

AN EMPIRICAL ANALYSIS OF TAX REVENUE AND TOTAL REVENUE OF WEST AFRICAN COUNTRIES

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ABSTRACT

The paper examined tax revenue and total revenue of West African countries for 10 years, spanning from 2008 to 2018. The population covered all the West African countries; out of which, 8 countries were randomly selected. Data of these countries were sourced from the Organization of Economic Co-operation Development (OECD) and Revenue Statistics in Africa and the statistical bulletin of various countries. Data collected for this study were analyzed with the use of descriptive statistics, Pearson correlation analysis and panel data regression which include pooled OLS, fixed effect estimation and random effect estimation. It was discovered that company income tax, value added tax, and custom and excise duties exert a positive impact on total revenue, though the impact is insignificant for value added tax given the reported coefficient and probability values that stood at 5.990342 ($p=0.060>0.05$), as against the reported coefficient and probability values of company income tax and custom and excise duties that stood at 0.195278 ($p=0.000<0.05$) and 0.9765433 ($p=0.021<0.05$) respectively. Based on these findings, the study concluded that tax revenue has positive effect on the total revenue of West African Countries. Thus, it was recommended that tax authorities of various countries should properly monitor companies income tax and custom and excise duties to sustain its significance to the revenue pool of the government, efforts should be intensified by the government agencies saddled with the collection and increase in value added tax rate to improve the tax revenue base and, that there should be a persistent review of existing tax laws to keep the act in pace with the economic reality.

Keywords: Tax Revenue, Total Revenue, West African Countries.

1. INTRODUCTION

World over, it is the responsibility of the government to harness all the available resources and judiciously use them for the benefits of the citizens. The available revenue sources underscore the extent to which the government improves the living standard of the populace and engender increase in the growth and development of the nation. Revenue generation is central to every government of any country in that it determines their functionality. The government through the appropriate agencies come up with modalities through which the expected yearly revenues are generated and properly managed to achieve the overall objective of the agenda of the government.

Total revenue is the aggregate of the revenues that accrue to a government over a given period of time usually on a yearly basis. In another perspective, total revenue constitutes the internally generated revenue and externally revenue by a government over a given period. Though, the latter is not more pronounced like the formal, it also contributes to the revenue pool of the government. The internally generated revenue is the general term used for the revenue generated within a country and the sources are quite diverse across the globe, especially in West African countries. Akabom and Sunday (2011) reported that government revenue is derived from two main sources – tax revenue and non-tax revenue. Of these two sources, tax is a more reliable and most consistent source of government revenue. Taxes are to be paid and efficiently utilized. It must be paid by every individual, partners and corporation for the use of the development of a country. Tax revenue contribute grossly to the total revenue of the government. Olayinka (2017) described taxation as the science of imposing levy on the chargeable income of taxpayers within a given jurisdiction. The levy collected is used for the common goods of every citizen within the country, state or local government for the provision of certain services, which are considered as necessities for the wellbeing of the citizens such as the provision of clean water, electricity, good road, bridges, etc. Tax revenue is not static but rather dynamic to disclose all economic realities in a nation. In the consideration of this fact, Nigerian tax laws seem to be exhaustive such that every taxable persons and companies comply with tax regulations and find it difficult to evade or avoid tax payment. According to Stanlake and Grant (1999), the primary objectives of fiscal policy are to generate sufficient revenue to meet government expenditures, to redistribute scarce resources and to stabilize the economy. The study noted that the instruments of fiscal policy used to achieve these objectives are taxation and government expenditure.

Undoubtedly, a lot of studies have been carried out on tax revenue across West African countries. However, most of these studies examined the effect of tax revenue on economic growth and development (Ogbonna & Appah (2012); Success, Success & Ifurueze (2012); Ihendinihu, Jones & Ibanichuka (2014); Wisdom (2014), Oladipupo & Ibadin (2015); Wisdom & Bernard (2015); Anyanwu (2017); Egbunike, Emudainohwo & Gunardi (2018); and Okonkwo & Chukwu (2019)). Only few studies examined tax revenue and total revenue (Maiga (2015); Afuberoh & Okoye (2014); and Loretta & Hyacinth (2014)). It is not only that there are a few studies conducted in this context, none of these studies was carried out across countries in West Africa except the study conducted by Loretta and Hyacinth (2014), hence, this study. Despite considerable and rich advances in the development of economies across the West Africa, there is still a void in the literature with respect to the effect of tax revenue on total revenue. Specifically, little is known about the implementation of a tax forum to boost tax generated revenue and stimulate the growth of total revenue. This was the ground on which this study was designed. On this basis, the researchers are motivated to examined tax revenue and total revenue of West African Countries spanning over a period of 10 years.

