful indicator on the nation's health because it is often associated with

other health factors such as maternal health, quality and accessibility of medical care, and socioeconomic conditions" (Okeke *et al.,* 2018). The statistical evidence had shown that in Nigeria, the children mortality rate had been on an alarming rate, showing 128 per 1000 live birth, showing a large disparity in her different regions (Nigeria Demographic and Health Survey, 2013). Similarly, report from the Nigerian demographic and health survey 2013, revealed that childhood mortality rate range widely cross the Nigerian geographical zone National Population Commission (2009), child mortality had been a persistent public health concern and challenge in Nigeria, and indeed other developing nations of the world, irrespective of the researchers immense efforts to identify risk factors responsible for this menace (Becher, Muller, Jahn, Gbangou, Kynast-Wolf & Kouyate, 2016).

Internally Generated Revenue

Revenue, according to Adam (2006), is the fund that the government needs to fund its operations. Internally generated revenues (IGR) are revenues or funds generated by states within the Nigerian federation that are unrelated to their share of federation revenue (Deloitte, 2016). Government revenue is concerned with the way government at all levels raise money from the services rendered. The ways and means of raising money needed by three tiers of government (Federal, State and local government) are stipulated in the 1999 constitution. The money from these sources is meant to be used to provide the social and welfare needs of the people. In Nigeria, there two major sources of government revenue; they are the oil and non-oil sources of revenue. Prior to the discovery of oil in Nigeria, the agricultural sector had been the major sources of revenue that had been the mainstay of Nigeria economy, contribution not less than 96% to the foreign exchange earnings, generation over 60% of Nigeria employment opportunities and approximately 56% of Nigeria gross domestic earnings (World Bank, 2013). The major exportable crops then were cocoa, palm products, cotton, groundnut, timber and rubber. The proxies of internally generated revenue to be used in this study are Share from the Federal Account (SFA), Share of Value-Added Tax (SVAT), Corporate Tax/Company Income Tax (CT/CIT), Customs & Excise Duties (CED) and Internal Revenue (IR).

Theoretical Review
Expediency Theory

The expediency theory was developed by Wagner Adolph in1956. Bhartia (2009) opined that every tax ought to justify the need for it and it is only on that basis and consideration that the government should choose a tax policy to implement them. The theory of expediency is in conformity with the hypothesized ideas of canon of taxation which proposed that every tax must have qualities of being basic features of effectiveness, economy, and efficiency in collection. The theory laid an emphases that taxation provides a powerful set of policies and collection tools to the authorities and should be effectively used for bettering the economic and social needs of the citizens, It should be used to solve social ills, provide security, social amenities and provide a veritable tool in fighting income inequality, regional disparity, and unemployment and make a good living standard for the inhabitants (Afuberon & Okoye, 2014).

Social Contract Theory

The theory of social contract was postulated in the political philosophy hypotheses of a renowned scholar, Thomas Hobbes in 1941. Thereafter, social contract theory has the center of discuss by some scholars up to the temporary period (Nbete, 2012). The theory is a dual functional postulation, the theory of morality and at the same time theory of the

state. The theory on the basis of morality and the government attempts to provide philosophical basis for the existence of the state and offers justification for political obligation. The theory sees the government as responsible for managing tax on behalf of the society who elected them as the product of a contract. It offers a rational framework for reconciling the imperatives of government authority with the rights and obligation of the masses (Assfawa & Sebhatb, 2019). Rauscher (2012) in support of social contrast theory, posited that the philosophical application of the social contract theory mean that state and her resources should be administered on the basis of common shared principal of justice, the utilization of the revenue should be used judicious applied for the economic development of the masses.

