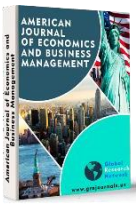

American Journal of Economics and Business Management

Vol. 8 Issue 4 | **pp**. 1392-1402 | **ISSN:** 2576-5973
Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Federal Government Tax Revenue Sources and Infant Mortality Rate in Nigeria

Dr. Chukwuekwu UTALOR [1], Prof. Maryann N. IGBODIKA [2], ALAJEKWU, Udoka Bernard [3]

[1] Federal Inland Revenue Service, Small and Medium Tax Audit Department Asaba, Delta State, Nigeria
[2, 3] Department of Banking and Finance, Chukwuemeka Odumegwu Ojukwu University Uli, Anambra State, Nigeria

Abstract:
This study examined the effect of federal government tax revenue sources on infant mortality rate in Nigeria. Sources of federal government tax revenue was disaggregated into company income tax, education tax, petroleum profit tax, value added tax and capital gains tax. The data for the study were gathered from Central Bank of Nigeria (CBN) Statistical Bulletin, World Bank Development Index (WDI) and Federal Inland Revenue Service Annual Accounts and Tax Statistics/Report covering a 26-year period spanning 1997 to 2022. The result of data analysis from the Vector Autoregressive (VAR) model showed that federal government tax revenue have largely positive but insignificant effects on Infant Mortality rate in Nigeria. The study recommends that the Federal Government to significantly increase the proportion of tax revenue allocated to the healthcare sector that could improved upgrade facilities in the primary health centers and strengthen human resources for health and enhances access to quality healthcare services across the country.

Keywords: Taxation, tax revenue, infant mortality rate, Nigeria.

Citation: UTALOR , D. C. ., IGBODIKA , P. M. N. ., & Bernard , A. U. . (2025). Federal Government Tax Revenue Sources and Infant Mortality Rate in Nigeria. American Journal of Economics and Business Management, 8(4), 1392–1402. Retrieved from https://globalresearchnetwork.us/index.php/ajebm/article/view/3449

Received: 12 Feb 2025
Revised: 28 Feb 2025
Accepted: 15 Mar 2025
Published: 12 Apr 2025

1. Introduction

Governments globally rely on various fiscal instruments, with taxation being a primary source of revenue to finance public expenditures and drive developmental initiatives (Adeyemi, 2023). In Nigeria, the federal government levies taxes on individuals and corporations to generate funds essential for economic growth and the provision of public services (Etale & Bariweni, 2019). These revenues are theoretically intended to improve the overall well-being of citizens, including critical aspects such as healthcare and social welfare, which directly influence key development indicators like the infant mortality rate (IMR) (Ironkwe & Agu, 2019). A well-functioning tax system is crucial for mobilizing domestic resources that can be strategically allocated to sectors vital for human capital development and achieving Sustainable Development Goals (SDGs) related to health (Obi *et al.*, 2021).

The theoretical linkage between government revenue, derived predominantly from taxation, and socio-economic development, including health outcomes, is well-established (Bird & Zolt, 2003). Increased government revenue provides the fiscal space to invest in healthcare infrastructure, improve access to medical services, and implement public health programs that can significantly reduce infant deaths (Addulhamid, 2018).

Consequently, the effective utilization of tax revenue is posited to be a key determinant in a nation's progress towards better health indicators and overall economic development (Akintoye & Teshie, 2013).

Despite the theoretical expectation that government revenue, largely from taxation, should positively impact crucial development indicators such as infant mortality, empirical evidence, both globally and within Nigeria, presents a complex and often contradictory picture. Some international studies suggest a positive and significant relationship between tax revenue and economic development, which often correlates with improved health outcomes (Abo-Ahmed, 2021; Anojan, 2015; Kadenge, 2021). However, others indicate an insignificant or even negative effect of taxation on growth and development, potentially implying a lack of effective translation of revenue into impactful social sector investments (Essoh *et al.*, 2016; Nguyen & Darsono, 2022)

Within the Nigerian context, the empirical landscape is similarly divided. While some studies suggest that tax revenue contributes significantly to overall government revenue and, by extension, to economic growth, with potential trickle-down effects on social indicators (Ajala & Afolabi, 2021; Ayo, 2020; Omesi & Akpeekon, 2019), others argue that the impact of tax revenue on economic development is insignificant or even negative (Aniefor, 2022; Oshiobugie & Akpokerere, 2019). Notably, Okeke *et al*. (2018) found a statistically significant relationship between tax revenue and infant mortality, alongside other development proxies like labor force and gross fixed capital formation. This suggests a potential direct link between government revenue and this critical health outcome.