1.1 Conceptual Review

1.1.1 Tax Revenue

Taxation is the most significant source of revenue for contemporary governments, stereotypically accounting for about 70-90% or more of their income while the rest of government revenue emanates from borrowing from domestic and foreign sources (Enahoro & Olabisi, 2012). The description of taxation stresses the main purpose of taxation that is, to raise revenue to meet

up with the cost of services rendered by the government for her citizens. Other purposes of taxation in West African nations include reduction of disparities arising from wealth distribution, creation of employment, to confine the consumption of toxic products, protection of infant industries and lots more. Oladipupo and Ibadin, (2015) asserted that other drivers are to upsurge efficient productivity, provision of employment opportunity, enhancement of contemporary technology system and justification of the terms and conditions of the economic system. Tax revenue is an obligatory payment of levy from individuals, partners, trustees, groups of individuals, and organizations to government (Anyanwu, 2017). Also, Jarkir (2011) asserted that tax revenue is an input extorted by the government from individuals and organizations either directly or indirectly. It is tax revenue is an obligatory and unrequited transfer of resources from the private individual to the public sector, levied based on predetermined criteria. According to Appah (2010), tax revenue is imposed by the Federal and State Government under the current Nigerian law. From Nigerian experience, governments have continued to express so much concern about the truncated level of productivity of the Nigerian tax system. This has been attributed to the deficits in the complex system and tax administration and collection system. Unegbu and Irefin, (2011) emphasised that the Nigerian tax system has undergone numerous transformations geared at enhancing tax administration with minimal enforcement cost among the West Africa countries. Some of the recent reforms include the introduction of Taxpayer Identification Number (TIN), tracking of tax positions through Automated Tax System, smooth payment of taxes via E-payment system. Section 8(a) of the Federal Inland Revenue Service Establishment Act 2007 has led to improvement in the tax administration in Nigeria. Consequently, the integrated tax offices and FIRS now have sovereignty to assess, collect, record and remit tax revenue to the appropriate authority. Tax revenue covers petroleum profit tax, capital gain tax, stamp duties, information technology tax, company income tax, value added tax, personal income tax, wealth tax, and custom and excise duties to mention just a few. However, based on the scope of this study across and the availability of data, three form of taxes which include value added tax, company income tax and custom and excise duties were employed.

1.1.2 Value Added Tax (VAT)

Value added tax has been described differently by various scholars. According to Abata (2014), "Value-Added Tax is a consumption tax in which the consumers bear the tax burden indirectly. The study noted that the tax burden is transferred from the producer to the wholesaler, then to the retailer and finally to the consumer who ultimately bears the burden. This implies that VAT can only be evaded by not purchasing and consuming the vatable goods or services in a given country. Adebayo (2016) added that VAT as a form of tax revenue is a consumption tax levied at each stage of the consumption chain. It is borne by the final consumer. It requires a taxable person upon registering with the relevant tax authority to charge and collect the VAT. A vatable person is an individual who trades in vatable goods and services for considerations. Olurotimi (2013) added that VAT is imposed on every sale from production through distribution cycle to sales to the final consumer which in most case might not be the consumers of the purchases. It can be deduced that VAT is fundamentally a consumption tax obtained throughout the production chain. Considering the need to raise funds for the sustenance of numerous economic projects and programs, governments of West African countries established consumption levy which is placed on taxable goods and services. Among the selected countries within West African region, the VAT

charged by Nigerian government is the lowest when compared with its peers. The VAT rate charged are as follows; Togo - 18%, Cote d'Ivoire - 18%, Cameroon - 19.25%, Cabo Verde - 15%, Niger - 19%, Ghana - 12.5%, Senegal - 18% and Nigeria - 7.5%.

1.1.3 Corporate Income Tax (CIT)

Corporate Income Tax (CIT) refers to tax charged on profits of Limited Liability Companies incorporated in line with the Companies and Allied Matters Act (CAMA) 2020. The liability of members of such incorporated business entities is limited to only the capital that such members contributed to the business. Philip (2016) asserted that CIT in the colonial era was nurtured at a very slow rate due to the limited numbers of Limited Liability Companies. More so, most of the registered companies were managed and controlled by foreign nationals and profits were repatriated. In the view of Ahmed (2018), Corporate Income Tax began in Nigeria in 1999 but was known as Companies Income Tax Ordinance (CITO) many years back. Companies Income Tax Act (CITA) 2007 as amended defines a company in section 105 as: "any company or corporation (other than corporate sole) established by or under any law in force in Nigeria or elsewhere". Every country in West African depends heavily on taxation as it provides a steady and reliable source of revenue to the government. Vivien (2008) defined corporate income tax as a direct tax imposed by an authority on the income of corporate entities or equivalent legal entities. Many countries in West African impose such taxes at the federal level. Ahmed (2018) added that Corporate Income Tax could be referred to as corporation tax, income tax, company tax or capital tax. Partnerships are generally not taxed at the entity level. A country's corporate tax maybe applied to corporations entities incorporated in the country, corporate business entities sourcing for its income from that country, foreign corporate entity that has a perpetual establishment in the country or corporate entity that deem it fit to be resident for tax purposes in the country (Muhammed, 2015). In some countries, the rule for taxing corporate entities differs from the rules for taxing individuals.

Countries in West Africa tax corporations on its net profit at a given tax rate. Each country has a tagged corporate income tax rate which applies to the corporate entities in their jurisdictions only. In Nigeria, a 30% CIT rate is tagged for big companies, 20% for medium companies while 0% for small companies. Other West African nation CIT rates include 33% (Cameroon), 22.44% (Cabo Verde), 25% (Cote D'Ivoire), 25% (Ghana), and 30% (Senegal). The contributions of Companies Income Tax (CIT) to any economy globally cannot be over-emphasized. Aside from the revenue function, it also aids the achievement of the country's macro-economic objectives related to fiscal and monetary policies. Vivien (2008) added that in Nigeria, the taxation derived from companies has been wholly inconspicuous due to the indecorous administration of the Nigerian tax system in the assortment and assessment of companies when compared to other countries in West Africa. Most companies seek to evade of tax where possible which is criminal in nature. This was due to the various loopholes in the tax laws. Non-compliance with taxation rules and regulations has been a blockage which is a key factor in the inefficiency and ineffectiveness in the tax system management of several countries in West Africa.

