

TAX ANALYSIS AND REVENUE FORECASTING: A TIME SERIES APPROACH

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ABSTRACT

This study investigated tax analysis and revenue forecasting: a time series approach, with the purpose of finding out if tax revenue represented by Value Added Tax (VAT), Company Income Tax (CIT) and Customs and Excise Duties (CED) could affect economic development proxied by Human Development Index for the period of the study. The data were analysed using Multiple Regression Analyses in line with the research objectives of the study. The findings reveal that revenues collected by the federal government through CIT, VAT and CED have a positive relationship with Human Development Index. Based on the findings, it was concluded as follows: That revenues collected by the federal government through company income tax, value added tax, customs and excise duties help to improve the human development index of Nigeria. The study therefore recommends based on the findings that the federal government should sensitize tax payers on the need for tax payment and punishment for non-compliance. Furthermore, incentives should be provided to tax payers to encourage them (especially corporate bodies) to pay their taxes. Tax authorities should encourage tax education for its workforce in order to achieve the desired revenue drive.

Keywords: Company Income Tax, Value Added Tax, Customs and Excise Duty, Human Development Index.

INTRODUCTION

The economic and social development of any country depends to a large extent on the quantum of revenue generated for the provision of infrastructure in that given country. And one major means of generating the revenue for providing the needed infrastructure is through a well-structured tax-system (Ogbonna and Appah, 2012). Aguolu (2004) stated that taxation is the most important source of revenue to the government; owing to the inherent power of the government to impose taxes, the government is assured at all times of its tax revenue no matter the circumstances. Azubike (2009) agreed to the above fact when he stated that tax is a major player in every society of the world. The tax system is an opportunity for government to collect additional revenue needed in discharging its pressuring obligation. A tax system offers itself as one of the most effective means of mobilizing a nation's internal resources and it lends itself as to creating an environment conducive to the promotion of economic growth and development.

Appah (2004) defines tax as a compulsory levy imposed on a subject or his property by the government to provide security, social amenities and create conditions for the economic well-being of the society. In the same view, Nightingale (2001) described tax as a compulsory contribution imposed by governmental and concluded that while tax payers may receive nothing identifiable in return for their contribution, they nevertheless, have the benefit of living in a relatively educated, healthy and safe society. She further explains that tax is part of the price to be paid for an organized society and identified six reasons for tax; provision of public goods, redistribution of income and wealth, promotion of social and economic welfare, economic stability, harmonization and regulation.

Anyanwu (1997) posit that taxes are imposed to regulate the production of goods and service, protection of infant industries, controls businesses practices and growth, curb inflation and reduce income inequalities etc. Musgrave and Musgrave (2004) also opined that economic effects of tax include micro effect on the distribution of income and efficiency of resources use

as well as macro effect on the level of capacity output, employment, prices and growth. The whole essence of tax is to generate revenue to advance the welfare of the people of a nation with focus on promoting economic growth and development of a country.

The economic history of both developed and developing countries reveal that tax is an important tool in the hand of the government; not only to generate revenue but also to achieve goals such as influencing the direction of investment and taming the consumption of certain goods and services. And more recently, it is advocated globally that countries should move from the concept of economic development to that of "sustainable economic development", implying a self-sustaining economic development which can be achieved partly through the use of taxation.

Mobilization of tax revenue as a source of financing developmental activities in less developed economies such as Nigeria has been a difficult task primarily because of various forms of resistance, such as tax evasion, avoidance, poor and corrupt practices attending to it. These activities are considered as sabotaging the economy and are readily presented as reasons for the low income generation from tax which ultimately results in under development of an economy. (Adegbe, et al., 2012).

Objectives of the Study

1. To investigate the extent of the relationship between company income tax and human development index
2. To ascertain if value added tax could relate with human development index
3. To inquire if customs and excise duties relates with human development index in Nigeria

Research Hypotheses

1. Company income tax does not significantly relate with human development index
2. There is no significant relationship between value added tax and human development index
3. The nature of the relationship between customs and excise duties and human development index is not significant.

Conceptual Framework

The Institute of Chartered Accountants of Nigeria (2006) and the Chartered Institute of Taxation of Nigeria (2002) defined tax as an enforced contribution of money to government pursuant to a defined authorized legislature. Tax yields very substantial revenue to government. Thus, it has a bearing on the Gross Domestic Products (GDP) which is the standard indicator for measuring the economic well being of a nation. The nature and level of tax vary according to the economic policies adopted by the government of the day.

Tax can be used as an instrument of social engineering, to stimulate economic growth and development Sanni (2007). In that regard, tax could have a positive or negative effect on both the individual and on government. To the individual, low income tax rate constitutes an incentive to work or save, while high income tax rate represents a disincentive to work or save. To the government, high tax rates provides the most reliable, important and dominant source of government revenue for promoting the economic development of the nation. The tax rate is often a major consideration in the choice of organizational form of business (Okafor, 2008); and may also be associated with varying levels of foreign direct investment (Desai et al., 2004).