Empirical Review

Nafiu and Hamidu (2017) studies prevalence of five-child killer diseases and how it has contributed to under-five mortality in Adamawa State Nigeria. The study obtained secondary data from bank of Adamawa primary health acre development agency (PHCDA) for a period of 15 years (2001-2015). The study targeted at the level of children immunized against some child under years related yet died due to pneumonia, diarrhea, measles, tetanus, polio and the overall under five mortality diseases within the time frame of the study. The study measured the prevalence rate per a 100 live birth and used Newey-West regression too to analyze the data and the model developed. The study found that the prevalence rates have generally been decreasing with pneumonia but recoded highest prevalence in tetanus. Polio was found not to have resulted to incidence of deaths. The study also found that there was a strong positive significant relationship between pneumonia and under-five mortality rate. A weak positive and non-significant relationship between diarrhea and under-five mortality was found. This study also found was a strong positive insignificant association between measles and under-five mortality and a negative non-significant relationship between tetanus and under-five mortality.

Abiola and Asiweh (2012) examined the impact of tax administration on the level of government revenue generation in the provision of essential child related healthcare and in developing the Nigerian economy. The study considered the economic development based on the per capita income of the citizens. The study found that diversification of the channels of revenue generation could lead to economic development and improve the living standards of the children healthcare and mortality rate in Nigeria. The study also revealed that the major source of revenue was the oil which amounts to Nigeria putting all her eggs in one basket, hence there is a need to intensify efforts on internally generated revenue.

Okafor (2012) investigated the association between tax revenue and economic development as it affects child healthcare in Nigeria, using multiple correlation and regression methods for a period of 1981-2007. The study found that tax revenue positively affected Gross Domestic Product (GDP). Writing from Kenya, Muriithi (2013) conducted an examination on the relationship between government revenue and the impact of economic growth of the Kenyan economy on child related healthcare. The study employed a descript statistics research design using a secondary data obtained from the Central Bank of Kenya (CBK), Kenya National Bureau of Statistics (KNBS) and the ministry of finance, the public libraries and the Kenya National Budget Office. The study used import duties, excise duties, income tax and value added tax and non-tax revenues as proxies of government revenue to the government. The study found that import duties had a positive effect on the economic growth, excise duties had a weak effect on the economic growth. It also revealed that

income tax showed an increase in the economic growth, an increase in value added tax exhibited a positive effect on the rate of economic growth as the government expenditure on child healthcare is insignificant. The result of this study carried out in Kenya with respect to import duties is consistent with the result found in Nigeria by Okafor (2012), although (Muriithi, 2013) also found that excise duty exhibited weak effect on the economic growth of Kenya.

Yaya, Ekholuenetale, Tudeme, Vaibhav, Bishwajit and Kadio (2017) examined the effect of prevalence and determinants of childhood mortality in Nigeria. The study obtained data from the Nigerian Directorate of Health Services using the total number of children lost by male partners and female partners respective who are married id the determinant variables, while the difference between number of child births and the number of living children were used to determine the number of children lost within the period under consideration. The study variables were obtained a total of 8,658 couples captured in the data set, and used descriptive statistics to examine the presence of over-dispersion and zero occurrences, while zero-inflated negative binomial regression analysis was also carried out to determine the factor associated with childhood mortality. The study found that 30.8% women reported lost their children and 37.3% men reported the same problem. The study further revealed that age, region, residence, education, wealth index, age at first birth and religion are factors associate with childhood mortality. The result further revealed that the risk of childhood mortality were 26.7, 39.75 and 45.9 % respectively lower among the mother having primary, secondary and tertiary education respectively than those with formal education. Mother living in the rural areas experienced 28.3 % increase in childhood mortality than the urban areas.

Methodology

The study adopted ex-post facto research design which provides empirical solution to research problems by using already existing data. The secondary data was collected from verified sources on the annual internally generated revenue of the federal government. Relevant information required to proxy the research variables were extracted from the time series data on federal government internally generated revenue as documented in the Nigerian Stock Exchange (NSE), National Bureau of Statistics (NBS), and Central Bank of Nigeria (CBN) Statistical Bulletin. The study covered a period of 30 years (1989-2019) for SFA, CT/CIT, CED and IR while 24 years (1995 - 2019) for VAT; time series data was used for the period under consideration. The study, therefore, examined the cause-and-effect relationship between internally generated revenue (independent variable), using its proxies of Share from Federation Account (SFA), Share of Value-Added Tax (SVAT), Corporate Tax/ Company Income Tax (CT/CIT), Customs & Excise Duties (CED), and Internal Revenue (IR) and infant mortality rate (INFMR). Both descriptive standards of time series and inferential statistics were employed in this study. The data analysis was carried out in two stages, that is, at the descriptive and inferential statistics stages to analyze the data collected.