1.1.4 Custom and Excise Duties (CED)

Nigerian government considers trade as the engine of its economic development of the implicit belief that trade creates jobs, raise incomes, expand markets and facilitate competition

among nations. According to the world trade organization, the core trust of trade policy is the augmentation of keenness of local industries, to stimulate local value-added and promoting differentiated export trade. Trade policy helps to create a conducive platform to increase capital inflows and the adoption of current technology. Fasoranti, (2013) described import duty as a levy on imports by custom authorities to raise revenue for the government and protect domestic industries from foreign marauder competitors. In view of Oladipupo and Ibadin (2015), import duty is generally on the value, quantity or weight of goods imported into a country. It is charged as a percentage of the worth of import or a fixed amount of specific quantity (Fasoranti, 2013). Import duties could either be fixed or calculated as a percentage of the product's value. One of the ways of protecting infant industries in the competitive market against foreign competitors is by imposing import duty on all imports, which makes foreign products more costly and locally produced goods attractive (Ilaboya, 2012). The study noted that government sometimes levy duties to hurt another country by making its exports more costly. This is mostly done as a tit-for-tat measure in a trade war. Olurotimi, (2013) stated that export duty is imposed on the goods being the channel through a customs area to another country. Point of taxation will be happening from the date of export from one country to another (Okoye & Gbegi 2013). Export duties are not being utilized as expected, except for certain products such as mineral, petroleum, and agricultural products. Several resource-rich countries in West Africa depend on export duties for much of their revenue. Export duties were common in the past and are momentous rudiments of mercantilist trade policies. Fasoranti (2013) described an excise tax as any [duty](#) levied on locally manufactured [goods](#) at the moment of manufacture rather than at sale. Most times, excise duties are often associated with [customs duties](#) (which are levied on pre-existing goods when they cross a designated border in a specific direction). Custom duties are levied on goods that come into existence as taxable items at the border, while excise is levied on goods that came into existence inland.

1.1.5 Total Revenue

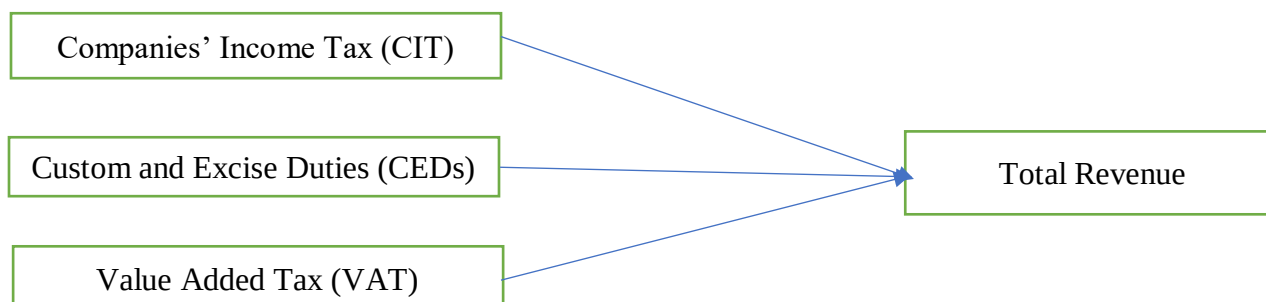
The summation of government income from taxes and non-taxes determined the basement for the economic growth and development of a nation. Government total revenue is the most significant element of the government's fiscal policy (Adebayo, 2016). Total revenue is the aggregation of the incomes received by a government over a given period. Ahmed (2018) added that government total revenue could be on a weekly, monthly or yearly bases. According to Loretta and Hyacinth (2014), government total revenue comprises of market output, output for own final use, payments for non-market production, taxes on production and imports, other subsidies on production, receivable, property income, current taxes on income, wealth, etc., net social contributions, other current transfers and capital transfers of a given nation at a given period. The total revenue increases the net value of every nation in West Africa. Total revenue composed of all tax revenues, net social contributions, other current revenues, capital transfer revenues and oil revenue.

1.1.6 Conceptual Framework

The relationship between the predictor variables and the outcome variable is depicted in figure 1

Independent Variables

Dependent Variables

**Figure 1:** Conceptual Framework

Source: Authors' Design, 2024

1.2 Theoretical Framework

1.2.1 Wagner's Theory

This theory was propounded by Adolf Wagner in the 1800s who debated that as an economy develops, the portion of government expenditure in national income rises extensively and intensively (Okonkwo & Chukwu, 2019). This theory is also commonly called the law of increasing state activities through government income gathering (taxes) or increasing expansion of fiscal necessities. This theory projects the fact that as an economy or a country develops, it is supported by an increase in government spending. Hence, an increase in economic development leads to increase in public spending. Magdalena (2017) asserted that there is a common inclination of the citizens towards their government to spur growth and development of the society, and at the same time, the government also has plans to develop and industrialize the economy. However, the way the citizens might envision the growth of the economy might be different from the way the government plans theirs too. For the two opinions to be properly balanced, there is need for a great provision of resources to meet up both expectations; which is normally done through taxation. Another opinion put forward by Wagner (1890) was the assertion that proportional taxes negatively influenced the lives of the taxpayers; and that the best rate of taxation was a progressive tax. This is because placing the same tax levy on all citizens puts unequal tax burdens on different payers.

