Tax Rates And Economic Growth: A Conjugal Bioscopy

Sunday A. Effiong, Joseph O. Udoayang, Fadenipo A. Adesola

Abstract: The study considered the conjugal consequences of tax rates and economic growth. A focused investigation was conducted to evaluate the direction of influence of tax rates on economic growth in Nigeria. Secondary data and ex-post-facto design were adopted. The study employed autoregressive distributed lag model (ADRL) to estimate the model coefficients, using annual data for 1989 to 2018; this was because the data used in the study have time attributes and the choice of the method was premised on the fact that it enabled the researchers to examine the long-run and co-integrating relationships between the variables of the study. However, before ADRL was conducted, some residual diagnostic tests such as normality tests, multi-collinearity test, serial correlation, and heteroscedasticity tests were engaged to ensure well-founded empirical results. The findings of the study showed that PITR, VATR, and PPTR have positive and significant relationships with economic growth while CITR has a significant negative effect on economic growth; CGTR however, has no significant relationship with economic growth. It was recommended that the government should systematically review downwards the tax rates in Nigeria and widen the tax base to bring more taxable persons into the tax net.

Index Terms: Tax rates, economic growth, tax base, tax net, personal income tax revenue, company income tax revenue, value-added tax revenue, capital gains tax revenue.

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1 INTRODUCTION

Nations across the world collect taxes to boost infrastructural development, to meet daily operating costs in relation to maintaining a fair and free society, to manage the economy using fiscal and monetary measures and, to a certain extent, change the behavior of people economically. The authority of governments to collect taxpayers' monies must harmonize the nations' capabilities and rights. Hence, the actual challenge of a nation is on how to assure that taxpayers are managed with justice, equity, and equality, while governments of the nations maintain their control as taxing authorities. In an economy, entrepreneurial activities such as investments, innovations and inventions, firms, companies, foreign investments, and small and medium enterprises, have a major collective role in enhancing the production of goods and services and efficiently manage the factors of production which have a major influence on economic growth, whereas government plays a predominant role in achieving the coveted changes in the structure of an economy.

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To be sure, the uniqueness of the public sector emerges from the way that, aside from being a piece of the economy, the administration assumes an unequivocal part in achieving macroeconomic destinations of solidness, development, and improvement through a bundle of financial strategies, measures, and regulatory framework. In as much as the government is saddled with the responsibilities of managing the economy, it does this by formulating and implementing policies such as fiscal and monetary policies. Fiscal policy is designed to achieve economic growth, stability, equilibrium balance of payments, and full employment. Fiscal policies should be associated with a solid tax system which should recognize excesses in the economy and tax it in a manner that has a minimal adverse effect on production capabilities. Economic growth is the sustained improvement on the ability of a nation to adequately fulfil the interest for merchandise and ventures, gathering from extended and graduated creation framework related to enhanced profitability (advancements in items and procedures) which is ordinarily assessed over a specific timeframe. Consequently, it is the end of yearly rate increment estimation in the genuine gross domestic product (GDP) over a particular timeframe. There are different apperceptions of financial development and methods for deciding the growth of the economy, yet the fundamental definition is in connection with developments over the long haul creation limit of the economy, generally controlled by genuine development in the gross domestic product (GDP). Growth in GDP can be derived in terms of consumption (total expenditure on goods and services), or production (total goods and services produced). Long term growth is driven primarily by productivity. According to [1], "productivity is not everything, but in the long run, it is almost everything". Over the longer term, economic growth will be measured basically by determinants of production. The determinants of economic growth are factors that either advances the quality of outputs or the potency with which inputs are transformed into outputs. Bolton & Khaw [2], asserted that monetary development is the most principal marker of an economy's wellbeing. They characterized it as the rate of development of the national pay, estimated by the yearly rate of progress of the nation's total national output. According to [3], economic growth is one of the

reasons why advanced countries have become richer and have improved standards of living. The Nigerian tax system has primarily been organized as an apparatus for income age from the pre-autonomy government given the 1948 British duty laws [4]. After some time, it has been watched that the tax framework in Nigeria has characteristic issues in its structure. Odusola [5], reports that the duty framework in Nigeria is focused on coercive measures to achieve tax compliance and increase government revenue while the relevancy of favorable tax rates in enhancing taxpayers' response and economic growth is left in abeyance. Thus, the tax framework does not have the potential of determining factors responsible for favorable tax rates and the need to use this avenue to enhance economic growth. Several tax reforms have been embarked on by the Nigerian government in the mid-1980s, 1991, and 2003, and besides the normal alterations given in the financial plan every year. Regardless of the different changes, the expense framework still had some set-backs, particularly in its structure and rates inconvenience. By chance, imposed rates have been a fundamental wellspring of lopsidedness in the nation's financial exercises, [6]. Diminishing or expanding the duty rates in expectation for higher government income can have an untold effect on the economy's production activities. The income reaction to changes in the imposed rate or changes in monetary fortunes can lead to tax revenue volatility, [6]. Meanwhile, higher production output and incomes increase government tax revenue through a broadened or widened tax base, making it less demanding for governments to back measures to lessen destitution, increment in medicinal services arrangement, and raise instructive principles, without raising duty rates. It is important to state that a well-functioning tax system is a necessary condition for strong, sustainable, and inclusive economic growth. Without favorable tax rates, barely any individuals will contribute; why do without genuine assets today when there is little probability that you will have the capacity to anchor the profits on that venture tomorrow? A favorable tax rate encourages risk-taking, innovation, and labor mobility, [7]. While there is an increasing focus on other aspects of the tax such as tax audit, tax system automation, tax investigation, and penalty as a means of enhancing economic activities and economic growth, the effect of tax rates on economic growth has received less attention. Tax collections should act as a catalyst for economic growth, but in a situation where tax rates imposed on incomes, investment, and production activities are high and unfavorable, the tax rates rather than encouraging these entrepreneurial activities, impair on them, [8]. Economic growth in Nigeria has been dwindling over the past years despite efforts of the government to stabilize it through the formulation of macroeconomic policies and tax administration aimed at enhancing growth and productivity in the economy. Not much has been achieved in terms of