The divergence in findings across these studies may be attributed to various factors, including differences in methodologies, the specific tax revenue sources analyzed, the time periods under consideration, and, critically, the proxies used to measure economic development. As highlighted in the review, many studies focusing on federal government tax revenue and economic development in Nigeria have predominantly used Gross Domestic Product (GDP) as a proxy for development. However, other studies have employed alternative measures such as the Human Development Index (HDI) or unemployment rates, yielding varied conclusions (Egiyi, 2017; Ibanichuka *et al*., 2016; Oladele & Adeusi, 2018).

Acknowledging the limitations of relying solely on macroeconomic indicators like GDP to capture the nuances of human well-being, this study adopts infant mortality rate as a direct proxy for economic development, particularly focusing on the health dimension. This approach aligns with the argument that a nation's ability to protect its most vulnerable population, as reflected in its IMR, is a fundamental aspect of its overall development (Okeke *et al*., 2018). Therefore, to address the existing gap in understanding the specific impact of federal government tax revenue sources on a critical health outcome, this research aims to examine the effect of selected federally collected revenues - namely Company Income Tax, Education Tax, Petroleum Profit Tax, Value Added Tax, and Capital Gains Tax - on the infant mortality rate in Nigeria over the period of 1997 to 2022. This focus on IMR as a development indicator seeks to provide a more direct insight into the effectiveness of government revenue utilization in improving a crucial aspect of human welfare.

2.1 Conceptual Review

The diagrammatical view on Figure 1 shows that some selected federal government tax revenue sources in Nigeria classified into Company Income tax, Education tax, Petroleum Profit tax, Value added tax and Capital gains tax have links with Economic development which are proxied by Infant mortality rate.

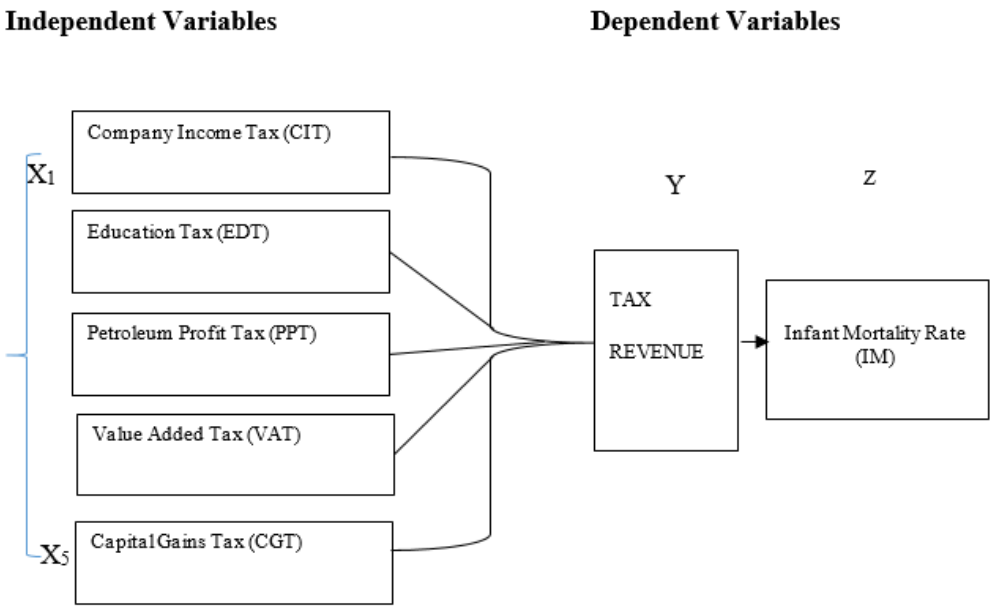

Figure 1: Conceptual review depicting variables relationship on the effect of tax revenue on a country economic development

How this revenue is deployed and expended will engender growth and development in Nigeria; and the influence of independent variables on dependent variables is analyze by regression and written in the equation as follows:

$Z = a + b + \text{Log}_n X_1 + \text{Log}_n X_2 + \text{Log}_n X_3 + \text{Log}_n X_4 + \text{Log}_n X_5$ ……. (1)

$Z = a + b + \text{Log}_n Y$ ……. (2)

Where:

Y = Selected Federal Government Tax Revenue which are X_1, X_2, X_3, X_4 and X_5

X_1 = Company Income Tax

X_2 = Education Tax

X_3 = Petroleum Profit Tax

X_4 = Value Added Tax

X_5= Capital Gains Tax

Z = Proxy of Economic Development

Taxation is a major instrument of fiscal policy used by the government in promoting stability and economic growth (Obi, *et al*, 2021). *Total tax revenue as a percentage of GDP indicates the share of a country's output that is collected by the government through taxes.* Nigeria operates a decentralized tax system where each level of Government is independently responsible for the administration of taxes within its jurisdiction. Nigeria generate revenue to fund government expenditure through a pool of taxes from each tier of government. Taxes are established by tax statutes which form the basis of tax administration. These tax statutes usually specify the tax rate, due date, basis of assessment, offences, and penalties of the identified taxes.