One of the major contributions of Wagner's theory to literature is that it negated the claim that as a country grows and develops more, government expenditures would tend to be reduced. This view of government spending reducing due to development in the economy was a strong assumption at the time of Wagner but with this theory, that view was proved wrong. Observably, when comparing how far some African countries have come since their independence, it would be agreed that there has been development between then and now, and that their expenditures have also increased. Wagner's theory holds a lot of assumptions which has been criticized based on the argument that Wagner was envisioning long run inclination, instead of short-run tendencies in government spending (Eze, 2016). In the sense that the study relied on chronological knowledge, therefore, the precise quantitative relationship between the degree of increase in state expenditure and the period taken was not evaluated logically. Observably, Wagner's theory is not true in the short-term, and in cases of recession, outbreaks of wars, epidemic etc. The relevance of this theory lies in the fact that revenue increases before development or expenditure takes place. It should be noted that revenue could come from borrowings too. Considering the fact that this study looks at

total revenue including tax income, it can be agreed that the major source of most governments in West-Africa is from the level of taxation that they administer to their citizens, which cause an increase in the government spending, which subsequently results in development and growth.

1.3 Empirical Review

Choifor (2009) conducted an exposition of the indirect tax structure of Cameroon and the trends of tax revenue growth. Time series data on tax revenue from 1980-2003 was used as a source of secondary data in the study. Regression analysis was used for analyzing the data in the study. From the comparative analysis of the stated result, indirect tax hurdles showed that CTM became more responsive to revenue yield than STV in the post 1994 reform period. In addition, VAT remained rigid to revenue mobilisation after the 1999 tax reform. The overall results from the study gave credence to the fact that tax reforms on revenue mobilisation in Cameroon showed a progressive trend. Yaya (2010) investigated the optimal tax burden for the Ivorian economy in Ivory Coast. Empirical analysis was conducted using both scully and quadratic regression models and annual data covering the period from 1960 to 2006. These models gave evidence that the growth-maximizing tax rate was in the range of 21.1 to 22.3% of GDP. At that tax rate, the economic growth rate would be around 6.2% instead of the actual 3.2%. The actual low tax rates were shown to be responsible for substantial losses in growth and tax revenues. The study conducted by Ogbonna and Appah (2012) on the impact of tax reforms on economic growth of Nigeria using time series data from 1994 to 2009, revealed that there was a positive relationship between tax revenue and economic growth of Nigeria. The variables used in the study were Personal income tax, Companies income tax, Education tax, Petroleum profit tax, Value added tax and Customs and Excise duties as proxies for tax reforms and Gross domestic product (GDP) as the dependent variable. The study employed the Augmented Dickey-Fuller test for the unit root test and the Johansen's Cointegration test and Error correction technique to run the regression analysis. Findings from the study further asserted that 54% variation in GDP was as a result of a change in tax revenue and that there existed long run equilibrium relationship between GDP and the independent variables.

Taufik and Imbarine (2012) evaluated the impact of tax revenues' components on economic indicators in Togo. The study cut across different countries using panel data regression as its method of data analysis. The dependent variables used in the study were change in GDP, ratio of gross saving to GDP and foreign direct investment as ratio to GDP in connection with all the component of taxes (independent variables) spanning from 1960 to 2009. The results of the study showed that there was a relationship between the ratios of components of tax revenue to total tax revenue and inflation rate on economic indicators. Further analysis revealed that in low-income countries only 11 percent of GDP contributed to their revenue. In essence, taxes on goods and services had the highest percentage among all components of tax, in which 27% were from total tax revenue. Okafor (2012) assessed the relationship between tax revenue generation and economic development of Nigeria from 1981-2007 using multiple correlation and regression methods. The analysis revealed that there was a significant relationship between the gross domestic product (GDP) used as the dependent variable and the independent variables (customs and excise duties, companies' income tax, petroleum profit tax and value added tax). It was also discovered that 99% of changes in the total GDP were influenced by changes in the independent variables (customs and excise duties, companies' income tax, petroleum profit tax and value added tax). Worlu and Nkoro

(2012) conducted a study on tax revenue and economic development in Nigeria using least square regression as the method of analysis. Their analysis uncovered that tax revenue stimulated economic growth through infrastructural development, but tax revenue had no independent effect on growth through infrastructural development and foreign direct investment.