Autoregressive Distributed Lag (ARDL) of time series approach was employed as it combines time effects of the data. The unit root test therefore confirmed if the series exhibit a mixture of level stationary and first difference stationary series for the specified model.

The model used in the study is:

INFMR = f(SFA, SVAT, CT/CIT, CED, IR)

This is mathematically specified as follows

$INFMR_t = \beta_0 + \beta_1 SFA_t + \beta_2 SVAT_t + \beta_3 CT/CIT_t + \beta_4 LIR_t + \beta_5 IR + \varepsilon_t$

Where

INFMR =   Infant Mortality Rate
SFA   =   Share from Federation Account
SVAT   =   Share of Value-Added Tax
CT/CIT   =   Corporate Tax/ Company Income Tax
CED   =   Customs & Excise Duties
IR   =   Internal Revenue
β_0 =   Regression intercept which is constant
$\beta_1, \beta_2, \beta_3$ and β_4=   The coefficient of the explanatory variables

ε is the error term of the model
t = time series variable

Results and Analysis
Descriptive Statistics
Table 4.1 Descriptive Statistics

	CED	CT	INFMR	LIR	SFA	SVAT
Mean	256825.9	420912.4	45630108	167948.6	294279.1	99.939
Median	195500	130100	45568177	87449.8	122737.8	98.100
Maximum	837300	1637200	63226718	564448.9	801287.5	124.400
Minimum	5815.5	1914.2	31263356	0	1602.3	74.200
Std. Dev.	235208.9	501194.4	9092779	183530.8	315539.1	18.109
Skewness	0.797	0.960	0.057	0.765	0.555	0.091
Kurtosis	2.596	2.585	1.872	2.159	1.571	1.434
Jarque-Bera	3.491	4.980	1.661	3.937	4.228	3.212
Probability	0.175	0.083	0.436	0.140	0.121	0.201
Sum	7961603	13048285	1.41E+09	5206406	9122653	3098.100
Sum. Dev.	1.66E+12	7.54E+12	2.48E+15	1.01E+12	2.99E+12	9837.554
Observations	31	31	31	31	31	31

Source: Author's computation (2021) from E-Views 10

To confirm if the data set assume a pattern of standard normal distribution, we utilised the Jarque-Bera (JB) statistic. Table 4.1 showed that all the variables are normally distributed as the probability values were greater than the critical value of 0.05, likewise, all variables were normally skewed exhibiting a platykurtic as all their kurtosis (peakedness) value of 2.59, 2.58, 1.87, 2.15, 1.57 and 1.43 for CED, CT, INFMR, LIR, SFA and SVAT respectively are less than three (3), implying that the series have a lot of value below their sample mean.

Furthermore, the results in Table 4.1 presented that the mean values were 256825.9, 420912.4, 45630108, 167948.6, 294279.1 and 99.939 for CED, CT, INFMR, LIR, SFA and SVAT, respectively.

The standard deviation values showed the dispersion and spread in the data series implying that the higher the value, the higher the deviation of the series from its mean. The variables with the highest degree of dispersion from the mean in this study were INFMR and LR, while the standard deviation was 235208.9, 501194.4, 19092779, 183530.8, 315539.1

and 18.109 for CED, CT, INFMR, LIR, SFA and SVAT respectively asserting variations within the data set and that it had been fluctuating over the years.

Results of Stationarity Tests

Econometric studies have revealed that most macroeconomic time series are non-stationary at levels (Engle and Granger, 1987), inferring that most ordinary least squares (OLS) regressions that are carried out at levels may not be reliable. Sequel to this, testing for stationarity of variables to obtain a more reliable result becomes very essential. Augmented Dickey Fuller (ADF) test was used for determine the stationarity of the time series. The test revealed that at 5% critical values, through the ADF statistics in table 4.3, all the variables employed in the four (4) models were stationary at first difference I (1) with the probability values of 0.000, 0.0000, 0.0011, 0.000, 0.0022 representing LCED, LCT, LINFMR, LLIR and LSFA respectively, while only LSVAT was integrated at level I (0). Since all the explained variables were stationary at I (1), with one of the regressors (LSVAT) being stationary at level, the impact and relationship between infant mortality rate and internally generated revenue proxies will be established via the Autoregressive Distributed Lag (ARDL) and the Error correction model (ECM), to investigate the existing of not only short run but also a long run relationship among the variables.

