Personal Income Tax (PIT) and Economic Growth in Nigeria: A Vector Autoregression (VAR) Analysis

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Abstract

Purpose of the article: Quite a number of studies have shown that tax revenues significantly affect the economic growth in both developed and developing countries; however, there is scanty empirical evidence as regards whether personal income tax (a major component of tax revenue) affects economic growth in Nigeria.

Methodology/methods: The ex-post facto research design was adopted and the theoretical framework was anchored on Laffer Curve Theory (LCT). Yearly time series data of personal income tax and the gross domestic product (GDP) were obtained from the Federal Inland Revenue Service (FIRS) and the Central Bank of Nigeria (CBN) statistical bulletins during the period 1987–2017. The data obtained was analysed using the Vector Autoregression (VAR) model via STATA 13.0.

Scientific aim: This paper investigated the effect of personal income tax (PIT) on economic growth in Nigeria.

Findings: The findings of the study revealed that personal income tax has significantly contributed to the level of economic growth in Nigeria, though negatively.

Contributions: Based on the findings of the study, it was recommended that the regulatory framework of taxation in the country should put in place a more effective tax revenue generation system that can enhance better administration of personal income tax. The measure should emphasise and address the accountability of personal income tax. In addition, a well-equipped database on personal income tax or taxpayers should be established by the governments with the aim of identifying all possible sources of income of taxpayers.

Keywords: taxation, personal income tax, economic growth; government budget, Nigeria

JEL Classifications: M4, M01

Introduction

Prior to the emergence of the colonial masters, taxation had existed in Nigeria. According to Samuel, Simon (2011), taxation can be seen as a system of imposing an obligatory levy on all incomes, goods, services and properties of individuals, partnership, trustees, executorships and companies by the government. Yunusa (2013) asserts that income taxes (*e.g.* personal and company income taxes) are the most fundamental sources of revenues to all government. In the Nigerian context, personal income tax (PIT) is a factor to be reckoned with in the Federal Government budget, which they give back to citizens by rendering services or providing basic amenities needed by them. However, this depends on whether the policy or tax administrative framework in the country is towards discouraging or encouraging such individuals in paying their tax (Ola, 2001). In Nigeria, PIT is established by the Personal Income Tax Act of 2011 and provides that personal income taxes are charged at source.

PIT is recognized as a very fundamental tool for national development and growth in most economies of the world and as such, most government do not toil with it, given the decline in oil price in the country which has led to the decrease in availability of funds for distribution to all levels of government (Aimurie, 2012). Aguolu (2004) argued that though PIT may not be the most fundamental source of government revenue in terms of magnitude of revenue derivable from taxation, however, PIT is one of the most fundamental sources of government revenue, from the viewpoint of certainty and consistency of taxpayers.

In spite of the fundamental role of PIT as a major source of government revenue, studies are not forthcoming especially in the area of distinct effects of PIT on the level of economic growth in Nigeria. Prior studies have shown that there is a link between tax revenues and economic growth in both developed and developing countries of the world; however, there is scanty empirical evidence as regards how personal income tax (a major component of tax revenue) affects economic growth. In light of the above, this paper seeks to investigate the effects of PIT on the level of economic growth in Nigeria. The remaining part of this paper is sectioned as follows: the review of literature, methods, results, discussion, conclusion and recommendations.

1. Review of literature

1.1 Personal income tax (PIT) in Nigeria

The taxation of a trade or profession in Nigeria is established and covered by Personal Income Tax Act (PITA). Before 2011, the Personal Income Tax Act Cap .P8 Laws of The Federation of Nigeria (LFN) 2004 governed the administration of PIT in Nigeria. The PIT (amendment) Act 2011 was enacted to amend the Personal Income Tax Act Cap. (LFN) 2004 and related matters. Though dated 24 June, 2011, it was on Tuesday, 13 December 2011 that the then President of the Federal Republic of Nigeria (Dr. Goodluck Ebele Jonathan), while presenting 2012 federal budget proposal to the joint session of the National Assembly confirmed the signing into law, the Bill enacting the Personal Income Tax (Amendment) Act 2011 (Federal Republic of Nigeria, 2013).

According to the provisions of PIT (amendment) Act 2011, taxpayers are required to file returns for the preceding year within 30 days of the end of the year (31 January – previously 90 days, *i.e.* 31 March). Specifically, personal income tax is payable on incomes from sources within and outside Nigeria, but not limited to gains and profit arising from trade, business, profession or vocation, remuneration (*e.g.* salaries, wages, fees, allowances, commissions, bonuses, or benefits premiums), or other perquisites allowed, given or granted by any person to an employee, from an employment from both

public and private sectors, dividend, interest or rent, any charge or annuity, gains or profits including any premiums arising from a right granted to any person for the use or occupation of any property and so on (David, 2012).