Loretta and Hyacinth (2014) examined the effects of taxation on revenue generation in the developing countries of Ghana and Nigeria in West Africa were analyzed. Using the corruption perception index (CPI) and descriptive statistics, it was found that Nigeria was ranked as more corrupt than Ghana. An analysis of the gross domestic product (GDP) per capita for the two countries showed that Nigeria had a higher GDP per capita for most years under analysis. The study also revealed that tax revenues collected in Ghana had a higher percentage of GDP than that of Nigeria. Ihendinihu, Jones and Ibanichuka (2014) investigated the long run equilibrium link between tax revenue and economic growth in Nigeria from 1986 to 2012 using Autoregressive Distributed Lag (ARDL)/Bounds Test General-to Specific Approach to Co-integration. The findings revealed that total tax revenue had a significant effect on economic growth. The study however, identified no significant causal link between Petroleum Profit Tax (PPT) and economic growth in Nigeria both long run and short run equilibrium position. The study conducted by Christie and Rioja (2014) on the relationship among Government Expenditures, Financing, and Economic Growth in Cape Verde using a two-sector endogenous growth model, revealed that reallocating public spending from infrastructure to human capital can have large positive effects on long run growth rates. Nantob (2014) examined the effects of tax increase on economic growth of 47 developing countries. In developing countries, there was no magic tax strategy to encourage economic growth. Some countries with high tax burdens had high growth rates and some countries with low tax burdens had low growth rates. The study used an empirical approach to analyze the effects of four types of taxes (taxes revenue, taxes on goods and services, taxes on income, profits, and capital gains and taxes) on international trade on economic growth. Mobilizing a dynamic panel data over the period 2000–2012 and using the system GMM estimator to address endogeneity issues, the econometric results showed that, there was a non-linear relationship between tax revenue and economic growth, and that there was a nonlinear (U-shaped) relationship between taxes on income, profits and capital gains, taxes on international trade and economic growth.

Afubero and Okoye (2014) examined the impact of taxation on revenue generation in Nigeria using regression analysis. The research revealed among others that, taxation has a significant contribution to revenue generation and taxation has a significant contribution on Gross Domestic Product (GDP). Wisdom (2014) undertook a study that determined the effect of tax revenue on economic growth in Ghana using quarterly data for the period 1986 to 2010 within the VAR framework. The study revealed that there existed both short run and long run relationship between economic growth and tax revenue. The result indicated a uni-directional causality between tax revenue and economic growth and it flows from tax revenue to economic growth. The result affirmed that tax revenue exerted a positive and statistically significant effect on economic growth both in the long-run and short-run implying that tax revenue enhanced economic growth in Ghana. Wisdom and Bernard (2015) explored the causal influence of tax revenue on economic growth in Ghana. The study employed the Toda-Yamamoto test instead of the canonical Granger causality test to avoid pre-testing bias. Using a quarterly dataset which spanned the period 1986Q1-2014Q4, the findings unveiled strong evidence of uni-directional causal flow from tax revenue to

economic growth in Ghana. Also, Maiga (2015) examined the relationship between the collection of taxes and revenue targets generated by each of the Financial Services at the Directorate General Taxes of the Republic of Mali. Revenues generated by the Directorate General of Taxes contributed a big chunk of funds to the Malian Treasury, about 40%, with the focus of the research on year 2012. After economic modeling and estimation, it was revealed that there was a positive correlation between tax revenue and the revenues generated. The estimates of the revenue growth model of Directorate General of Taxes in Mali showed that it is influenced by changes in the collections of taxes.

Oludele (2015) conducted a study that evaluated the extent to which SMEs in Cameroon are tax compliant. The study used 575 SMEs to conduct its survey. The study employed correlation analysis and descriptive statistics as its method of data analysis. The findings revealed that high registration cost and time-consuming processes promoted tax non-compliance, the perception that tax system was corrupt discouraged registration and filing compliance; when there were too many compliance hurdles, the probability of filing compliance was reduced. However, it was further discovered that a fair and static system encouraged filing and registration compliance; a clear and consistent tax system promoted filing compliance; authorities that understood their responsibilities and were willing to respond to enquiries during the registration process promoted tax compliance in general. The study conducted by Jones, Ihendinihu, and Nwaiwu (2015) however provided empirical evidence of the long and short run equilibrium association between total revenue and economic growth in Nigeria. Time series data ranging from 1986 to 2012 of total revenue and real gross domestic product collected from the Central Bank of Nigeria and the National Bureau of Statistics were used. The ordinary least square of univariate regression method and the Error Correction Method were used to analyze the data. The findings of the analysis showed that total revenue had a long and short run equilibrating relationship with economic growth in Nigeria. Tagem (2017) examined the impact of foreign aid and taxes on government spending for a sample of 69 developing countries over 1980-2013, taking account of dynamics characterizing fiscal data, cross-country heterogeneity and the distorting impact of cross-section dependence, by applying the Pesaran (2006) Mean Group estimator. It was shown in the model used that spending, net aid (as well as variants including grants and loans) and taxes comprised an equilibrium (co-integrated) relation. The findings provided robust evidences of a positive, long-run (as well as short-run) association between aid and spending. Further analysis showed that on average, the aid coefficients were positive but smaller than the tax coefficients, indicating that in the long-run and short-run taxes had a stronger association with expenditures than aid.