Table 4.2 Stationarity Test Results

Variable	ADF Statistic Values	Critical value	Prob.	Order of Integration
LCED	3.6683	1.9529	0.000	I(1)
LCT	5.6832	3.5742	0.000	I(1)
LINFMR	3.6344	2.9810	0.011	1(1)
LLIR	6.0303	3.5742	0.000	1(1)
LSFA	4.8281	3.5742	0.002	1(1)
LSVAT	3.8389	2.9862	0.007	1(0)

 Source: Author's computation (2021) from E-Views 10

Inferential Statistics-Regression Analysis

Objective: To ascertain the effect of internally generated revenue on Infant Mortality Rate in Nigeria.

Question: To what extent does internally generated revenue affect Infant Mortality Rate in Nigeria?

Hypothesis (H$_0$): Internally generated revenue has no significant impact on Infant Mortality Rate in Nigeria;

Table 4.3 ARDL-ERROR CORRECTION MODEL II

Variable	Coefficient	Std error	t-statistics	Prob.
C	-0.002346	0.001701	-1.378933	0.2012
D(LINFMR(-1))	1.883485	0.293829	6.410134	0.0001
D(LINFMR(-2))	-0.932788	0.240999	-3.870503	0.0038
D(LSFA)	-0.001523	0.001726	-0.882414	0.4005
D(LSFA(-1))	-0.002852	0.002144	-1.330119	0.2162
LSVAT	-0.002317	0.004762	-0.486692	0.6381
LSVAT(-1)	-0.001757	0.004004	-0.438831	0.6711
D(LCT)	0.002939	0.004575	0.642559	0.5365
D(LCT(-1))	0.007391	0.004790	1.542978	0.1572
D(LLIR)	-0.000125	0.002419	-0.051840	0.9598

D(LLIR(-1))	-0.001592	0.001955	-0.814249	0.4365
D(LCED)	0.005070	0.003856	1.314839	0.2211
D(LCED(-1))	0.004351	0.003455	1.259087	0.2397
ECM(-1)	-1.127963	0.500456	-2.253870	0.0507
R^2= 0.9696 Adjusted R^2 =0.9258 F-stat = 22.14157 Prob(F-stat) 0.000031				

Source: Author's computation (2021) from E-Views 10

Substituting the numerical values of the intercepts of the models and coefficients of the internally generated revenue variables into the models specified in chapter three yielded the following estimated ARDL-ECM.

Estimated Model

$$LINFMR = -0.0023 + 1.58834LINFMR_{t-1} - 0.9327LINFMR_{t-2} - 0.0015LSFA - 0.0028LSFA_{t-1} - 0.00231LSVAT - 0.0017LSVAT_{t-1}$$
$$+0.0029LCT + 0.00739LCT_{t-1} - 0.00012LLIR - 0.0015LLIR_{t-1} + 0.005LCED + 0.0043LCED_{t-1} - 1.127ECM_{t-1}.................................$$

Evaluation of Parameters of ARDL short runs Models Vis-à-Vis Expectations

For Model, some of the coefficients of the individual internally generated revenue indicators do not comply with the signs expected a priori meanwhile, the logged values of company tax both in lagged 1 and current period (LCT(-1) and LCT) and custom and excise duties in lagged 1 and current periods (LCED(-1) and LCED) were consistent with expectations, as the logged values of share from federation account at current period (LSFA), its period 1 lagged (LSFA(-1)), share from VAT, lagged and current periods (LSVAT(-1) and LSVAT) and licenses and internal revenue in LLIR(-1) and LLIR were in contrast with the expected signs. Furthermore, the lagged 1 estimate of the autoregressive (LLINFMR) exert a positive relationship with its current form, while it's lagged 2 (LINFMR (-2)) signify a negative nexus.