As provided by the PIT (amendment) Act 2011, remuneration does not include refund of out-of-pocket expenses, medical expenses, and cost of passages to and from Nigeria. It also does not include sums received for up keep of a child; these are all exempted from personal income tax computation.

1.2 Theoretical framework

In this paper, the theoretical framework is anchored on the Laffer theory, which was propounded by Professor Arthur Laffer and widely known as the "Laffer Curve". The Laffer curve or theory depicts the link between revenue of government revenue via taxation and all possible rates of taxation in a given economy. This theoretical paradigm cogitates that amount of tax revenue raised at utmost tax rate of 100% raises no revenue in the same way that a 0% tax rate raises no revenue, given the fact that at 100% tax rate, there is no longer incentive for a rationale taxpayer to earn any income (personal income tax), hence the revenue raised will be 100% of nothing (Laffer, 2009).

Consequently, the proponent of this theory suggests that there must be at least one rate in-between where tax revenue would be and a maximum tax rate. The connection of this theory to this present study is that increasing personal income tax rate beyond a certain amount will make the taxpayer counterproductive, not willing to pay tax and as such, resulting in a decline in tax revenue of the government. The economic effect of personal income tax or tax revenue however recognized the positive effect that lower tax rate may have on work, output and employment.

1.3 Review of some prior studies

Prior studies suggest that tax revenues affects economic growth in both developed and developing countries of the world; however, there is scanty empirical evidence as regards how personal income tax (a major component of tax revenue) affects economic growth. Besides, studies are not forthcoming especially in the area of the distinct effects of PIT on the level of economic growth in Nigeria.

Oyeyemi, Babatunde (2016) investigated the effect of corporate tax planning on the performance of firms in Nigeria using annual reports and accounts of 10 selected firms out of 28 firms listed under consumer goods subsector. The Generalized Least Square (GLS) method was employed and findings indicated that corporate tax planning significantly and positively affect firm performance in Nigeria.

Eneojo, Tyokoso (2014) examined the impact of tax revenue generation on economic growth in some selected states of Nigeria. The survey design via primary data (questionnaire) was used and data obtained analysed using regression. The findings indicated that tax revenue generation has contributed significantly to the level of economic growth (GDP) in Nigeria.

Dennis, Okoye (2014) investigated the contribution of tax revenue to the level of economic growth in Nigeria. The ex-post facto design was used by means of secondary data and data analysis was done using regression. The study revealed that taxation has significantly contributed to the level of revenue generation and economic growth in Nigeria.

Kawor, Kportorgbi (2014) assessed the association between tax planning and firms' market performance in Ghana. Using a longitudinal correlative design, the study used 22 non-financial companies listed on Ghana Stock Exchange during 2000–2012. The result suggests that low statutory corporate income tax rates overturns firms' propensity to employ intensive tax planning behaviours and as such, has a neutral influence on firms' performance.

Amiram, Bauer, Frank (2013) evaluated the disparity between corporate tax avoidance and shareholders' after-tax cash flows in some selected OECD countries. Using sensitivity analyses and sample of 52,895 firm-year observations from 1994–2008, it was found that corporate tax avoidance does not provide shareholder benefits under full imputation systems, but does provide managers, who engage in corporate tax avoidance, larger cash holdings to exploit for their own private benefits.

Enahoro, Olabisi (2012) examined how effective tax administration is in terms of assessment, collection and remittance and the contribution to national development in Lagos State of Nigeria. The survey design via primary data (questionnaire) was utilized and analysed using the Kendall statistics. The study found that tax administration is not absolutely efficient; hence it has not contributed to the expected level of national development.

Similarly, Abiola, Asiweh (2012) assessed tax administration and its capacity to diminish tax evasion and generate revenue for national development in Nigeria. An online survey of 121 respondents was used and data analysed by means of descriptive statistics (mean and standard deviation). The findings of the study showed that effective tax administration has the tendency to reduce tax evasion and contribute to the level of national development.

Abdul-Wahab, Holland (2012) evaluated tax planning, corporate governance and equity value using a sample of UK quoted firms during 2005–2007. Using the data valuation OLS model, a negative association was found.