Amoh and Adom (2017) assessed the effect of tax revenue determinants on Ghana's tax revenue growth. The results specified significant determinants of tax revenue growth as services value added, manufacturing value added, external debt stocks, foreign direct investment (FDI) and government consumption expenditure. The estimated tax revenues were found to be greater than the actual tax revenue figures resulting in tax revenue gaps averaging 10.27% of GDP annually. The methods of data analysis adopted econometric techniques such as ARDL, ADF and the Phillip-Peron (PP) tests. Also, Sèna (2017) carried out a study that examined the impact of domestic trade liberalization on government revenue by examining whether multilateral trade policy liberalization was important for government revenue. The empirical analysis used a panel dataset covering 169 countries from 1995 to 2013 which provided evidence that multilateral trade policy liberalization actually had a positive impact on government revenue. However, the impact was assumed to be

dependent on both countries' level of development and their level of domestic trade policy liberalization. Okwara and Amori (2017) examined the impact of tax revenue on the economic growth in Nigeria for the period of 1994-2015. To avoid spurious results, Ordinary Least Square (OLS) was used to test the significant impact of value added tax and non-oil income on Gross Domestic Product (GDP). The results revealed that non-oil income has significant impact on gross domestic product while value added tax has negative relationship and statistically insignificant for the period under review. Francis, Nehemiah and Eliab (2017) undertook a study using quarterly data from 2000 to 2014, and employed dynamic ordinary least squares (DOLS) and Divisia Index approaches to examine the growth of Ghana's VAT revenues and how the growth was affected by discretionary tax measures. The study discovered that all of the measures of VAT revenue (total VAT, domestic VAT, and import VAT) had experienced some growth. Growth in total VAT and import VAT was driven strongly by growth in the base, while that of the domestic VAT was driven by both discretionary tax measures and the tax base. Discretionary tax measures were found to have had a depressive effect on both total VAT and import VAT revenue growth.

2. METHODOLOGY

The study adopts an *expo-facto* research design and the population of the study covers all the West African Countries; out of which, 8 countries were selected randomly for 10 years spanning from 2008 to 2017. Ten (10) was considered years primarily due to the availability of data and the need to capture periods with significant effects of revenue generation which include the global financial and economic crises and a period after the domestic economic recession. Data of these countries are sourced from the Organization of Economic Co-operation Development (OECD) and Revenue Statistics in Africa and statistical bulletin of various countries. While the predictor variables are company income tax, value added tax and custom and excise duties, the outcome variable is the total revenue of all the sampled counties.

The study modified the model used by Okwara and Amori (2017) as stated thus:

$$GDP = f(VAT, CIT, NOR) \dots\dots\dots [3.1]$$

Where; GDP is Gross Domestic Product, VAT is Value Added Tax, CIT is Companies' Income Tax and NOR is Non-oil Revenue. The model was modified to suit the course of the study.

The modified model is given thus:

$$TRE = f(CIT, VAT, CED) \dots\dots\dots [3.2]$$

The model is estimated in a linear form thus:

$$TRE = \beta_0 + \beta_1 CIT_{it} + \beta_2 VAT_{it} + \beta_3 CED_{it} + \varepsilon_{it} \dots\dots\dots [3.3]$$

Where; TRE is Total Revenue, CIT is Companies' Income Tax, VAT is Value Added Tax, and CED is Custom and Excise Duties. The model was modified to suit the course of the study.

β_0 is the intercept, $\beta_1 - \dots - \beta_3$ is the slop parameters, i = cross-sectional variable and is the time series variable. The *a-priori* expectation is that all the predictor variables will have a positive effect on the total revenue. Data gathered for this study was analyzed using quantitative econometric techniques and the process follows descriptive analysis, correlation analysis and panel data regression which include pooled OLS, fixed effect estimation and random effect estimation.

The fixed effect models are given thus:

$$Y_{it} = \alpha_0 + \beta_1 X_{it} + \eta_i + \mu_{it} \dots\dots\dots [3.4]$$

η_i is a time varying intercept that captures all the variables that affect Y_{it} that varies over time but are constant cross-sectionally. In substituting the variables under consideration into the

fixed effect model, it will appear thus:

$$TRE_{it} = a_0 + \beta_1 CIT_{it} + \beta_2 VAT_{it} + \beta_3 CED_{it} + \alpha_i + \mu_{it} \dots \dots \dots [3.5]$$

The random effect models follow this form:

$$Y_{it} = a_0 + \beta_1 X_{it} + W_{it}, W_{it} = \epsilon_{it} + \mu_{it} \dots \dots \dots [3.6]$$

Where; ϵ_{it} measures the random deviation from the global intercept a , subscript “it” represents the combination of time and individuality. U_{it} means error term. In substituting the variables under consideration into the random effect model, it will appear thus:

$$TRE_{it} = a_0 + \beta_1 CIT_{it} + \beta_2 VAT_{it} + \beta_3 CED_{it} + (\epsilon_{it} + \mu_{it}) \dots \dots \dots [3.7]$$

3. RESULTS AND DISCUSSION OF FINDINGS

3.1 Descriptive Analysis

Table 1: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
TRE	80	2158156	26702.43	5607.748	1.11e+07
CIT	80	478538.1	6689.643	539.825	1.22e+07
VAT	80	358495.7	4049.489	1406.278	1140391
CED	80	340733.8	3868.614	1202.853	1553907

Source: Data Analysis (2024)

Table 1 reveals the summary of all the variables under consideration in this study in their raw form. The mean value of Total Revenue (TRE) is given to be 2158156 billion. This shows the average value of total revenue for 10 years. In the same vein, the mean values of Companies Income Tax (CIT), Value Added Tax (VAT) and Custom and Excise Duty (CED) are 478538.1, 358495.7, and 340733.8 respectively. This reveals the average value of all the tax revenues used in this study for 10 years. The standard deviation values shown in Table 1 indicates the dispersion or spread in the data series. The higher the value, the higher the deviation of the series from its mean and the lower the value, the lower the deviation of the series from the mean. The variables with a higher degree of dispersion from the mean are CIT and VAT. The minimum values of TRE, CIT, VAT and CED were 5607.748, 539.825, 1406.278 and 1202.853 respectively. In the same vein, 1.11e+07, 1.22e+07, 1140391 and 1553907 are the maximum values of TRE, CIT, VAT and CED respectively.