The core of federal government generated revenue sources in Nigeria comes from the company income tax, education tax, petroleum profit tax, value added tax and capital gains tax. These tax sources are used for various purposes. For instance, small companies with a gross turnover of the company income tax for small NGN25 million and less are charged 0% which connotes that they are exempted from tax; but the medium company category (gross

turnover greater than NGN25 Million and less) and big companies (with gross turnover of NGN 100 and above) are charged 20% and 30% respectively. For the education tax, the rate of the levy is 3% of the assessable profit with effect from September 2023, while that of the petroleum profit tax is 50% for Petroleum operations under Production Sharing Contracts (PSC) with Nigeria National Petroleum Corporation Limited; 65.75% for non-PSC operations, including Joint Ventures (JVs), in the first five years during which the company has not fully mortised all pre-production capitalized expenditure and 85% for non-PSC operations after the first five years, but the upstream gas profits are taxed at 30%. As at 2020, the value added tax has gone up to 7.5% while capital gains tax is calculated at tax rate of 10% on capital gains. Increase in tax rate is expected to drive upwards, the amount of tax collected by the federal government. However, the effectiveness and efficiency of tax management is essential to improve tax collection and increase the amount realizable from taxation.

In addition to being a source of money; taxes are critical to ensuring that economic development is both sustainable and equitable (Egiyi, 2022) hence is the capacity to enhance the quality of lives. CDC (2023) stated that infant mortality rate (IM) is one of the measures of sustainable development and healthiness of the citizenry. The ability of the government to minimize the number of deaths per 1,000 live birth of children under one year of age defines the mortality rate. Causes of infant mortality could be Birth defects such as Neonatal encephalopathy, or problems with brain function after birth; preterm birth and low birth weight complications; sudden infant death syndrome; injuries such as suffocation and maternal pregnancy complications. Quality healthcare provision in terms of infrastructure and human development can mitigate these. Hence this study aims to determine the extent to which government revenue has been used to achieve reduced infant mortality rate.

2.2 Theoretical Framework.

The Benefit Received Theory was initially developed by Knut Wicksell (1896) and Erik Lindahl (1919), premised on a just income distribution to accurately determine the optimal amount of revenue that should be spent on public goods; more equitable/fair approach because taxpayers like consumers would pay for what they get; make taxes more akin to prices that people would pay for government services; makes taxpayers to have a better understanding of the cost of public goods; more efficient allocation of limited resources and consumer sovereignty that is specific rather than general charges are more direct. So, the preference of taxpayers rather than government planner is given more weight. This theory is relevant in that it will boost tax collection due to its principle of equity and fairness. Therefore, people are motivated to pay tax when they perceived that tax collection can boost the healthcare sector which will serve as safety net for their longevity.

2.3 Empirical Review

Aniefor (2022) used a descriptive statistics and inferential statistics (Regression analysis) and E-view 9.0 to investigate the effect of Company Income tax on Infant mortality. Infant mortality rate was the explanatory variable measured with Company Income tax in Nigeria for period year 2004 to 2021.The result revealed that Company Income tax has a negative and insignificant effect on Infant mortality rate.

Oranefo (2022) assessed the effect of Custom and Excise duties on Infant Mortality in Nigeria from 2004 to 2021 using Regression analysis and E-view 9.0 to analyze the data of Infant Mortality on Custom and Excise duties. The study indicated that Custom and Excise duties have a negative but significant effect on Infant mortality rate in Nigeria.

Okeke, *et al* (2018) carried out a study to examine Tax Revenue and Economic Development in Nigeria. The study used Infant Mortality and Gross Fixed Capital formation in Nigeria as dependent variables while Company Income Tax, Excise Duty, Personal Income Tax, Value Added Tax, Petroleum Profit tax and Import Duty as Independent Variable. Applying

Augmented Dickey Fuller test, Multiple Linear Regression and Multicollinearity test, Granger, Johansen and Error Correction Model, it was revealed that Tax revenue has a statically significant relationship with Infant Mortality, Labour force and Gross Fixed Capital Formation in Nigeria.

METHODOLOGY

The *ex post facto* research design was adopted to investigate the effect of federal government tax revenues on infant mortality rate using time series data obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, World Bank Statistical Bulletin, National Bureau of Statistics (various issues) and Federal Inland Revenue Service (FIRS) Annual Report, for a period spanning 1997 to 2022.