the anticipated growth despite the rates regulations, this is because the government assumes that high tax rates bring about increase in government revenue without looking into the adverse effect that unfavorable tax rates bring on entrepreneurial activities, investments, businesses and companies, foreign investments, small and medium enterprises and also employees' initiative to save and invest, [9]. In other words, unfavorable tax rates negatively affect investment, savings, productivity, and other factors of production which bring about an increase in production of goods and services and the gross domestic product, and invariably affect economic growth. The establishment of tax rates is done without taking cognizance of economic exigencies of the country and taxpayers' capacity. These improper tax rates have not only led to a high level of tax evasion but income inequalities among taxpayers, poor productivity, and reduced economic growth. Unfavorable tax rates have also inhibited savings, spending, and investments in Nigeria, [9]. It is on this premise that this study evaluates the marriage between tax rates and economic growth from the perspective of bioscopy examination of the economic activities with the country's production capacity and entrepreneurial activities. The following null hypothesis guided this study:

H$_0$:   Tax rates have no significant effect on economic growth in Nigeria.

2   THEORETICAL FRAMEWORK

This study examined the conjugal results of tax rates on economic growth in Nigeria. The study falls within the realms of taxation, and given its nature, the theoretical foundation becomes necessary to provide the necessary underpinnings to the concepts.

2.1   The Laffer curve theory

The Laffer curve is a theory propounded by the economist Arthur Laffer in 1981 to show the relationship that exists between tax rates and the value of tax revenue generated by governments. The curve illustrated Laffer's postulation that the more a production activity is taxed, the less of such production activity is generated. Likewise, the less production activity is taxed, the more of such is generated, [9]. Arthur Laffer's [10], curve model of optimal taxation expects that legislations will endeavor to produce however much income as could be expected with no respect to the productivity misfortunes caused by tax collection. Just established requirements and different enactments can restrain the government's craving for expanded income. The Laffer bend thinks about the backward connection between charge rates and bases and the impact of this relationship on financial development. The examination uncovers that a higher assessment rate is not generally better than what a lower imposed rate may generate.
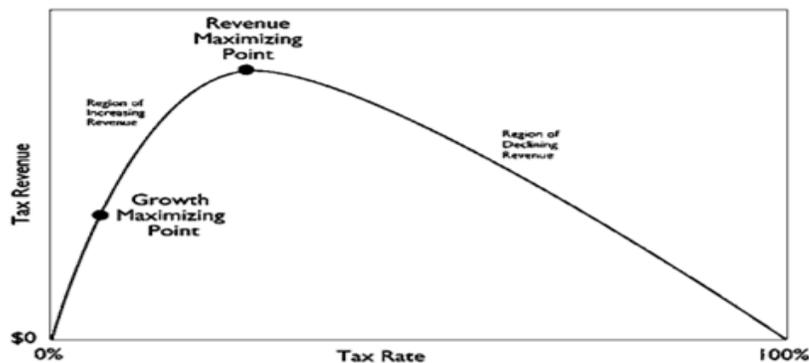
Fig. 1: Laffer curve

Arthur Laffer recognized the favorable impact of minimal duty rates on businesses, works, and yields which give motivations to enhance generation exercises. Conversely, expanded expense rates amerce individuals for including in these exercises. The Laffer curve represents what happens when the financial and number juggling impacts clashed, clarifying why an ascent in assess rate may adversely influence burdened profitable movement and create less income than generally anticipated, similarly as a tax reduction may increase saddled action and raise more income than oppositely assumed. Chiefly, the Laffer curve does not hypothesize whether a duty lessening will increase or diminish incomes, neither does it forecast that any expense rate slices would prompt more aggregate incomes. What is for the most part accepted is that duty rate decreases will dependably prompt expanded development, expanded business, and more salary for subjects, which are adequate eventual outcomes which could prompt more noteworthy openings and thrive.

2.2   The benefit theory of taxation
This theory holds that the state should impose on individuals affordable tax rates that are at par with the benefit they received. The higher the benefits an individual receives from the infrastructural and social amenities of the nation, the higher the tax rate to be imposed on such activities by the government. Although reasonably appealing, the benefits theory of taxation has several important deficiencies. First, it would be difficult to precisely implement due to impossibility in measuring the accurate measure of government benefits, including broadened advantages, for example, military assurance delighted in by every individual occupant and non-inhabitant citizens, [8]. This theory suggests that the individual contributes taxes at the same rate or proportion to the benefits he enjoys from the services provided by the state. If the benefit theory is a practice of public finance, it will automatically satisfy the requirements of horizontal equity and vertical equity. Taxpayers in the same benefit conditions will be charged the same tax rate, and so too would taxpayers in, unlike taxing conditions. Taxation according to the benefit theory is a standard of tax justice. The benefit theory possesses the simplicity of relating the revenue and the expenditure sides of the budget to each other. It suggests an arrangement permitting individual taxpayers, as consumers,

to pay directly for the economic goods of the state from which they derive satisfaction or profit. The theory has four other implications such as the exchange of taxpayers' money for the goods of the public sector is voluntary; the tax is treated as a payment for benefits received from the state; it ignores the difficulties in pricing joint products public good and the greater difficult goods and unless taxation is made compulsory and tax enforcement is backed by sanctions. Some people will not pay tax voluntary and this will not aid tax revenue; it could be academic to theorize about tax benefits. The value of this theory in this research work is to provide incentives to produce more and more by providing benefits to those who are the taxpayers, it will also help in determining the prices of certain government services such as railways, airways, etc., and determine special taxes on certain local services such as electricity, road, etc. The services rendered by the local bodies can be measured properly and taxed accordingly and in response to the economic condition of the state.