In the same vein, Abdul-Wahab (2010) assessed the link between savings from tax planning and firms value. Data of corporate governance on tax savings and firm value were obtained for a sample of 240 firms listed on the London Stock Exchange during 2005–2007. The data was analysed using the Ordinary Least Square (OLS) and results revealed a negative link between firm value and tax planning activities.

2. Methodology

This paper adopts the ex-post facto design. This design was adopted since it seeks to establish factors that are connected with certain type of behaviour by analysing historical events of previously existing condition, hence there is no room for control over the factors or variables as the events previously exist and can neither be manipulated.

Given the nature of the design of the study, secondary data was the major source of data collection. Yearly data of personal income tax and gross domestic product were obtained from the Federal Inland Revenue Service (FIRS) and Central Bank of Nigeria (CBN) statistical bulletins during the period 1987–2017. The vector autoregression (VAR) model was formulated to test the connection between personal income tax and gross domestic product:

Economic Growth=f (Personal Income Tax) (1)

$$GDP_{it}=\alpha+\beta_1 PIT_{it} + \varepsilon_i \qquad (2)$$

where:
GDP   economic growth in year t,
PIT_{it} personal income tax in year t,
β_1 coefficient of explanatory variable,
ε_{it} error term.

The data obtained was analysed by means of descriptive (mean, standard deviation, and normality test) and inferential statistics (econometric tests: unit root and VAR tests). The statistical analysis was done via STATA 13.0 version.

3. Results

The results and discussion were presented in order of precedence as follows:

Table 1 shows the descriptive statistics of dependent (GDP: Gross Domestic Product) and independent (PIT: Personal Income Tax) variables of yearly observations during 1987–2017. It is evident from the result that means GDP and PIT is 89,230.23 and 1,835.603 respectively with standard deviations of GDP 286,059.2 and PIT 1,571.017. This implies that the means GDP and PIT deviates from both sides by 2,860.592 and 15.71017 billion naira respectively.

The minimum values for GDP is 193.1262 while PIT 0, an indication that PIT was not recorded in year 1987 and the minimum GDP was recorded in the same year (1987). In addition, the maximum values for GDP is 1,432,463.06 and PIT 6,530.63 which was recorded in year 2017 and 2008 respectively. What is more important is the fact that the mean and standard deviation values imply that the variables are not constant over time, hence sets the stage for subsequent analysis.

Table 2 shows the skewness and kurtosis tests for normality of data. Taking into cognizance the adjusted chi2(2), GDP (adj. chi2(2)=38.29) and PIT (Pr=adj.2(2)=8.85) are leptokurtic. As observed by Nachmias, Nachmias (1985), a distribution of a series is said to be leptokurtic when the adjusted chi2(2) is greater than three (3) but platykurtic when the adjusted chi2(2) is less than three (3).

A variable is said to be normally distributed on the basis of adjusted chi2(2) when the value is greater than three (3). From the above, it shows that the variable values are greater than three (3); hence satisfies the condition of normality of data.

In this paper, we employed the ADF unit root test. From Table 4.3, the null hypothesis for economic growth and personal income tax was rejected and an alternate hypothesis was accepted for ADF at levels 1% and 5%, since the absolute values of the test statistics are greater than its critical value. Also, the coefficients of the ADF test equation had negative values implying that our decision to reject the null hypothesis is supported.

Table 4 shows the VAR result of dependent (GDP) and independent (PIT) variables. First, the R-squared with value 0.9359 is an indication that the independent variable (PIT) has explained 93.59% of the dependent variable (GDP) with an unexplained variation of 6.41%. This implies that PIT has a strong predictive ability in explaining the variation in the level of economic growth (GDP) in the country.

Besides, the VAR Chi2 (423.48) with P>Chi2 (0.0000) validates the position that personal income tax has significantly contributed to the level of economic growth in Nigeria; though negatively as found in

Table 1. Descriptive statistics of dependent (GDP) and independent (PIT) variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
gdp	31	89230.23	286059.2	193.1262	1432463
pit	31	1835.603	1571.017	0	6530.63

Source: Author's own study.

Table 2. Normality est of dependent (GDP) and independent (PIT) variables.

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	joint Prob>chi2
gdp	31	0.0000	0.0000	38.29	0.0000
pit	31	0.0057	0.0904	8.85	0.0120

Source: Author's own study.

Table 3. Augmented Dickey Fuller (ADF) unit root Test.