Table 2: Correlation Matrix Statistics

	TRE	CIT	VAT	CED
TRE	1			
CIT	0.4015	1		
VAT	0.7304	0.4053	1	
CED	0.5353	0.2316	0.7871	1

Source: Data Analysis (2024).

Table 4.2 shows a positive relationship between Total Revenue and all other variables. This

can be seen with the coefficients of 0.4015 for CIT, 0.7304 for VAT and 0.5353 for CED. Furthermore, there is a positive relationship between company income tax and value added tax and custom and excise duties. This can be seen with their respective coefficient of 0.4053 and 0.2316 respectively. The table also shows the last relationship, which is positive. It is between Value Added Tax and Custom and Excise Duties. This relationship is depicted by the coefficient of 0.7871.

Table 3 Pooled OLS Estimation Result

Variable	Coefficient	Std Error	T-Test	Probability
C	67732.86	313.0083	6.21	0.000
CIT	.1866978	.1347921	1.39	0.170
VAT	6.506761	1.177836	5.52	0.000
CED	.5755196	.9458465	0.61	0.545

R-square=0.5490, Adjusted R-square=0.5312, F-statistics=30.84, Prob(F-stat)=0.00000

Source: Authors' Computation (2024)

Pooled estimation result presented in Table 3 revealed that when heterogeneity effect across West African Countries sampled in the study is no given consideration, CIT and CED exert an insignificant positive impact on total revenue of some selected countries in West Africa, with a coefficient estimate of 0.1866978 ($p=0.170 > 0.05$) and 0.5755196 ($p=0.545 > 0.05$) respectively. Result revealed also that VAT exert a significant positive impact on the total revenue of some selected countries in West Africa to the tune of 6.506761 ($p=0.000 < 0.05$) respectively. R^2 statistics reported in Table 3 showed that about 55% of the systematic variation in actual total revenue of some selected countries in West Africa can be jointly explained by CIT, VAT, and CED.

Table 4: Fixed Effects Estimates (Cross-sectional and Period specific)

CROSS-SECTIONAL SPECIFIC EFFECT			TIME SPECIFIC EFFECT		
Variables	Coefficients	Prob	Variables	Coefficients	Prob
C	988727.3	0.003	C	520716.3	0.0000
CIT	.2726218	0.0000	CIT	0.2749212	0.000
VAT	1.877936	0.134	VAT	2.100962	0.073
CED	2.151841	0.041	CED	2.144142	0.024
Effects			Effects		
NIGERIA	278517.2	0.362	2009	-99318.07	0.682
COTE D'IVOIRE	4556.404	0.979	2010	63586.42	0.769
CAMEROON	162443.6	0.353	2011	-9851.589	0.967
CABO VERDE	105753.1	0.554	2012	209864	0.354
NIGER	188295.8	0.552	2013	47459.46	0.816
GHANA	24373.13	0.9	2014	197532.6	0.294
SENEGAL	37353.77	0.883	2015	-148047.6	0.423
			2016	30031.97	0.906
			2017	171710.6	0.345
$R^2=0.4743$, F-stat=34.51, Prob(F-stat)= 0.0001			$R^2=0.3348$, F-statistics=43.70, Prob(F-stat)= 0.0000		

Source: Authors' Computation (2024)

Fixed effect cross-sectional specific estimation result presented in Table 4 showed that

when heterogeneity effect across West African countries sampled in the study is incorporated into the model, both CIT, VAT and CED exert a positive impact on total revenue, though the positive impact of VAT unlike that of CIT and CED is not significant. Reported coefficient estimates and probability values for CIT, VAT and CED stood at 0.2726218 ($p=0.0000 < 0.05$), 1.877936 ($p=0.134 > 0.05$) and 2.151841 ($p=0.041 < 0.05$) respectively. The R^2 value reported for cross-sectional specific estimation presented in table 4 stood at 0.4743, which reflects that about 47% of the systematic variation in total revenue of some selected countries in West Africa can be explained jointly by the explanatory variables - CIT, VAT, and CED.

Result of fixed effect period-specific estimation presented in table 4 showed that when heterogeneity effect over time is incorporated into the model as intercept term, both CIT, VAT and CED exert a positive impact on total revenue, though the positive impact of VAT unlike that of CIT and CED is not significant. Reported coefficient estimates and probability values for CIT, VAT and CED stood at 0.2749212 ($p=0.000 < 0.05$), 2.100962 ($p=0.073 > 0.05$) and 2.144142 ($p=0.024 > 0.05$) respectively. Reported R-square statistics showed that about 33% of the systematic variation in total revenue of some selected countries in West Africa can be explained jointly by CIT, VAT and CED.

Deviation from the intercept term (988727.3) corresponding to the reference country (Togo) stood at 278517.2, 4556.404, 162443.6, 105753.1, 188295.8, 24373.13 and 37353.77 for Nigeria, Cote d'Ivoire, Cameroon, Cabo Verde, Niger, Ghana and Senegal respectively. Deviation from the intercept term (520716.3) of the reference period (2008) stood at -99318.07 for 2009, 63586.42 for 2010, -9851.589 for 2011, 209864 for 2012, 47459.46 for 2013, 197532.6 for 2014, -148047.6 for 2015, 30031.97 for 2016 and 171710.6 for 2017.