2.3   Sensitivity model of Levine & Renelt (1992)
In comparison to the economic policies and growth rates across countries, different tax rates affect monetary development unexpectedly. The driving force for the disaggregation is gotten from the way that the speculation and monetary inspirations affect the fundamental, and the segments of assessment rates in the nation. As a result, the effect of duty rates in Nigeria could be actuated by the diverse financial structure which must be considered to have wanted impact. This point is basic in our demonstrating approach because the expense rates of the Nigerian duty framework as a creating nation are altogether different from those of the created. If there are particular expense rates in the Nigerian duty framework, the country's GDP will be affected distinctively, [12]. Thoroughly separating the total yield from the deferent changes in tax rates, it was assumed that the change in economic growth can be affected by the response rate on the tax payable on income. Their model suggested that indiscriminate assumption of tax rates normally affect development that frequently prompts speculation of the development display which in a few events endures the multi-collinearity issue among the components of the vector arising from the inadequate identification of economic variable in the establishment of such tax rate. In effect, tax rates should be

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sensitive and respond in a similar proportion to the economic circumstances to encourage favorable responses from taxpayers and other economic elements.

2.4   Tax policy overview

Tax policy is a statement of government's approach to taxation, both from the practical and normative points of view. The latter manifests in the body of laws constituting Nigeria's tax law, while the former pertains to the administration. It is a potent fiscal tool as it can be put to a myriad of use amongst which is the correction of severe budgetary pressure and economic restructuring. Also, it mirrors the aspirations and input of the generality of stakeholders within the tax system as it is a formulation that, ceteris paribus, is a product of the participation of the general public through its representatives. Furthermore, it is an undertaking by the government. Before 2010, Nigeria lacked a definite tax policy. Tax administration was unsystematic and a relic of the colonial era. The fact that it was being administered and superintended by Nigerians did not bring in any variation. Like was the case with the colonial era, it was put to use as a tool for the sourcing and collection of funds for state expenditure without a thought to other uses in which taxation can be put. However, today the tale is different. Sustainable economic growth and development are one of the overriding principles of the National Tax Policy. Sustainable development is defined as the development that covers the present needs of the people while the capability of posterity to meet their own needs is not compromised. In this framework, sustainable development is referred to as the model of revenue generation, which should have the ability to cover the needs of today's Nigerian generation, without adverse effect on the future generations' ability to meet their own needs. Essentially, tax collection is viewed as a feasible wellspring of producing government income as a result of the conviction and solidness of the assessment framework. In opposition to other income-producing sources, charges are consistently accessible and open in as much as financial exercises are being carried on in the nation. Current advancements in the nearby and worldwide economy which have affected fundamentally on government income have coordinated consideration on tax assessment as a crucial and supportable wellspring of creating salary. It is on this note Nigeria's national tax policy means to raise mindfulness on the critical part of tax collection in accomplishing a consistent stream of producing income for the government. Right now, Nigeria is accepted to be a solitary item economy with extensive reliance on income from oil part because of past and verifiable improvements in the economy of Nigeria. Tax collection, in any case, has been perceived as a huge option and a more dependable wellspring of income to oil income. The National expense approach accordingly will support and advance a turnaround in consideration from non-assess income sources to charge income sources by all levels of governments in the economy. In accordance with the above articulation, the national assessment arrangement will likewise energize and advance a sound rivalry among the expense income experts in the nation at the federal and state levels to guarantee dynamic and quickened improvements of the duty division in Nigeria. The consideration of the opposition will be to guarantee that

expense income is expanded in light of the organization and ward off every level of government as per the statutory and constitutional arrangements. It is anticipated that there should be improved cooperation resulting from the need to enhance the growth of tax revenues by each tier of government and the increased collaborations should enhance tax yields by the federal, state, and local government authorities. The sustainable development concept with the healthy competition shall be maintained to be fundamental philosophies in the evolvement and development of Nigeria's tax system. The coming into being of the NTP is attributable to a collection of factors. Prominent amongst these is the internationalization of the economic activities of the state, an endeavor which in the comity of nations is not without conditionality as well as the realization that taxation is the only source of government expenditure, that is capable of bringing about a development that caters for the importance of the recent generation continuously without a compromise on the ability of the posterity on meeting their own needs, [13]. There is currently in existence a national tax policy (NTP) document and the following are its high points: It documents the current objective of the system as an advancement of economic growth and development; It states that in the tax system, there shall be fewer number of taxes which shall be broad-based with high revenue yielding potentials, that equity and fairness shall guide the system so that similar cases can be approached similarly and cases which have different natures are handled according to the dictates of their respective peculiarity; It also documents that a shift is expedient on the focus of the system of taxation from the direct system of taxation to an indirect system of taxation to be manifested in a reduction in companies income tax (CIT) rate and personal income tax (PIT) rate and a rise in the value-added tax (VAT) rate.

2.5   Federal tax institutions

At the federal level, there are two major institutions in charge of taxation. They are the Federal Inland Revenue Service (FIRS) and the Nigeria Customs Service (NCS). These two tax agencies are extra ministerial departments of the Federal Ministry of Finance. The FIRS (the authorized operating body of the Federal Board of Inland Revenue (FBIR)) assesses and collects inland taxes including personal income tax on the federal level; Company income tax, value-added tax, petroleum profit tax, stamp duties, and capital gains tax. The NCS is in charge of import and excise duties, apart from functioning also as a paramilitary organization for its anti-smuggling activities. Apart from the FIRS and NCS, there is also the JTB - Joint Tax Board, which is not involved in tax administration as such but exists to harmonize taxation at federal, state, and local levels and advises the Federal government on nation-wide aspects of taxation.