Moreover, estimated model revealed that ceteris paribus in the short run, a percentage increase in the lagged 1 valued of infant mortality rate (LINFMR (-1)) led to about 1.88 percentage increase in its current value (LINFMR), while a percentage increase (decrease) in the two previous years (LINFMR (-2)) brought about 0.932 percent decrease (increase) in the current period of the infant mortality rate. It was also discovered that as Share from federation account in previous period (LSFA (-1)) decreased (increased) by 1 percent, it brought about a 0.002 percent increase (decrease) in the current period LINFMR, while a percentage decrease in the current period LSFA brought about an increase of 0.93% on LINFMR, which signals that there is a negative nexus between LSFA and infant mortality rate in Nigeria during the period under study. In another vein, on the part of the share from VAT at its current period (LSVAT), it portrays that as LSVAT increases by 1 percent, it brought about 0.0023 percent decrease in the LINFMR which shows that the governments invest some of the revenue made from VAT at the current period to public health service or infant health care leading to the reduction, as against the minimal fraction invested in the past period where a percent increase in VAT at LSVAT (-1) led to a 0.0015 percent decrease in the LINFMR.

The model also inform that at both past (LCT(-1)) and current periods (LCT), as company tax increases by a percent, it led to a slight increase of 0.0039% and 0.0073% retrospectively on LINFMR. Meanwhile, the governments expend internal revenue on LINFMR at the previous and current period as depicted through the estimated coefficient of LLIR and LLIR(-1) of -0.00012% and -0.0015% respectively, meaning that as the past period revenue increases (decreases) by 1 % ceteris paribus¸ it brought about a 0.0015% decrease

(increase) in the current period LINFMR, while as the government strive at the current period to increase the LLIR by 1 percent, it led to a meaningful 0.00012% decrease on LINFMR, as this shows the negative relationship between LLIR at its current and past period on LINFMR. Finally, as the revenue from LCED increases (decreases) by 1 percent, it signaled a 0.005 percent increase (decrease) in the current period of LINFMR, while as the LCED (-1) increases with 1 percent, it brought about a 0.0043% increase in LINFMR which shows that the government is not channeling any revenue from custom & excise duties not LINFMR or such investment is not productive.

The ECM align with its expected negative sign, as it portrays speed of adjustment and negative sign indicates a convergence from short run to long run and showing a causal relationship between the explanatory variables with dependent variable. It indicates that the previous periods (years) deviation from long run equilibrium is corrected in the current period at an adjustment speed of 112.7 percent.

The result also shows that none of these internally generated revenue indicators either in their current period or lagged period exert a significant relationship individually with the LINFMR except the lagged 1 and 2 period of the autoregressive which exhibited a significant relationship with its current period as shown through the probability values of 0.0001 and 0.0038 for LINFMR (-1) and LINFMR (-2) respectively.

The ARDL-Long run model:
Table 4.4 ARDL-LONG RUN OF MODEL

Variable	Coefficient	Std error	t-statistics	Prob.
C	5.137368	0.754424	6.809656	0.0000
LSFA	-0.122480	0.130361	-0.939541	0.3623
LSVAT	0.007508	0.192564	0.038992	0.9694
LCT	-0.157089	0.144391	-1.087938	0.2938
LLIR	-0.074987	0.124565	-0.601989	0.5562
LCED	0.315106	0.309809	1.017098	0.3252

Source: Author's computation (2021) from E-Views 10

$$LINFMR = 5.1374 - 0.1225LSFA + 0.0075LSVAT - 0.1571LCT - 0.0750LLIR + 0.3151LCED..$$

The equation shows the long-run model, where it was exhibited that it was not only in the short run LSFA correlate negatively with LINFMR, but did too in the long run, showing that a percent decrease in LSFA in the long run will bring about a 0.1225 percent increase in LINFMR, meanwhile, there was a change in the nexus displayed by LSVAT in the short run as against what is shows in the long run, as in the long run, a percentage increase (decrease) in LSVAT led to a 0.0075 percent increase (decrease) in LINFMR, furthermore, another contrast occurred with LCT, as a percent increase in LCT in the long run will lead to a 0.15 percent decrease in LINMR as opposed to a 0.0029 percent increase it recorded in the short run. Meanwhile, as LLIR increases by 1 percent, it brings about a 0.075 percent decrease in LINFMR ceiling the nexus in the short run, while the custom and excise duties (LCED) increase by a percent brings about a 0.315 increase on LINFMR *ceteris paribus.*