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Dickey-Fuller test for unit root                    Number of obs    =        30
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	Test Statistic	1% Critical Value	Interpolated Dickey-Fuller 5% Critical Value	10% Critical Value
Z(t)	6.976	-3.716	-2.986	-2.624

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MacKinnon approximate p-value for Z(t) = 1.0000


. dfuller pit, lags(0)


Dickey-Fuller test for unit root                    Number of obs    =        30
```

	Test Statistic	1% Critical Value	Interpolated Dickey-Fuller 5% Critical Value	10% Critical Value
Z(t)	-3.335	-3.716	-2.986	-2.624

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MacKinnon approximate p-value for Z(t) = 0.0134
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Source: Author's own study.

Table 4. VAR result for GDP and PIT.

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Sample:  1989 - 2017                        No. of obs    =        29
Log likelihood = -366.0571                  AIC           =  25.45221
FPE            =  6.63e+09                   HQIC          =  25.49651
Det(Sigma_ml)  =  5.39e+09                   SBIC          =  25.59366
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Equation	Parms	RMSE	R-sq	chi2	P>chi2
gdp	3	77522.2	0.9359	423.48	0.0000

	gdp	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gdp							
gdp							
	L1.	1.091424	.1941899	5.62	0.000	.7108188	1.472029
	L2.	4.621807	.9502046	4.86	0.000	2.75944	6.484173
	_cons	-42408.44	17605.92	-2.41	0.016	-76915.41	-7901.468

Source: Author's own study.

the negative value attached to the constant (–2.41).

This result is further supported by the VAR plot as shown in Figure 1. This means that there is a significant and negative relationship between PIT and GDP; this calls for further policy implementation by regulatory framework of PIT in Nigeria.
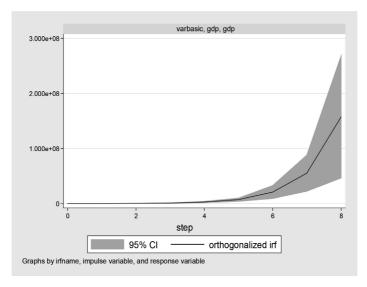
Figure 1. VAR plot. Source: Author's own study.

4. Discussion

Prior studies have shown that tax revenues significantly contribute to the level of economic growth in both developed and developing nation of the world. However, prior studies have not shown whether personal income tax (a major component of tax revenue) affects economic growth in the Nigerian context. In this paper, it was revealed that personal income tax significantly and negatively contributes to the level of economic growth in Nigeria. This finding corroborates with prior studies conducted by Eneojo, Tyokoso (2014); and Dennis, Okoye (2014), suggesting that tax revenue is one of the fundamental reasons behind the growth and development of the Nigerian economy.

More importantly, prior studies have not perhaps shown whether or not tax revenue negatively contributes to the level of economic growth in Nigeria. Consequent upon the above, this paper contributes to knowledge by showing that while tax revenue may have contributed to the level of economic growth in Nigeria, it thus has a negative effect on the economy.

5. Conclusion

This paper examined the effect of personal income tax on economic growth. The yearly time series data of personal income tax and gross domestic product analysed via the Vector Autoregression (VAR) model suggests that personal income tax has significantly contributed to the level of economic growth in Nigeria, though negatively.

Based on the findings of the study, it was recommended, among other things, that the regulatory framework of taxation in the country should put in place a more effective tax revenue generation system that can enhance better administration of personal income tax. The measure should emphasise and address accountability of personal income tax. In addition, a well-equipped database on personal income tax or taxpayers should be established by the governments with the aim of identifying all possible sources of income of taxpayers.

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Appendix
Input Data for the Study

Period	TAX	RGDP
1987	27.40	15263.93
1988	15.70	16215.37
1989	41.30	17294.68
1990	36.40	19305.63
1991	37.30	19199.06
1992	30.90	19620.19
1993	22.00	19927.99
1994	47.30	19979.12
1995	46.90	20353.20
1996	42.70	21177.92
1997	26.30	21789.10
1998	35.90	22332.87
1999	39.60	22449.41
2000	38.00	23688.28
2001	20.60	25267.54
2002	29.50	28957.71
2003	38.50	31709.45
2004	42.10	35020.55
2005	30.80	37474.95
2006	38.49	39995.50
2007	46.18	42922.41
2008	53.87	46012.52
2009	61.56	49856.10
2010	69.25	54612.26
2011	76.94	57511.04
2012	84.63	59929.89
2013	92.32	63218.72
2014	100.01	67152.79
2015	107.70	69023.93
2016	115.39	67931.24
2017	123.08	66838.55

Source: Central Bank of Nigeria (CBN) and the Federal Inland Revenue Service (FIRS) Statistical Bulletins.