2.6   Economic importance of tax rates

Tax rate is simply the percentage of income paid as tax. Although, this is not true in all cases, especially for value-added tax, where tax rates are on the value derived from purchases made on goods and services. Taxes can affect the rate of economic growth as a consequence of their effects on add-up to factor profitability and factor amassing. Expenses can expand the cost of capital and lessen

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inspiration to contribute, in such manner, higher duty rates to deter the motivation to investment, thence, affect economic growth adversely. Also, by giving preferential incentives to certain sectors of the economy, capital allocation can be distorted by the tax rates imposed and this can decrease the productivity level of total investment resulting from their influences on the productivity of the total factor of production. This negative effect of taxes on total factor lowers their efficiency and productivity. Unfavorable tax rates could alter factor costs and induce loss of efficiency in the allocation of resources, [14]. Another symptom of duty rates on the profitability of the aggregate factor is the outcome of their potential effects on enterprise and industrialism. Entrepreneurial exercises make new thoughts that can animate aggregate factor efficiency. Several studies have pointed out that taxes have an adverse effect on entrepreneurial activities. According to [15], the creation of a new product has been adversely affected by unfavorable tax rates on entrepreneurship and this has reduced total factor productivity. Numerous investigations have experimentally inspected the effect of charges on development, a large portion of which have gone for cross country investigation, and a couple of the examinations have analyzed the impact utilizing information from state, areas or sub-national governments, particularly in the U.S. Distinguishing the impacts of assessment rates on development could be less difficult on the inter-state level as states have more similarity than different countries, [16]. Stressing the empirical literature, several studies use effective marginal tax rates and aggregate average as tax burden measurements, [17]. Using such tax measures, [18] discovered a negative connection between assessing rates and financial developments likewise [19]. Be that as it may, [20] did not find any critical unfavorable impact of assessment rates on development. Katz, Mahler, & Franz [21] and Lee & Gordon [4] utilized statutory duty rates to quantify the taxation rate. For information of cross-segment of nations, [21] found out that the high PIT rate has a non-critical impact on development; [4] additionally found out that the effect of the high PIT rate on development is not huge however the organization wage charge rate has a huge negative association with financial development. The observational investigation completed as of late by the Organization for Economic Co-operation and Development (OECD), appears by positioning the impacts of various types of duties on per capita total national output (GDP) development. OECD, [73] uncovered that company income taxes have the most astounding unfavorable impact on GDP per capita development, this is trailed by individual wage imposed rates PITs and after that utilization charges (VAT). In investigations carried out on other countries, for example, [4], there are contrasts among the nations with the end goal that the bases of wage charges are set up so the duty rate contrasts will not effectively affect development specifically. A specific report on the Canadian territories analyzed the impacts of expense rates on private speculation and monetary development, information from 10 Canadian areas for the time of 1977– 2006 was utilized. The examination inspects the impacts of the development rate of the impetus based tax reductions in 2001 by the British Columbia BC, and also its shift from a retail sales tax to the harmonized federal value-added tax.

Tax rates may be autonomous as explained by [4]. A developing economy can decide to lower tax rates, and the government may have no choice but to increase tax rates in times of economic downturn and their expense bases widened. On the off chance that duty rates are self-sufficient, the expense rates coefficients point gauging from settled impacts appraisal might be one-sided. Expense rates expand the client's cost of capital and thus have an antagonistic impact on venture (Feldstein, 2016). Looking at Canada and United States, [22] clarified that throughout the year 1971– 1996 the client cost of capital in the United States was lower than that of Canada conceivably on account of higher assessment rates in Canada. Additionally utilizing information from Canada, [23] and [24] made the finding of an antagonistic impact of expanded expense rates on the private venture. Company income tax rate is more damaging on economic growth than any other form of taxes because high company wage charge rates adversely affect the economy, that is, it influences business visionary venture choices which fluidly influences work rate, creation, and also expansion rate, [4]. High organization pay imposed rates are associated with low per capita wages in all nations examined after some time, [25]. Koester & Kormendi, [26] inspected the impacts of assessment rates on total financial movement and development and found out that minor expense rate impacts monetary action and development contrarily. Padovano & Galli, [27] considered and broke down the relationship that exists between assessment rates and financial development and discovered that marginal income tax rates have a negative effect on economic growth. As regards investment incentives, the rate of investment is depressed by high tax rates, and this restrains the growth of capital stock through high organization and individual wage charge rates, high finance imposed rates, high assessment rates on the generation and high capital pick up imposed rates, [28]. Firms Investment choices are not subject to compelling normal assessment rates (EATR) but rather on viable negligible expense rates (EMTR) at whatever point the organizations are obliged fiscally. Gupta, [29] assessed the monetary impacts of wage charges on speculation and sparing. The investigation inferred that with low pay charges, individuals are capacitated with enough disposable income to be used for saving and investment. Analyzing the effects of tax rates on investment and financing decisions, [7] disclosed that decision-makers can take wrong decisions by disregarding complicated tax attributes and depending just on statutory tax rates for investment decisions. Their study concluded that effective tax rates are beneficial to both policymakers and business managers to abate the tax burden on investment. As regards to consumption, tax rates have negative effects on both aggregate utilization and additionally family unit utilization. An expansion in utilization charges through VAT rates increase prompts a short-run to diminish in utilization and a bigger reduction over the long haul, [30]. Before the usage of the VAT rate, utilization, for the most part, is on increment however after execution, the quick reaction of customers is negative, at that point over the long haul, utilization may step by step increase, [31]. Depicting the different kinds of utilization charges in Jamaica, [32] unveiled esteem included assessment (VAT) as the general utilization imposed tax (GCT) and a few extract obligations

as the exceptional utilization imposed tax (SCT). The study found out that GCT and SCT become stronger when income taxes are not available. Surveying the macroeconomic effects of replacing the federal tax system on the current income tax based on consumption tax, [33] found that imposing higher taxes on individual income other than utilization is a more noteworthy taxation rate for family units. Investigating the reaction of family utilization in response to a predictable change in finance impose rates in the USA, [34] reasoned that if the foreseen assess rates change influenced the conduct of utilization, at that point the legislature monetary adjustment may impact utilization. A successful expense rate is basic for raising adequate assessment income. Atif, [35] and Azeem, [36] inspected the connection between charge rates and monetary development of creating nations and found out that there exists a negative impact of tax collection on genuine per capita GDP and salary assessment effectively affects speculation. Similar to other developing countries, though taxes create a major part of government revenue in Nigeria, their effects cannot be unnoticed or be ignored, [37].