Table 4.5 Post-estimation diagnosis of Model

Test	Statistics	Value	Probability
NORMALITY	Jarque-Bera	3.4238	0.1805
HETEROSCEDATICY	F-STASTICS	0.837320	0.6262
AUTOCORRELATION	F-STASTICS	1.078364	0.3906

Source: Author's computation (2021) from E-Views 10
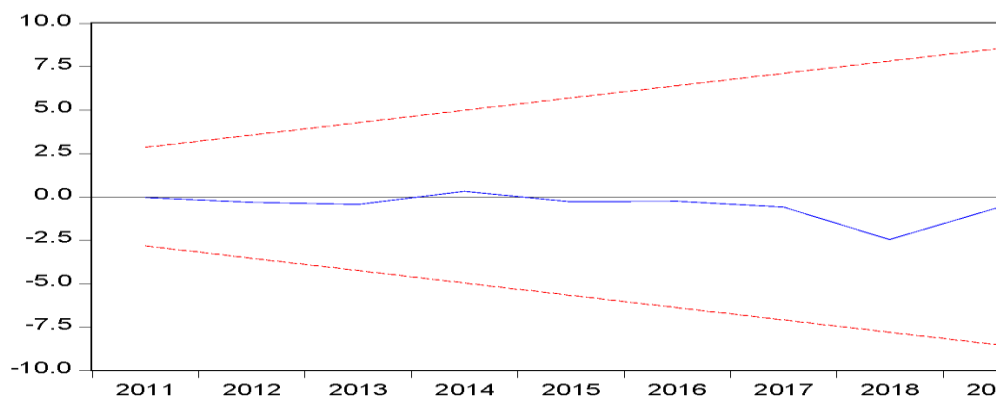
Stability Test

Figure 4.1: CUSUM Graph of Model

Interpretation

From Table 4.3, none of the regressors, LSFA, LSFA (-1), LSVAT, LSVAT (-1), LCT, LCT (-1), LLIR, LLIR (-1), LCED and LCED (-1) connotes significant impact of the infant mortality rate in Nigeria corresponding to 0.4005, 0.2162, 0.6381, 0.6711, 0.5365, 0.1572, 0.9598, 0.4365, 0.2211, and 0.2397 respectively, although their nexus was of mixture and contrary *to a priori*. Meanwhile, only the previous values of infant mortality rate in Nigeria exert significance on the current period infant mortality. Even though, these surrogates for internal revenue might be individually non-significant with LINFMR, jointly, they exert significant with LINFMR as displayed in table 4.7 through the probability value of 0.000031 for the F-stat. showcasing that jointly, all the indicators for IGR exert significant relationship with LINFMR.

The adjusted R^2 (coefficient of determination) is the summary measure that tells us how well the sample regression line fits the data. From model II, Adj. R^2 of 0.9258 means that 92.58% variation in LINFMR was explained by the lagged 1, lagged 2 values of INFMR (LINFMR (-1), LINFMR (-2)), LSFA, LSFA (-1), LSVAT, LSVAT (-1), LCT, LCT (-1), LLIR, LLIR (-1) LCED and LCED (-1), and the remaining 7.48% was explained by variables not included in the model. This implied that greater proportions of the variations in the Nigerian infant mortality rate (LINFMR) were accounted for by internally generated revenue variables considered in this study. The overall regression is confirmed to be significance as indicated by the p-value of the F-statistics, Prob(F-stat) 0.0000.

The post estimation diagnosis table established the absence of serial correlation among the estimated ARDL-ECM successful error terms as the probability value of the F-statistics is greater than the 5% level of significant (0.3906 > 0.05) adjudging that successful error terms are not correlated , furthermore, the estimated model residuals do exhibit a constant and finite variance (homoscedastic) through the higher probability value of the F-statistics of 0.6262, more so, the residuals of the estimated model were normally distributed as the probability value of the Jarque-Bera statistics is greater than the 5% significant level (0.1805>0.05), while the CUSUM test shows that the model is stable as it lies between the 5% boundary.