The multiple regression model is built on the previous work done by Aniefor (2022) as below:

$IMR_{it} = \beta_0 + \beta_1 CIT_{it} + \mu_t$ ……

Where:

β_0 = Constant term (Intercept)

β_1 = Coefficient of Companies Income Tax

IMR_{it} = Infant Mortality for period t

μ_t = Error term (Stochastic term)

The model was modified by addition of other federal government tax revenue sources such as the addition of Education tax, Petroleum profit tax, Value added tax and Capital gains tax. The equation from the Model two of this study is:

$IM = b_0 + b_1 CIT + b_2 EDT + b_3 PPT + b_4 VAT + b_5 CGT + \mu$……equation (2)

Taking logarithms of both sides of the equation, we have

$\text{Log } IM_t = b_0 + b_1 \log CIT + b_2 \log EDT + b_3 \log PPT + b_4 \log VAT + b_5 \log CGT + \mu$

Where:

b_0 = Constant /Intercept

$b_1 - b_5$ are the coefficient of the regression equation.

$\text{Log } IM_t$ = log of Infant Mortality (IM)

Log CIT = log of Company Income Tax (CIT)

Log EDT = log of Education Tax (EDT)

Log PPT = log of Petroleum Profit Tax (PPT)

Log VAT = log of Value Added Tax (VAT)

Log CGT = log of Capital Gains Tax (CGT)

μ_t is the error term.

A priori, it is expected that b_1 is > 0, b_2-b_4 > 0 and b_5 > 0

The study used Vector Auto regressive (VAR) technique to test The Effects of Selected Federal Government Tax Revenue Sources on Economic Development in Nigeria. The analysis data passed the descriptive statistics, stationarity test, model estimation and diagnostics.

4. Data Analyses and Interpretation

Table 1: Summary of Unit Root Test for Stationarity

Variables	At Level I(0)		First Second Difference I(1)		Order of Integration
	t-stats	P.value	t-stats	P.value	
Company Income Tax (CIT)	2.3233	0.9999	-1.4456	0.5405	1(2)
Education Tax (EDT)	-1.3397	0.5947	-6.0543	0.0000	1(1)
Petroleum Profit Tax (PPT)	-1.4154	0.5569	-2.5788	0.1186	1(2)
Value Added Tax (VAT)	2.2646	0.9998	0.4965	0.9820	1(2)
Capital Gain Tax (CGT)	-4.2506	0.0029	-	-	1(0)
Infant Mortality (IM)	-4.6670	0.0012	-	-	1(0)

Augmented Dickey-Fuller (ADF) was employed to determine the stationarity or otherwise of variables used in the study. The decision rule is to reject stationarity if ADF statistics is less than 5% critical value, and accept stationarity when ADF statistics is greater than 5% criteria value. The unit root results shows that Education Tax (EDT) is stationary at first difference I(1) while Company Income Tax (CIT), Petroleum Profit Tax (PPT), and Value Added Tax (VAT) are stationary at second difference I(2). Nonetheless, Capital Gain Tax (CGT) and Infant Mortality (IM) are stationary at level I(0). The independent variables showed both First difference I(1) and Second Difference I(2) stationarity. The dependent variable showed First Differences I(0) .There is presence of second difference I(2) in the models. Thus, the most suitable tool of regression analysis in this instance is the Vector Autoregressive (VAR) model.

Table 2: Granger Causality Test CIT, EDT, PPT, VAT and CGT

Pairwise Granger Causality Tests

Date: 04/11/23 Time: 23:17

Sample: 1993 2022

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CIT does not Granger Cause IMR	28	0.83602	0.4462
IMR does not Granger Cause CIT		1.55866	0.2318
EDT does not Granger Cause IMR	28	0.38134	0.6872
IMR does not Granger Cause EDT		3.09181	0.0647
PPT does not Granger Cause IMR	25	0.27904	0.7594
IMR does not Granger Cause PPT		3.98526	0.0349
VAT does not Granger Cause IMR	28	0.37584	0.6909
IMR does not Granger Cause VAT		4.18052	0.0283
CGT does not Granger Cause IMR	28	0.21758	0.8061
IMR does not Granger Cause CGT		1.83872	0.1816

CIT does not granger cause IMR (0.4462 > 0.05) while IMR does not granger cause CIT (0.2318 > 0.05) hence, there is no causality; EDT does not granger cause IMR (0.6872 > 0.05)

while IMR does not granger cause DET (0.0647 > 0.05) hence, there is no causality; PPT does not granger cause IMR (0.7594 > 0.05) while IMR granger cause PPT (0.0349 < 0.05) hence, there is uni-directional causality; VAT does not granger cause IMR (0.6909 > 0.05) while IMR granger cause VAT (0.0283 < 0.05) hence, there is uni-directional causality; CGT does not granger cause IMR (0.8061 > 0.05) while IMR granger cause CGT (0.1816 > 0.05) hence, there is no causality.