Apere (1999) in his view asserted that taxation is the art or process of being taxed. It can also be defined as the transfer of resources from the private sector to the public sector in order to accomplish some economic development and social goals. Anyanwu (1993) pointed out that, there are three basic objectives of taxation. These are to raise revenue for the government, to regulate the economy and economic activities and to control income and employment.

Also Nzotta (2007) noted that taxes generally have allocation, distributional and stabilization function. The allocation function of taxes entails the determination of the pattern of

production, the goods that should be produced, who produces them, the relationship between the private and the public sector and the point of social balance between the two sectors. The distribution function of taxes relates to the manner in which the effective demand over economic goods is divided, among individuals in the society. Musgrave and Musgrave (2006) posit that the distribution function deals with the distribution of income and wealth to ensure conformity with what society considers fair or just state of distribution. The stabilization function of taxes seeks to attain high level of employment, a reasonable level of price stability, an appropriate rate of economic growth, with allowances for effects on trade and on the balance of payment.

Nwezeaku (2005) argues that the scope of these functions depends, inter alia, on the political and economic orientation of the people, their needs and aspirations as well as their willingness to pay tax. Thus, the extents to which a government can perform its functions depend largely on the ability to design tax plans and administration as well as the willingness and patriotism of the governed.

There are various taxes that are federally collected, these include: Company Income Tax (CIT), Petroleum Profit Tax (PPT), Personal Income Tax (PIT), Value Added Tax (VAT), Custom and Excise Duties (CED) amongst others. The Federal Government Agency responsible for the administration and collection of these taxes except Custom/Excise Duties was up to April, 2007 known as the Federal Board of Inland Revenue (FBIR). In 2007, the FBIR was scrapped and replaced with the Federal Inland Revenue Service (FIRS). The collection of customs and excise duties is handled by the Nigeria Custom Service.

REVIEW OF RELATED LITERATURE

Theoretical Framework

There are several theories that provide justification for the existence and use of tax as a source of revenue and economic policy tool by governments all over the world. Below we discuss some of the relevant theories of taxation:

Benefit Received Theory

This theory has a modern version, known as the "voluntary exchange" theory and is derived from the presumed relationship between the state and taxpayers. Governments are obligated to provide certain goods and services to the members of the society in compensation for taxes paid for such supplies. The taxes individuals pay should be direct and proportional to the benefit they receive from the government i.e. taxpayers who benefit larger portion of public goods and services are expected to pay the most taxes. Although this theory argues that taxes should be allocated on the basis of benefits received from government expenditure, it should be noted that it is impossible to establish direct *qua pro qua* relationship between tax paid and benefit received from government expenditure.

The Expediency Theory

This theory on its part is based on the assumption that there need not be any relationship between tax paid and benefit received from the government. The proponents assert that every tax proposal must pass the test of practicability. It must be the only consideration weighing the authorities in choosing a tax proposal. This proposition has a truth in it, since it is useless to have a tax which cannot be levied and collected efficiently. The expediency theory is related to the tax structure development theory advanced by Hinrichs in 1966 which presupposes that improvements in tax structure have the propensity to increase government revenue and improve the economy of a nation.

Socio Political Theory

This theory of tax states that social and political objectives should be the major factors in selecting taxes. The theory advocates that a tax system should not be designed to serve

individuals, but should be used to cure the ills of society as a whole. In addition, the theory addresses the need for government to effectively utilize tax revenue in providing economic and social facilities to the populace, and by extension contribute to economic development.

Empirical Review

There are several studies which have been conducted on the research topic. Owolabi and Okwu (2011) examined the contribution of Value Added Tax to Development of Lagos State Economy, using simple regression models as abstractions of the respective sectors considered in the study. The study considered a vector of development indicators as dependent variables and regressed each on VAT revenue proceeds to Lagos State for the study period.

Development aspects considered included infrastructural development, environmental management, education sector development, youth and social development, agricultural sector development, health sector development and transportation sector development. The results showed that VAT revenue contributed positively to the development of the respective sectors. On the aggregate, the analysis showed that VAT revenue had a considerable contribution to development of the economy during the study period.

Adegbe and Fakile (2011) concentrated on the Company Income Tax and Nigeria Economic Development relationship. Using Chi-square and Multiple Linear Regression analysis in analyzing the data, they concluded that there is a significant relationship between company income tax and Nigerian economic development and that tax evasion and avoidance are major hindrances to revenue generation.