Finally, following the significance of the joint relationship of the IGR proxies, the null hypothesis is not accepted while the alternative hypothesis is not rejected. This implies that internally generated revenues have significant effect on Infant Mortality Rate in Nigeria.

Decision:

At a level of significance 0.05, the F-statistics is 22.14157, while the p-value of the F-Statistics is 0.0000 which is lower than 0.05 level adopted. Therefore, the study rejected the null hypotheses which mean that internally generated revenue has significant effect on Infant Mortality Rate in Nigeria.

Discussion

The findings of the study showed that internally generated revenue have significant effect on the Infant Mortality Rate in Nigeria. This corroborates with the findings of Abiola and Asiweh (2012) who found that diversification of the channels of revenue generation could lead to economic development and improve the living standards of the children healthcare and mortality rate in Nigeria. This may be due to the fact that increase in the internally generated revenue of the system will lead to a better health care system which will in turn reduce Infant Mortality Rate in Nigeria and vice versa. This is consistent with O'Hare, Makuta, Chiwaula, and Bar-Zeev (2013) in their study Income and child mortality in developing countries: a systematic review and meta-analysis where they found out that income is an important determinant of child survival and this work provides a pooled estimate for the relationship. It was discovered that if a country has an infant mortality of 50 per 1000 live births and the gross domestic product per capita purchasing power parity increases by 10%, the infant mortality will decrease to 45 per 1000 live births. This is also in agreement with the findings of Ude and Agodi (2014) who made an investigation to establish the impact of non-oil revenue on infant mortality as a result of level of economic growth in Nigeria and discovered that agricultural sector revenue, manufacturing sector revenue and interest rate had a positive significant impact on the economic growth's impact on health care facilities in Nigeria. That is, the higher the internally generated revenue, the higher the growths of health care facilities, which will then reduce the rate of infant mortality, rate in Nigeria. This is also consistent with the study of Dada (2015) on Fiscal Decentralization and Social Services in Nigeria who discovered that the internally generated revenue enhances literacy rates and reduces infant mortality. However, the result seems to contradict with the findings of Deon and Lant (1997) who concluded that although income alone is a powerful determinant, other factors are significant determinants of under-5 mortality.

Conclusion and Recommendation

This study examined the effect of internally generated revenue on infant mortality rate in Nigeria and was conducted using the annual time series data, which covered a period of 30 years (1989-2019) for SFA, CT/CIT, CED, and IR while 24 years (1995 - 2019) for VAT. The result of the study showed that internally generated revenue has significant effect on Infant Mortality Rate in Nigeria. Therefore the study concludes that Internally Generated Revenue significantly affects the Infant Mortality Rate in Nigeria. Thus the study recommends that the government should also introduce strategies such as establishment of a dependable data base which is accessible, eliminating all sources of revenue leakages through the automation of revenue collection system, tracking the underground economy for more revenue generation, diversification of the revenue base through wealth creation among others so as to enhance internally generated revenues. The government should also ensure that internally generated revenues are used well to serve the purpose of what they are being generated for which is mainly to improve the national economic development of the country.

The study contributes to the body of knowledge as found within the empirics of literature reviewed to have used internally generated revenue as factors controlling the infant mortality rate in Nigeria; which conceptually aligned with the current issues in the economic development in relation to labour force, infant mortality rate and gross domestic product per capita income. There were limited literatures on this area. Literatures showing the relationship between some of the measures of the dependent variable and the independent variables were scarce thereby limiting the inferences that can be drawn from past literatures. The study therefore utilized all the available literature related to the concepts and measurements of variables adopted in this study to establish the foundation upon which this finding of this study is built. This study therefore suggests that future studies should extend the research to other measures of national economic development.

References

Abiola, J., & Asiweh, M. (2012). Impact of tax administration on government revenue in a developing economy. *International Journal of Business and Social Science, 3*(8), 45-92.