Table 3: VAR Analysis of the Effect of Selected Federal Government Tax Revenue Sources and Infant Mortality Rate (IM)

Sample (adjusted): 1999 2022
Included observations: 21 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	IM	CIT	EDT	PPT	VAT	CGT
IM(-1)	1.176055	-19.50617	3.675844	16.24683	38.58695	-25.73392
	(0.22125)	(97.2076)	(24.8812)	(459.749)	(45.8165)	(18.9831)
	[5.31555]	[-0.20066]	[0.14774]	[0.03534]	[0.84221]	[-1.35562]
IM(-2)	-0.188331	18.05583	-0.867487	-89.85065	-37.85836	27.62664
	(0.23940)	(105.183)	(26.9226)	(497.470)	(49.5756)	(20.5406)
	[-0.78668]	[0.17166]	[-0.03222]	[-0.18062]	[-0.76365]	[1.34498]
CIT(-1)	-6.68E-07	-0.044541	-0.048409	0.411650	-0.229468	0.049003
	(0.00205)	(0.89940)	(0.23021)	(4.25374)	(0.42391)	(0.17564)
	[-0.00033]	[-0.04952]	[-0.21028]	[0.09677]	[-0.54132]	[0.27900]
CIT(-2)	-0.000203	0.222597	0.100142	-1.007042	0.393600	0.073669
	(0.00158)	(0.69473)	(0.17782)	(3.28575)	(0.32744)	(0.13567)
	[-0.12826]	[0.32041]	[0.56316]	[-0.30649]	[1.20204]	[0.54300]
EDT(-1)	0.003332	1.525954	-0.077897	5.555385	-1.550752	-0.245075
	(0.00449)	(1.97360)	(0.50516)	(9.33424)	(0.93021)	(0.38541)
	[0.74181]	[0.77318]	[-0.15420]	[0.59516]	[-1.66710]	[-0.63588]
EDT(-2)	-0.002780	1.085420	-0.148428	3.466817	-0.949788	-0.143017
	(0.00227)	(0.99757)	(0.25534)	(4.71808)	(0.47018)	(0.19481)
	[-1.22450]	[1.08806]	[-0.58130]	[0.73479]	[-2.02004]	[-0.73413]
PPT(-1)	-0.000123	0.098047	0.062766	0.790196	-0.052104	-0.014684
	(0.00021)	(0.09043)	(0.02315)	(0.42768)	(0.04262)	(0.01766)
	[-0.59925]	[1.08426]	[2.71174]	[1.84762]	[-1.22249]	[-0.83155]
PPT(-2)	-0.000259	-0.099890	0.005590	-0.620788	0.123469	0.025966
	(0.00031)	(0.13675)	(0.03500)	(0.64676)	(0.06445)	(0.02670)
	[-0.83104]	[-0.73046]	[0.15969]	[-0.95984]	[1.91563]	[0.97233]
VAT(-1)	-0.000884	0.827207	-0.210093	4.437893	1.652929	-0.025195
	(0.00370)	(1.62591)	(0.41617)	(7.68985)	(0.76633)	(0.31751)
	[-0.23879]	[0.50876]	[-0.50483]	[0.57711]	[2.15693]	[-0.07935]
VAT(-2)	0.002319	-0.403853	0.435771	-8.534481	-0.303932	0.065259
	(0.00777)	(3.41186)	(0.87330)	(16.1366)	(1.60810)	(0.66628)
	[0.29860]	[-0.11837]	[0.49900]	[-0.52889]	[-0.18900]	[0.09795]
CGT(-1)	-0.003005	0.834881	-0.037478	0.478067	-1.259251	-0.234585
	(0.00419)	(1.84250)	(0.47161)	(8.71422)	(0.86842)	(0.35981)
	[-0.71663]	[0.45312]	[-0.07947]	[0.05486]	[-1.45005]	[-0.65197]
CGT(-2)	-0.007019	2.481174	0.962490	-1.675543	0.114533	-0.057740
	(0.00416)	(1.82564)	(0.46729)	(8.63444)	(0.86047)	(0.35652)
	[-1.68924]	[1.35907]	[2.05973]	[-0.19405]	[0.13311]	[-0.16196]
C	-1.057886	115.5916	-331.1833	8925.537	11.59365	-288.9474
	(4.09919)	(1801.02)	(460.988)	(8518.02)	(848.867)	(351.711)
	[-0.25807]	[0.06418]	[-0.71842]	[1.04784]	[0.01366]	[-0.82155]
R-squared	0.999932	0.986508	0.960753	0.870959	0.997419	0.556088
Adj. R-squared	0.999830	0.966269	0.901883	0.677398	0.993546	-0.109780
Sum sq. resids	0.563305	108738.9	7124.048	2432347.	24156.13	4146.854
S.E. equation	0.265355	116.5863	29.84135	551.4013	54.95013	22.76745
F-statistic	9796.883	48.74383	16.31985	4.499658	257.5832	0.835132
Log likelihood	8.196081	-119.5956	-90.97815	-152.2261	-103.7993	-85.29633
Akaike AIC	0.457516	12.62816	9.902681	15.73582	11.12374	9.361555
Schwarz SC	1.104125	13.27476	10.54929	16.38243	11.77035	10.00816
Mean dependent	82.81524	773.2229	119.4514	1543.979	731.2843	10.42857
S.D. dependent	20.34517	634.7939	95.26783	970.8099	684.0131	21.61204