3.3.3 Random Effect Estimation

Table 5: Random Effect Estimation

Variable	Coefficient	Standard Error	Z-Test Values	Probability
C	544032.8	106744.3	8.21	0.000
CIT	0.195278	0.005923	4.39	0.000
VAT	5.990342	3.177836	5.52	0.060
CED	0.9765433	0.3563281	2.621	0.021
R-square=0.6939, Wald chi2(5) =92.53, Prob> chi2 =0.0000				

Source: Authors' Computation, (2024)

Random effect estimation result presented in Table 5 revealed that when heterogeneity effect across West African Countries and overtime is incorporated into the model via the error term, both CIT, VAT and CED exert a positive impact on total revenue, though the impact is insignificant for VAT, given the reported estimates and probability values for VAT that stood at 5.990342 ($p=0.060 > 0.05$), as against estimate for CIT and CED that stood at 0.195278 ($p=0.000 < 0.05$) and 0.9765433 ($p=0.021 < 0.05$) respectively. Reported R-square for random effect estimation presented in table 5 stood at 0.6939 which implies that about 69% of the systematic variation in total revenue can be explained by CIT, VAT and CED of the sampled West Africa countries.

Table 6. Hausman Test

Null hypothesis	Chi-square stat	Probability
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Difference in coefficient not systematic	6.22	0.3909
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Source: Authors' Computation, (2024)

Table 6 reported chi-square statistic of 6.22 and a probability value of 0.3909. The result revealed that there is no enough evidence to reject the null hypothesis that differences in coefficients of fixed effect estimation and random effect estimation are not significant. Therefore, the most consistent and efficient estimation is given by the random effect estimation as presented in table 5. It thus becomes evident that the estimation that best explains tax revenue and total revenue in some selected West African countries is the random effect estimation presented in table 5, which revealed both CIT, VAT and CED exert a positive impact on total revenue, though, the impact is insignificant for VAT, given the reported estimates and probability values for VAT that stood at 5.990342 ($p=0.060 > 0.05$), as against estimate for CIT and CED that stood at 0.195278 ($p=0.000 < 0.05$) and 0.9765433 ($p=0.021 < 0.05$) respectively.

Table 7: Other Post Estimation Test

Wald test		
Panel homoscedasticity	1.0339	0.1195
Pesaran test		
No cross-sectional dependence	2.6700	0.2318
Wooldridge test		
No panel autocorrelation	0.9291	0.5114

Source: Data Analysis (2024)

The result presented in Table 7 shows that there is no evidence to reject the null hypothesis on panel homoscedasticity, no cross-sectional dependence and no panel autocorrelation, given the reported probability statistics of $0.1195 > 0.05$ for Wald test, $0.2318 > 0.05$ for Pesaran test, and $0.5114 > 0.05$ for Wooldridge test. Hence, it can be established that assumptions of the equal variance of residual terms cross-sectional independence and absence of serial autocorrelation for the estimated panel-based model are valid.

3.2 Discussion of Findings

The study have been able to examine tax revenue and total revenue in some selected West African countries. It was discovered that company income tax (CIT) and custom and excise duties (CED) have a positive and significant effect on the total revenue of counties in West Africa. The positive coefficient conforms to the *a-priori* expectation. This might be attributed to the effectiveness and efficiency of the tax authorities saddled with the responsibilities of collecting these taxes and duties. Also, value added tax (VAT) exerts a positive but insignificant effect on the total tax revenue of countries in West Africa. This might be due to the rate of value added tax (VAT) that somewhat low to that of company income tax (CIT) and custom and excise duties (CED) and probably the inefficiency of the tax officers in charge of value added tax (VAT). The corollary of this discovery is that tax revenue could stimulate an increase in the total revenue of countries in West Africa. The outcome is in tandem with the submissions of Maiga (2015) and Afuberoh and Okoye (2014) that tax revenue contributed immensely to the total revenue through which the government defrays her expenditures.

4. CONCLUSION AND RECOMMENDATIONS

Countries in West Africa seem to be faced with multi-layered problems ranging from corruption, embezzlement, mismanagement of funds and poor leadership. Despite considerable and rich advancement in the economic development of West African countries, there is still a void in the literature with respect to the effect of tax revenue on total revenue. Specifically, little is known about the implementation of the tax forum to boost tax generated revenue and stimulate the growth of total revenue. This was the ground on which this study was designed. Based on the findings, it was concluded that tax revenue has a positive effect on the total revenue of West African Countries. Company income tax and custom and excise duties could engender a significant increase in the total revenue. Value added tax could only cause an insignificant increase in the total revenue. Thus, it was recommended that tax authorities of various countries should properly monitor company income tax and custom and excise duties to sustain its significance to the revenue pool of the government, efforts should be intensified by the government agencies saddled with the collection of value added tax to improve the tax revenue base and that there should be a persistent review of existing tax laws to keep the act in pace with the economic reality such as increase in VAT rate and the number of items captured in VAT net. Also, the government of West Africa countries is urged to work out modalities that will ensure that tax revenues are utilized as expected. The study is limited to three forms of taxes hence, a similar study could look into other forms of taxes not used in this study. Also, the period covered is relatively small thus, further study could be conducted using a longer period.

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