2.7 Tax rates changes and economic growth

The importance of this study is gotten from the fundamental part of the assessment rate in monetary development, its impact on the dissemination of net salary, and its effect on an extended exhibit of financial exercises. This significance has been up-heaved by the current poor economic performances, apprehension about the economic and entrepreneurial activities which bring about economic growth and anxiety about the economic growth rate in the long-term. Although there is no falter that duty rate arrangement can influence decisions financial exercises, it is possibly clear that a lessening in assess rate will prompt a bigger economy significantly. Also, cuts in tax rates would increase the ratio of net income to working, investing, and saving, the net income people receive from their current activities level would also increase and this could raise their commitment to work, invest and save. The first impact through substitution effects typically increases economic activities, meanwhile, the second impact through income effects normally reduces the economic activity. Also, if tax rate reductions are not financed by cuts in government spending (reduction in government spending), the tax rate reduction will consequently offer ascent to an expansion in government obtaining, which consecutively will decrease long haul development further. The re-enactment investigation and verifiable proof are determination with the feeling that duty rate decreases that are not financed by a prompt lessening in government spending will have a more negative effect on development while assess rate diminishments financed by a quick diminishment in government spending (especially unproductive spending) will have a positive impact on growth. Although tax systems influence the economy, it is not guaranteed that reduction in tax rates or reforms on tax rates will bring about an increase in economic growth rate in the long-term contrary to common belief, [(Gale & Samwick, 2016). They studied how tax rate changes can affect economic growth in the long-run. Obviously, in the short run, tax rate reduction can quicken a weak economy and could stimulate individuals to work, contribute, and spare. Assuming in any case, the assessment decreases are not financed by government

quick spending diminishments, it may likely also lead to a higher government budget deficit, which will reduce government savings and increase interest rates in the long-run, [38]. They believe that due to the potency of the tax rate structure to negatively affect investment decisions, reduction in tax rates and its funding are important in achieving desired economic growth. Rate-cut tax reforms may likewise increase economic growth, but it is not a liable assurance. This holds for both 'revenue-neutral tax reforms' that do not add to the deficit or debt but leave the total revenues to the government the same and also 'distributional-neutral base-broadening tax reforms' that spread out the tax burden leaving the distribution of the tax burden unchanged across different income categories of households. To them, all-expense rate changes will not have a similar impact on development. Changes that stay away from benefit picks up, enhance motivating forces, maintain a strategic distance from deficiency financing and diminish existing sponsorships will have better ideal impacts on the economy over the long haul, yet at times there could be exchange offs amongst proficiency and value. Tax rates reductions impact the production activities and peoples' behavior through both substitution and wage impacts. The profitable impacts of diminishments on charge rates on the economy estimate are that it could lead to a larger economy which occurs as tax rates cut to increase the ratio of net income to working, investing, and saving. This increased net income encourages more effort on work, investments, and savings by a way of substitution effects. This is generally the intended effect of tax rate reductions on the economy size, [39]. Another positive sign of tax rate reduction is that it decreases the existing expense twists esteem and supports a viable change move in the monetary action structures (notwithstanding when the level of financial action is held steady) more distant from the present assessment favored economy segments, for example, lodging and wellbeing. Unadulterated assessment rate decreases could likewise achieve positive riches or wage impacts, which bring down the need to contribute, spare, and work. A decline in salary assess rates no matter how you look at it, for instance, combines all these effects. Marginal return to work is raised, thereby improving the supply of labor via the substitution effect, the value of existing tax subsidies is reduced and thence the composition of economic activity would likely be altered. Also, there will be an increase in the individual net income at every labor supply level, which invariably, decreases the supply of labor via the effect of income. The net impact on work supply is questionable as labor tends to increase, decrease or maintain the efforts put in on the job, such a similar effect is also applicable to the effect of lessening in impose rate on funds and other generation and venture exercises. The effect of a given size assessment rate diminishment will be influenced by the underlying expense rate; for instance, if the underlying individual pay tax rate is 90 percent, a 10 percent cut in personal income tax rate doubles the net personal income from 10 percent to 20 percent of the gross income. However, if the initial personal income tax rate is 20 percent and there is the same cut of 10 percent in PIT, the 10 percent reduction only raises the net income from 80percent to 90percent of the gross income. Even though the same income effects would be maintained in both scenario, the substitution impact on

funds and work supply would be more noteworthy with higher expense rates, because the net income would be larger for labor supply from a tax rate reduction when tax rates are high while the net loss to tax payment would be lesser in absolute value. Furthermore, because the accounting plus the opportunity cost of a tax rise when the tax rate increases, the efficiency achieved from tax rates reductions are greater when initial tax rates are higher, [39]. Tax reforms are however more complex, as the process involves tax rate reduction in conjunction with the base-broadening approach model. There is a hypothetical belief that such a base-broadening revolution could improve the overall economy size in the long-run, although the magnitude and impact of the effect are subjected to ample uncertainties. An unnoticed fact is that widening the expense base by disposing of or lessening charge spending expands the successful duty rate that organizations and people bear and will work in a contrary course to rate diminish in that regard. Assessment Base-widening has the additional favorable position of redistributing assets from current expense favored areas to segments which have the biggest financial pre-charge benefit that should raise the economy general size, [38]. Studies embarked on in the USA anticipated solving the issues on the impact of the major tax increments as well as tax reductions. The Economic Recovery Act of 1981 (ERTA) of the US included: a 23 percent cuts in personal income tax rates across board, a cut for two-earner families, widened individual retirement accounts (IRAs), indexed income tax brackets for inflation, and various deductions in capital income taxes. Most ERTA features, especially some of the capital income subsidies, were cut down in the 1982 and 1984 Tax Acts. According to the incentive economists, to achieve a rise in real income, productivity must increase, and for productivity growth, overall tax burdens must be reduced. Increased marginal tax rates discourage labor participation in which they reduce their productive efforts in exchange for leisure. Also, higher marginal rates lead to economic distortions as they restrain or disregard exchange and specialization, [40]. High company income tax rate encourages business owners and top-level managers to spend the organization funds on tax deductibles, and business-related transactions that yield personal gains.