The analysis of the effect of selected federal government tax revenue sources on the infant mortality rate in Nigeria is shown on Table 3. The results used the coefficients of regression to measure the direction of relationship and t-/f statistics to test the significance.

Endogenous Effect of Infant Mortality Rate (IM)

The result revealed the coefficient of IM as 1.1760 and -0.1883 for lags 1 and 2 respectively. This suggests that IM had positive relationship with IM at lag 1 and then negative effect at lag 2. However, the t-statistics are 5.3155 and -0.7866 for IM (-1) and IM (-2) respectively. The t-statistics are above 2 at lag 1 but below 2 at lag 2. Thus, the study rejects null

hypothesis for lag 1 and accepted it for lag 2. Thus, the study posits that infant mortality is an endogenous variable in the model that influence the model positively at the previous year 1 but no effect in the subsequent year.

Company Income Tax and IM Nexus

The coefficient of regression for CIT is -0.0000068 for lag 1 and -0.000203 for lag 2. This suggests that CIT has negative effects on Infant mortality in Nigeria. This implies that a growing CIT value will lead to reduction in Infant mortality in Nigeria. However, the t-statistics are -0.00033 and 0.1282 for lags 1 and 2 respectively. Since the t-values are less than 2.00 the study cannot reject the null hypothesis and thus posit that CIT ad a negative and insignificant effect on infant mortality in Nigeria.

Education Tax and IM Nexus

The coefficient of the result for EDT and IM nexus are 0.0033 and -0.0027 for lags 1 and 2 respectively. This suggests that EDT will have positive effect on IM in lag 1 period and then negative effect in lag 2. This implies that an increase in the EDT collection will lead to improvement in the growth of infant in Nigeria, in the first one year and then a fall in IM in subsequent year. Thus, EDT seems to fluctuate but eventually result in reduction in IM in Nigeria. Nonetheless, the t.values are 0.7418 and -1.2245 for the coefficient of lags 1 and 2 respectively. Since the t-value is less than 2.000 we reject the null hypothesis and posit that EDT has no significant effect on IM in Nigeria.

Petroleum Profit Tax and IM Nexus

The result of the Petroleum Profit tax and infant mortality rate is addressed herein. The coefficient of the regression is -0.000123 for lag 1 and -0.000259 for lag 2. The coefficients show that PPT has negative relationship with IM in Nigeria. This implies that a rise in PPT will lead to reduction in the country's infant mortality rate. The t.values are -0.5992 and -0.8310 for the coefficient of lags 1 and 2 respectively. Since the t-value is less than 2.000 we cannot reject the null hypothesis and posit that PPT has negative but no significant effect on IM in Nigeria.

Value Added Tax and IM Nexus

The coefficient of the result for VAT and IM nexus are -0.00088 and 0.0023 for lags 1 and 2 respectively. This suggests that VAT will have negative effect on IM in lag 1 period and then positive effect in lag 2. This implies that an increase in the VAT collection will lead to reduction in the IM in Nigeria, in the first one year and then a rise in IM in subsequent year. Thus VAT seems to fluctuate over time leading to distortion the infant mortality in Nigeria. Nonetheless, the t.values are -0.2387 and 0.2986 for the coefficient of lags 1 and 2 respectively. Since the t-value is less than 2.000 we cannot reject the null hypothesis and posit that VAT has no significant effect on infant mortality (IM) in Nigeria.

Capital Gains Tax and IM Nexus

The result of the CGT and infant mortality rate nexus had coefficient of the regression: -0.0030 for lag 1 and -0.0070 for lag 2. The coefficients show that CGT has negative relationship with IM in Nigeria. This implies that a rise in CGT will lead to reduction in the country's infant mortality rate. The t.values are -0.7166 and -1.6892 which are less than the 2.00 benchmark. Thus, the study posit that CG has negative but no significant effect on IM in Nigeria.