Adams, R. A. (2006). Public sector accounting and finance. Lagos, Nigeria: *Corporate Publishers Ventures.*

Afuberoh, D., & Okoye, E. (2014). The impact of taxation on revenue generation in Nigeria: A study of Federal Capital Territory and selected States. *International Journal of Public Administration and Management Research, 2*(2), 22-47.

Alade, S. O., & Tule, M. K. (2017). The Nigerian financial system at a glance. *Central Bank of Nigeria Monetary Policy Journal. 1*(2), 37-39.

Assfawa, A. M., & Sebhatb, W. (2019). Analysis of tax compliance and its determinants: Evidence from Kaffa, Bench Maji & Skeka zones Category B Tax payers, SNNPR, Ethiopia. *Journal of Accounting, Finance and Auditing Studies, 5*(1), 32-58.

Becher, H., Muller, O., Jahn, A., Gbangou, A., Kynast-Wolf, G., & Kouyate, B. (2016). Risk factors of infant and child mortality in rural Burkina Faso. Bull World Health Organ, 82(3), 265–73.

Besley, T., Ethal, E., & Persson, T. (2013). The logic of political violence. *Quarterly Journal of Economics, 126(22)*, 1411-1445.

Bhartia, H. L (2009). Public Finance (14th Edition). New Delhi: Vikas Publishing House PVT Limited.

Cornelius M. O, Ogar. A, & Oka F. A (2016). The impact of tax revenue on economic growth: Evidence from Nigeria. *Journal of Economics and Finance. 7(1) 32-38*

D'Agosto, E., Manzo, M., Pisani, S., & D'Arcangelo, F. M. (2018). The effect of audit activity on tax declaration: Evidence on small businesses in Italy. *Public Finance Review*, *46*(1), 29-57.

Deloitte (2016). Internally generated revenue: what are the short term options at State level? Blog.deloitte.com.ng. Retrieved: 2021.

Muriithi, E. (2013). The relationship between government revenue and economic growth in Kenya. *International Journal of Social Sciences and Project Planning Management, 1*(1).

Nafiu, L., & Hamidu, U. W. (2017). Prevalence of five-child killer diseases and under-five mortality in Adamawa State, Nigeria. *KIU Journal of Social Sciences,3*(1)13–20.

National Population Commission. (2009). Nigeria demographic and health survey report Abuja, Nigeria

Nbete, A. D. (2012). The social contract theory: A model for reconstructing a true Nigerian nation-state. *International Journal of Humanities and Social Science, 2*(15), 35-56.

Nigeria Governors Forum (2016). Internally generated revenue of Nigerian States: Trends, challenges and option. Retrieved from www.nggovernrsforum.org. 20/08/2019. Nigeria Demographic and Health Survey, 2013.

Obara, L.C., & Nangih, E. (2017). Tax compliance barriers and internally generated revenue in Nigeria: Empirical from SMES in Port Harcourt metropolis. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 7(4), 169-176*

Ofurum, C., Amaefule, L., Okonya, B., & Amaefula, H. (2018). Impact of E–taxation on Nigeria's revenue and economic growth: A Pre – post analysis. *International Journal of Finance and Accounting, 7*(2), 19-26.

Okafor, R. G. (2012). Tax revenue generation and Nigerian economic development. *European journal of business and management*, *4*(19), 49-56.

Olatanwa, A. H. (2017). Effects of taxation on economic growth in Nigeria. *Osogbo Journal of Management. 2*(3), 37-46.

Rauscher, F. (2012). *Kant's social and political philosophy*. The Stanford Encyclopedia of Philosophy (Spring Edition), edited by Edward N. Zalta

Ude, D. K., & Agodi, J. E. (2014). Investigation of the impact of non-oil revenue on economic growth in Nigeria*. International Journal of Science and Research, 3(11* World Bank (2013). www.worldbank.org. Retrieved 15/01/2020.

Yaya, S., Ekholuenetale, M., Tudeme, G., Vaibhav, S., Bishwajit., & Kadio, B. (2017). Prevalence and determinants of childhood mortality in Nigeria. *BMC Public Health, 17*(1), 2-7.