That is why personal luxurious expenses such as swimming pools, helicopters or private jets, luxurious guesthouses, elegant personal buildings and properties, chauffeur-driven limousines, country club memberships, vacations and business meetings in exotic locations are highly aided through tax evasion and avoidance, because to the company, the cost of such elaborate and lavish spending is only 60% and the 40% balance of expenses is indirectly borne by governments in the form of non-collection of taxes (tax evasion). The individual shareholders bear much smaller costs as their effective cost is just the payment of taxes on dividends received. During the 1970s, the top tax rate was higher than 70% in many nations, and to the corporate, the cost was less than 30%. In the United Kingdom, 98% was the top tax rate on investment income in 1978, hijacking virtually the entire income without leaving tangible incentives to the investor who labored to generate the investment income. Furthermore, in developing nations, there is a lack of effective social security systems for common people like in the United States and therefore, governments need to encourage savings and investment for future demand and exigencies. Effective tax rate alterations play a crucial role in changing relative prices between savings and consumptions. Moderate tax rates will stimulate saving attitude among people and corporations, [41].

2.8   Economic growth

Economic growth is the fundamental reason for a prosperous nation. It is indicated by new capital investments (both physical and human), the invention in new techniques of production, and the creation of new products and services. It is the increase in the production output of an economy over some time or a rise in the productivity of an economy if it uses all resources at its disposal. The easiest approach to portray monetary development is to package every one of the products delivered by a country into two fundamental classifications, customer and capital merchandise. This can be represented by an outward movement of the Production Possibility Frontier diagram which shows that an economy has expanded its ability to deliver.
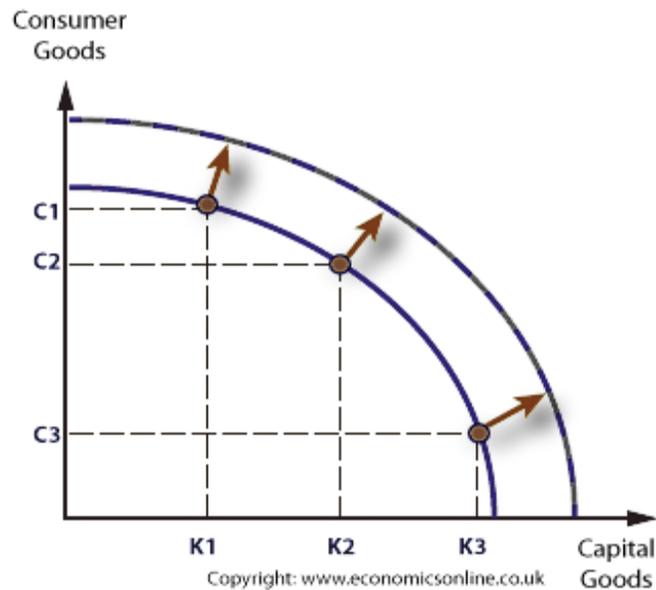
Fig. 2 - Production possibility frontier graph, describing economic growth

Taxation affects return on investment and expected profitability; it also affects choices of production and production process and it affects the rate of economic growth. In many developing nations like Nigeria, the tax level shave steadily increased over the last century. A rise from about 5 to 10 percent of GDP in the early century to 20 to 30 percent of GDP at present is significant, and such notable increases raise crucial questions about the impact in which taxation has had on the growth of the economy, [42]. Nigeria currently has been experiencing a mild increase in GDP ratio which might be the purpose behind the nation's ongoing pitiful monetary execution. Expanding the level of financial profitability has been a noteworthy worry for Nigeria's policymakers. Throughout the years, the nation experienced an expanded GDP development rate. Be that as it may, there was a critical decrease in the development rate of GDP as of late. Because of this decay, the Nigerian government in 1986 induced a few monetary changes through the change in tax reforms and fiscal policies. During this period, the federal government of Nigeria ensured to strategize and to put in place a refined tax system and administration which could enhance government revenue and aid government spending and reduction in the balance of payment deficit.

2.9   Income tax rate and economic growth

In any country, income tax is an important tool in the achievement of economic growth. Income tax is not just acknowledged as an instrument of creating the fitting open income yet also as a monetary instrument imperative for dealing with the economy, [43]. From every one of the frameworks of tax collection in any nation, salary imposed assumes an imperative part in raising open income and wage circulation. On the off chance that the arrangement of pay tax collection is inadequately overseen, it may offer ascent to lacking expense income, monetary awkwardness, and botch in asset assignment which can lead to a reduction of growth and economic welfare, [44].

An ideal system of tax would hence, achieve a balance between income distribution, resource allocation, and economic stabilization, [45]. Administrations of income taxation differ from nation to nation (both in composition and in level) due to social, economic, historical, and cultural factors. The Ratio of tax revenue to GDP (gross domestic product) in developing nations is basically in the scope of 15 percent to 20 percent in comparison to 30% in developed countries, [44]. A high wage assess rate would repress reserve funds, speculation, and improvement, while a lower salary charge rate could add up to bring down income to the country. A pay charge specifically influences the funds and speculation limit of people and corporate; it is an instrument of twofold edged sword compelling to abridge utilization behavior and concurrently enables the taxpayer to save some amount for investment activities, [46]. The financial burden on income tax is heavy as it caters for the current social security welfare such as security, health, and provision of essential utilities, which would have otherwise been saved. Rather than accumulating such capital, the income is expended on social security deductions which are most likely consumed, [47]. Bartik, [48] asserted that a 10 percent reduction in income tax rates would increase job creation and investment between 1percent and 6 percent. Periodicals from World Bank suggest that economic growth is correlated directly to tax levels, especially in growing nations where the diminishing minimal expense rates are related to higher financial development. Conversely, income tax rates are raised because of such factors as substantial assessment arranging and evasion, expansive decrease in the cash buying power, consuming prerequisites for yield, submitted, and dynamic government use, [49]. While investigating the effects of wage assess rates on financial changes, [50] instructed that assessment regarding the coveted change proposition and the impacts of such proposed changes on businesses and individuals should be done altogether. Furthermore, they affirmed that changes in income tax rates (ITR) would spin around the following three factors: economic growth, the tax base, and the

allowable deductions. While analyzing the income tax rates (ITR), he advised that the effects created by these tax rates should be studied, especially the effect of income tax rates (ITR) on economic growth