The overall Effect

The cumulative effect is determined using the coefficient of determination and f-statistics. The value of the R^2 is 0.9999 which means that about 99% of the variations in infant mortality can be explained by federal government tax revenue. A 99% value implies that federal government tax revenue has huge explanatory power on infant mortality in Nigeria.

However, the significance test has an F-value of 9796.88 which is above the 2.000 benchmark. This means that the independent variables being federal government tax revenues (CIT, EDT, PPT, VAT, and CGT) have significant effect on infant mortality in Nigeria.

Diagnostic (Secom Order) Test

The reliability of the econometric models of estimation and data analysis were determined using Serial Correlation, and Heteroskedasticity.

1. Serial Correlation Test

Serial correlation investigates whether there is a correlation between one time period and another over time in the time series used for the analyses. The presence of correlation of time periods will lead to serial correlation which will have huge effect on the reliability of model estimation. It may lead to high significant value, inefficient estimation, exaggerated goodness of fit and false coefficient of regression sign (positive or negative). The presence of serial correlation is tested using the VAR Residual Serial Correlation LM Tests for model. The null hypotheses are no presence of serial correlation.

The Decision Rule: The decision rule is to reject the null hypotheses if the p. value is less than 0.05 level of significance.

Table 4: VAR Residual Serial Correlation LM Tests for the Model

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	5.056381	Prob. F(2,17)	0.81891
Obs*R-squared	9.324725	Prob. Chi-Square(2)	0.20944

Table 4 indicates F-statistics value of 5.0563 with probability value of 0.8189 which is greater than 0.05. This indicates that there is no serial correlation (of time series) in the model. This confirms that the nature of the relationship as found in the estimation from the VAR is correct and true of the model characteristics. This implies that the result of the test of hypotheses from the VAR gives correct position of the effect of federal government tax revenue on infant mortality in Nigeria.

Table 5: Heteroskedasticity Test for the Model

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	1.314656	Prob. F(5,19)	0.2998
Obs*R-squared	6.425926	Prob. Chi-Square(5)	0.2670
Scaled explained SS	1.812908	Prob. Chi-Square(5)	0.8744

The F-statistic of the Breusch-Godfrey Serial Correlation LM test is 1.3146 with probability value of 0.2998. Since the probability value is greater than 0.05, we cannot reject the null hypotheses that the residuals are homoscedastic. Thus, we conclude that there is no heteroscedastic in the model. This implies that the result obtained from the estimated model is not biased.

Discussion of Findings and Conclusion

The result shows that selected federal government tax revenue has a significant positive effect on Infant Mortality rate in Nigeria. The coefficient of determination shows that it is about 99% of the variations in infant mortality that is explained by federal government tax revenue. This supposes that federal government tax revenues (CIT, EDT, PPT, VAT, and CGT) have significant effect on infant mortality in Nigeria. The results further indicates that

only the endogenous variable being lagged infant mortality variable showed significant effect in the model. This means that the core variables of federal government tax revenues do not have effect in the model.

Despite the influence noted from the coefficient of determination, the core variables of the study did not impact on infant mortality. This posits that federal government tax revenue do not have influence on infant mortality rate in Nigeria. This is a way of saying that government has not investment significant proportion of her revenues in health such that it could improvement healthcare and reduce mortality. This view point supports that work of Aniefor (2022) and Oranefo (2022). These studies found that federal government taxes such as Company Income tax, Custom and Excise duties have negative and insignificant effect on infant mortality rate in Nigeria. This agrees with the empirical study carried out by Okeke, *et al* (2018) in Nigeria. The study posits that tax revenue has a statistically significant relationship with Infant Mortality and Gross Fixed Capital Formation in Nigeria.

Based on the conclusion, the study recommends that the Federal Government to significantly increase the proportion of tax revenue allocated to the healthcare sector. This investment should be targeted towards improving Healthcare Infrastructure by upgrading facilities in the primary health centers and strengthen human resources for health and enhances access to quality healthcare services across the country. It would also boost the healthcare in Nigeria, the government can earmark a portion of the revenues from Petroleum Profit Tax (PPT) and Value Added Tax (VAT) for investment in maternal and child health programs to create a more direct link between these revenue sources and improvements in infant mortality rates.