Lee and Gordon (2004) in their paper, Tax structure and economic growth, explore how tax policies affect a country's growth rate, using cross-country data during 1970–1997. Their findings revealed that statutory corporate tax rates are significantly negatively correlated with cross-sectional differences in average economic growth rates, controlling for various other determinants of economic growth, and other standard tax variables.

Ogbonna and Ebimobwei (2012) on their part, examined the Impact of Tax Reforms on Economic Growth of Nigeria using relevant descriptive statistics and econometric analysis and concluded that the various test shows that tax reforms is positively and significantly related to economic growth and that tax reforms granger cause economic growth.

Ogbonna and Ebimobwei (2012) In their work disaggregated tax revenue into its various components such as; excise duties, personal income tax, petroleum profit tax, companies' income tax, value added tax and education tax and concluded that the included tax revenue variable have positive relationship with economy.

First, this study covers the period 1995 - 2014, therefore their analysis is updated. Second, the study captures the link between tax revenue and its impact on Nigerian economy. Whilst theirs focused on economic growth, bearing in mind that economic growth is a part of, but not necessarily economic development

While the studies reviewed have empirically studied the impact of tax revenue on the economy and all to the same line that there is significant relationship between tax revenue and economic growth and development, this study contributes to the literature on the significant of tax revenue focusing on measures that better evidence economic improvement than those used in the above studies. Thus, this study proxy economic development using Human Development Index (HDI).

METHODOLOGY

We adopted the OLS Regression Analysis Method to analyse the data collected for the purpose of the study. Data used in the study were collected from various editions of the CBN statistical bulletin and FIRS publications relating to tax revenue collection for the period of the study. As stated earlier, data collected the study was analyzed using a Multiple Regression Analysis of the Ordinary Least Squares Method. In its general form, the model is specified as:

$$y = a + b_1x_1 + b_2x_2 \dots b_nx_n + ei \dots \dots (i)$$

Where: y is the dependent variable, $x_1, x_2 \dots x_n$ is the set of *independent variables*, a is the *constant term*, $b_1, b_2 \dots b_n$ is the coefficients of the independent variables and ei is the error term.

For the purpose of this study, we posit that the proceeds of the various taxes collected by the federal government will lead to increased economic development in Human Development Index (HDI). To this end, we propose that:

$$\text{Economic development} = f(\text{Tax Revenue}) \quad (ii)$$

Where economic development is measured by Human Development Index (HDI) and Tax Revenue is measured by company income tax (CIT), Value Added Tax (VAT) and Personal Income Tax (CED). It follows that:

$$\text{HDI} = f(\text{CIT, VAT, and CED}) \dots \dots \dots (iv)$$

Where:

HDI = Human Development Index,

CIT = Company Income Tax,

VAT = Value Added Tax and

CED = Customs and Excise Duties. Thus,

$$\text{HDI} = a + b_1\text{CIT} + b_2\text{VAT} + b_3\text{CED} + ei \dots \dots \dots (vi)$$

We expect to find that: $b_1, b_2, b_3 > 0$

Data Presentation

Table 1: Human Development Index, Corporate Income Tax, Value Added Tax, Custom & Excise Duties(1995-2014).

Period	Human Development Index (HDI)	Corporate Income Tax (CIT)	Value Added Tax(VAT)	Custom & Excise Duties (CED)
1995	0.39	21878.00	20761.00	37364.00
1996	0.4	22000.00	31000.00	55000.00
1997	0.4	26000.00	34000.00	63000.00
1998	0.41	33300.00	36900.00	57700.00
1999	0.41	46200.00	47100.00	87900.00
2000	0.42	51100.00	58500.00	101500.00
2001	0.46	68700.00	91800.00	170600.00
2002	0.4	89100.00	108600.00	181400.00
2003	0.4	114800.00	136400.00	195500.00
2004	0.43	113000.00	159500.00	217200.00
2005	0.48	140300.00	178100.00	232800.00
2006	0.44	244900.00	221600.00	177700.00
2007	0.44	275300.00	289600.00	241400.00
2008	0.44	290666.00	404500.00	1133701.00
2009	0.42	295717.00	454943.30	1132923.00
2010	0.42	2028700.00	648410.90	1147268.00
2011	0.43	297516.00	1786254.13	1160029.00
2012	0.42	298460.00	1857031.51	1186250.00
2013	0.43	299010.00	1865120.00	1190024.00

2014	0.44	2999006.00	1882120.00	1200100.00
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Source: CBN Statistical Bulletin, 2015 edition, NBS Annual Abstract of Statistics, FIRS Website

Data Analyses and Interpretation

In this section, the data collected for the purpose of the study will be analyzed and an interpretation of the results will also be presented. This will be achieved using the Statistical Package for Social Sciences (SPSS) version 21.