2.10   Value added tax rate and economic growth

It is undisputed that VAT contributes appreciatively to the total national income of any country where it exists. This prompted the decision of the federal government of Nigeria in 1993 to introduce the value-added tax (VAT) in replacement of the sales tax which was in existence as at then. The outcome of a study conducted by the International Monetary Fund (IMF) to determine whether nations with VAT system maintain 'higher tax revenue to GDP ratio' proved adequate and effective as the result of the study affirmed that value-added (VAT) system, is a reliable source of larger revenue to the country. VAT introduction supports immensely in the diversification of the revenue base of Nigeria. From its inception in 1994, VAT has accounted for about 36.5 percent of the budgeted tax revenue and 4.06% of the total government revenue, and in 1995, it accounted for 5.93% of the total government revenue. Presently, VAT contributes majorly to the total public revenue in Nigeria as it generates expected revenue from which the government embarks on developmental projects to achieve economic development in the country. With the help of VAT as a consumption tax, appropriate control of certain goods and administration generation and utilization should be possible by the legislature. Furthermore, through VAT, the government can adequately control inflationary rates; adverse economic conditions by sharpening the economy and curb unemployment level of through building of skill acquisition centers, job creation by establishing industries, and also encourage local manufacturers which invariably will help curb the menace of unemployment in the country. Revenues generated through VAT have always been so high since its inception, [51]. The percentage change in the amount generated from VAT from 1995 to 1996 was about 185.9%, and increasing from 20.76 billion in 1995 to 31 billion in 1996. In 1997, the change from military rule to democratic government also witnessed a positive increase in compliance by the taxpayers as the amount generated rose from 36.9 billion in 1998 to 47.11 billion in 1999 accounting for about 27.6% increase. VAT contributed 1.1 trillion from a 5.3 trillion Naira revenue generated in 2018, as the FIRS estimated to raise VAT to 3 trillion Naira in 2019, an increase of over 200% from the 2018 collections.VAT was levied at the rate of 5%, before the year 2020, but was increased to 7.5% from the 2020 fiscal year.

2.11   Capital gains tax rate and economic growth

Capital gains tax is meant to be a significant avenue for generating revenue for developmental purposes, especially in developing nations like Nigeria. However, in some countries, Capital Gains Tax is not yet yielding the expected outcome as far as raising revenue for the government is concerned, [52]. Lack of awareness, high rate of inflation, inadequate data for proper computation, and poor administration, has prompted high occurrences of Capital Gains Tax avoidance; these are some of the challenges encountered. Capital gains tax is derived from income on the disposal of a chargeable asset. Capital gain

is derived when the sales proceed of a disposed of chargeable asset is higher than the asset acquisition cost. Consequently, we can say that due to many challenges associated with poor administration and organization of capital pick up impose as directly actualized in Nigeria, the tax has poor performance record in the country. Oserogho, [53] postulated that the fundamental challenge with the proper administration of CGT is the lack of proper record-keeping and data. For the tax experts to be told or have the learning of when capital pick up has been made and when this duty is subject for instalment, there ought to be appropriate record-keeping and sufficient data. This is fundamental, particularly as Nigeria continues keeping up a money-based economy rather than an electronic one. Another matter of conflict is that the law empowers the legislature to evaluate, charge and get impose on increases just without arranging an occasion of misfortune, and henceforth, in such circumstances, the citizen endures his misfortune alone. This raises argumentative issues by citizens as they trust that administration has no reassurance for them in case of misfortune yet it is just inspired by gathering charge on the benefits they earned. The test related to a high rate of swelling has been contended throughout the years, to have dispensed with the benefits genuine qualities, to a degree that the proprietors of the advantages are in genuine terms at the losing end while arranging off the advantages. Moreover, it is now and again claimed that capital gain tax paid correspondingly with Income Tax is twofold tax collection. As per this contention, a capital esteem is generally identified with the normal salaries that the capital produces. Adeyemi & Babington-Ashaye, [54] affirmed that any rise in the capital value is related to an anticipated increase in the expected income. Greenspan, [55] stated that capital gain tax if exterminated would supposedly over the time raise economic growth; as there will be a rise in income for the corporate and personal taxes and also for the other taxes. Greenspan, [55] affirmed that the critical challenge of capital gain tax is not somewhat related to its revenue generation capacity but that the tax is very awry for that purpose in as much as it has a negative effect on capital formation and entrepreneurship activities. He asserted that all taxes in one way or the other obstruct economic growth to a certain extent but that capital gain tax is at the most distant scale end. The legal recognition of capital gains tax was early enacted in Nigeria and the dedication of government to make fortified her income age limit logical from this wellspring of expense is made evident through the occasional audits of the assessment controls and laws even up to the most current alteration, the Capital increases Tax Act 2004. Although the Act is far-reaching, the disciplines or punishments for infringement of its arrangements are not resolute enough to care exhaustively for its incidence of evasion.

2.12   Petroleum profit tax rate and economic growth

Petroleum profit tax is a significant revenue hotspot for the Federal Government of Nigeria. Around 90-95 percent of the nation's fare income is created from oil. Likewise, oil represented more than 90 percent of income from outside trade and around 80 percent of aggregate government income is from impose. The center point of the Nigerian economy is subsequently the oil business, and the

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business should be reliably maintained if the nation is not kidding about accomplishing genuine monetary development. As stated by [56], the 1980's oil glut that significantly affected oil prices globally added with the low OPEC quota, coerced on the various petroleum fiscal regime of the country, especially the regime of 85% petroleum profit tax and royalty of 20%, all to generate more revenue for the economy. Since that period, the country has desired to raise oil reserve from 34 billion to 40 billion barrels by the year 2010 and afterward, to increase the country's OPEC quota, optimize the oil revenue, improve on the local content of the industry, and ceaseless foreign investment attraction as a method of advancing, promoting and sustaining the oil industry investments. If one compares the petroleum industry with other activities of the economy, the industry has broader attractions due to its special nature, which arise from the fact that up till date, the industry continues to remain the biggest and most significant industry across the world as it has ceaselessly supplied the industrial and energy needs of the world. According to [56], the significance of petroleum tax is many, among which include: the certainty that generating tax revenue from the oil industry is a means of actualizing the objectives of government to exercise suitable rights and manage over general society office, Government demanded high duty rate in the business to manage the substantial number of intrigued members in the business and to monitor a portion of the benefit for the family by debilitating its fast consumption. From 1970 to 2009 in Nigeria, 82 percent of the assessment income was created by the oil business while 18% originated from different types of expense income that is; non-oil income, [57]. Besides, as indicated by [58] the Petroleum business is an essential and significant wellspring of income for Nigeria and it holds a vital and basic position in the improvement of the economy of the country. The business has been assuming a prevailing and basic part in the financial development of Nigeria for the past decades, both in domestic income generation and foreign exchange earnings.