References

1. Abo-Ahmed, M. (2021). The impact of tax revenue on economic growth in Sudan. *Journal of Economic and Administrative Sciences*, *37*(3), 343-360.
2. Adeyemi, A. Z. (2023). Tax revenue and economic growth in Nigeria: A disaggregated analysis. *Journal of Accounting and Taxation*, *15*(1), 1-12.
3. Addulhamid, A. (2018). The role of taxation in economic development: Evidence from selected African countries. *African Journal of Economic Review*, *6*(1), 1-15.
4. Ajala, O. J., & Afolabi, A. (2021). Taxation and economic growth in Nigeria: An empirical investigation. *Journal of Economics and Sustainable Development*, *12*(5), 1-9.
5. Akintoye, I. R., & Teshie, E. N. (2013). The impact of tax revenue on economic growth in Ghana. *Journal of Business and Management*, *8*(1), 21-28.
6. Aniefor, S. C. (2022). Company income tax and infant mortality rate in Nigeria: An empirical analysis. *International Journal of Development and Economic Sustainability*, *10*(1), 1-15.
7. Anojan, S. (2015). Impact of tax revenue on economic growth: Evidence from Sri Lanka. *South Asian Journal of Marketing & Management Research*, *5*(5), 1-11.
8. Ayo, O. (2020). The effect of tax revenue on economic growth in Nigeria: A time series analysis. *International Journal of Economics and Financial Management*, *5*(2), 15-24.
9. Bird, R. M., & Zolt, E. M. (2003). *Tax policy and the developing world*. World Bank.
10. Egiyi, M. A. (2017). Tax revenue and unemployment rate in Nigeria: An empirical investigation. *International Journal of Economics and Finance*, *9*(7), 118-125.
11. Essoh, D. W., Aghion, P., Akcigit, U., Cage, J., & Kerr, W. R. (2016). Innovation and taxation: Evidence from young innovative firms. *American Economic Journal: Economic Policy*, *8*(3), 141-166.
12. Etale, L. M., & Bariweni, A. P. (2019). The impact of tax revenue on economic development in Bayelsa State, Nigeria. *International Journal of Social Sciences and Humanities Reviews*, *10*(1), 1-9.
13. Ibanichuka, E. A. L., Akani, F. N., & Ikebujo, C. C. (2016). Tax revenue and human development index in Nigeria: A dynamic analysis. *European Journal of Business and Management*, *8*(16), 1-8.

14. Ironkwe, U. I., & Agu, M. O. (2019). Tax revenue and unemployment in Nigeria: A vector autoregressive analysis. *International Journal of Economics and Finance*, *11*(1), 110-117.
15. Kadenge, P. G. (2021). The impact of tax revenue on economic growth in Zimbabwe. *African Journal of Public Affairs*, *12*(1), 89-103.
16. Nguyen, T. T., & Darsono, S. N. A. C. (2022). The effect of tax revenue on economic growth: Evidence from ASEAN-5 countries. *Journal of Asian Finance, Economics and Business*, *9*(1), 111-119.
17. Obi, J. C., Obi, P. U., Okoye, E. I., & Nweze, C. J. (2021). Tax revenue and economic growth in Nigeria: A dynamic ordinary least square approach. *International Journal of Academic Research in Business and Social Sciences*, *11*(1), 434-446.
18. Okeke, M., Mbonu, C., & Amahalu, N. N. (2018). Tax revenue and economic development in Nigeria: A multivariate analysis. *International Journal of Economics and Management Sciences*, *7*(1), 1-10.
19. Omesi, G., & Akpeekon, T. O. (2019). The impact of tax revenue on economic growth in Rivers State, Nigeria. *International Journal of Management and Social Sciences*, *8*(1), 1-10.
20. Oshiobugie, O. E., & Akpokerere, A. (2019). Tax revenue and economic growth in Nigeria: A nonlinear analysis. *Journal of Accounting and Taxation*, *11*(3), 33-41.
21. Amos O .A & Uniamikogbo E. (2017). Effect of Tax Revenue on Economic Development of Nigeria; *Researchgate.net*
22. Ayo B. (2020). Taxation as a tool for Economic Development of Nigeria. *International Digital Organization for Scientific Research (IDOSR), 6(1),* 9-14.
23. CDC (2023). Infant mortality, Maternal and Infant Health and Reproductive Health. *www.cdc.gov.ng*
24. Egiyi M.A (2022).Taxation as a significant tool for Economic Development. *International Journal of Economics and Public policy, 6(1),* 12-22.
25. Egolum P.U & Ugonabo C.U (2021). The Effect of Value Added Tax on Economic development in Nigeria (1994 - 2018).*IOSR Journal of Humanities and social Science, 26,* 21-30.
26. Federal Republic of Nigeria Official Gazette (2023).Finance Act. *The Federal Government Printer, Lagos; PP 1-18.*
27. Oladele,R. & Adeusi,A.S. (2018). Coroporate Tax Yield and Human Development Index in Nigeria. *Uniport Journal of Business, Accounting & Finance Management, 8(3),* 11-26.
28. Oranefo P.C. (2022). Effect of Custom and Excise Duties on Infant Mortality in Nigeria. *International Journal of Trend in Scientific Research and Development, 6(6),* 717-719.