Table 4.2.1 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.419	.008		55.346	.000
	CIT	2.151E-009	.000	.072	.247	.808
	VAT	6.156E-010	.000	.019	.044	.965
	CED	7.655E-009	.000	.173	.381	.708

a. Dependent Variable: HDI

R = 0.238, R² = 0.056

Table 2 above shows the summary results of the multiple regression analysis performed with the research data. The results indicate that Company Income Tax (CIT), Value Added Tax (VAT) and Customs and Excise Duties are positively correlated to Human Development Index (HDI), with a coefficient of correlation (R) 0.238 with the implication that CIT, VAT and CED exhibit 23.8% positive correlation with HDI. This implies that increases in CIT, VAT and CED will lead to increases in HDI. The result further shows that the coefficient of determination (R²) gave a value of 0.056 with the implication that CIT, VAT and CED can be relied on to explain only 5.6% of the variations in HDI.

Finally, the results showed that none of the tax revenue variables had a statistically significant relationship with Human Development Index (HDI) in Nigeria. This can be gleaned from the values of the coefficient of regression (B) for CIT, VAT and CED which gave values of 0.247, 0.044 and 0.381 respectively which is much lower when compared to the critical t-statistic of 2.086.

DISCUSSION OF FINDINGS

In the last sections, we provided an in depth analyses of the data used for the study. In the course of the analyses, several findings were made. These include the following: Our findings showed that Company Income Tax is positively correlated with Human Development Index (HDI) in Nigeria. This result implies that increase in company income tax will lead to increase in human development index in Nigeria. This finding is in line with the findings of Adegbe and Fakile (2011) shows in their study that company income tax significantly improves the economy. However, Lee and Gordon conclude in their study there is a negative correlation between company tax and economic metrics. The varying findings notwithstanding, we posit that company tax lead to improvement in the economy through improvement human development index by providing a source funding for the provision of necessary infrastructure that improve social wellbeing and enabling environment for economic activities. Furthermore, our findings also show that revenue generation of the federal government through the collection of Value Added Tax positively affect human development index. Ogbonna and Ebimobowei (2012) with similar findings opine that tax revenue from value added tax is a significant economic growth driver. However in their study, they find a statistically significant relationship between VAT and the economy. In the present study this position does not hold entirely as we show that in the case of human development index, the relationship is shown to positive but not statistically significant. This implies that even though VAT has a positive relationship with human development index but

cannot be relied on to explain a considerable amount of the changes.

Finally, our analyses show that customs and excise duty as a source of tax revenue for the federal government positively affects the economic development of Nigeria through the channel of Human development index. The research study by Oriakhi and Osemwengie (2013), and Oriakhi & Ahuru, (2014) agree with this finding indicating in their study that customs and excise duty is important source revenue for the federal government of Nigeria.

CONCLUSION AND RECOMMENDATIONS

From the summary of findings, we infer that there is an overwhelming positive relationship between all the tax revenue sources including company income tax, value added tax, and customs and human development index. Thus, given the findings as enumerated above, the following conclusions are drawn: Company income tax is an important revenue source for the federal government of Nigeria. We conclude that the revenue collected by the federal government through company income tax helps to improve human development index of Nigeria. However, its role is below the optimal level. This is because the finding showed that company income tax is not statistically significant in its effect on human development index.

Furthermore, we also conclude that revenue from value added tax improves human development index Nigerian populace. The role of value added tax in the improvement of human development index is below expectation as its contribution is not statistically significant. Finally, we conclude that despite the importance of customs and excise duties to revenue generation drive of the government, it cannot be relied on to provide the desired levels of revenue for the federal government.

Thus, it is important for the federal government to put in place adequate resources to ensure that tax payers are aware of their tax liabilities to the government and the penalties involved in not performing their civic responsibilities. This should include providing information and education to tax payers through electronic and prints media about the importance of paying their tax on time as well as the penalties involved in failing to do so. We also recommend that incentives be provided to tax payers to encourage them (especially corporate bodies) to pay their taxes. This may involve tax burden reductions and providing an A-list of corporate tax payers for the purpose of giving them special treatments when they apply for government related jobs. Finally, we recommend that the tax authorities adequately empower its staff in order to achieve better results. This should include organizing seminars and workshops, the acquisition of new skills related to the job, educating them on the international best practices, providing incentives aimed at encouraging achieving better results.

Contributions to Knowledge

The study will help to educate the general public on the role of tax revenue in shaping the economy of a nation. The study will add to the existing stock of knowledge and literature in the area of tax revenue and economic development. Our findings and conclusion will also form a basis for future research work.

Policy Implication

This study will serve as guide to government in formulating policy and in decision making. It will help the government to assess its economic growth and developmental activities and make plans to improve upon the observed short comings which will in turn improve the economy and increase Nigeria rating in International Developmental Indices.

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