2.13   Tax revenue, gross domestic product (GDP) and economic growth

Tax revenues are government revenues received from taxes on profits and incomes, charges required on merchandise and ventures, government disability commitments, finance expenses, possession and exchange of property charges, and different types of duties. Add up to assess income as a level of gross domestic product (GDP) means the extent of the aggregate yield of a nation that is created by the administration using charges. This can be considered as an evaluation of the intensity to which the economy's assets are controlled by the government. Economic growth, as explained by [59], is a long-run measure that proceeds as a result of the combination of economic activities over time. Also, [60] affirmed that economic growth is a sustained rise in the Gross Domestic Product or in per capita national output over a long time. This indicates that the expansion rate of the aggregate yield must be higher than the populace development rate. For estimation of monetary development, financial analysts more often than not inspect the pattern examination of rates changes in genuine GDP starting with multi-year then onto the next. In 2008, the Central Bank of Nigeria cited that Gross Domestic Product (GDP) is the fiscal estimation of the considerable number of merchandise and ventures an economy delivered over time regardless of the nationality of the persons who made the production. It is mainly derived without allowing for any capital consumption allowance (or depreciation deductions). Furthermore, expenditure-based GDP is the total incurred expenditure at cost values (inclusive of the free on board (FOB) values of exported goods and services) with deduction of the FOB value of imported goods and services. Buhari, [61] stated clearly that the Gross Domestic Product (GDP) is the total production volume of an economy during a period. Accordance with him, it is the total production carried out in a country by the citizens and the foreigners living in the country.

2.14   Conceptual Model
The model below was conceptually drawn to depict the conjugated relationship between tax rates and economic growth.
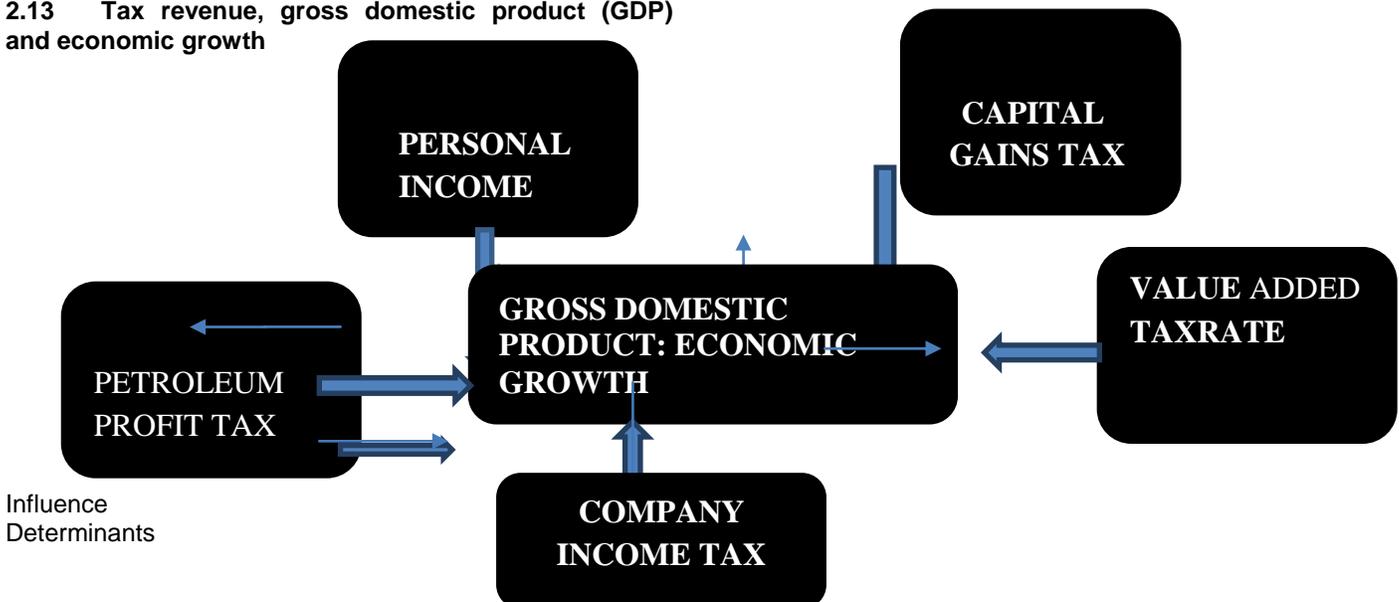

Fig. 3: Conjugal model of tax rates and economic growth

The conjugal model above sets out that the major determinants of economic growth are tax rates of the country. Tax rates are expected to be developed based on the benefits derivable from government together with the capacity of businesses, and that of individuals and the national income of the country. Tax rates can determine the prevailing economic activities of a nation; it could either lead to economic growth vis-a-vis an increase in the gross domestic product (GDP) or lead to an economic downturn especially if the rates are too high and unfavorable. On the other hand, economic growth is also a driver of tax revenue, whenever the economy is growing, the level of tax revenue will rise despite a non-change in the tax rate level, as the boom in the level of economic activities will influence a rise in income level which will also have a positive aftermath effect on government revenue. Economic growth can be achieved by limiting the tax rates on economic activities that drive growth which is investments and businesses. Limiting or restricting the double taxation on investments caused by taxation on corporate incomes at both the entity level (company income tax) and the shareholder level (dividend taxes and capitals gains taxes) would result in an increment in government assess income over the long haul arising from a greater number of jobs, increased wages, and boomed economic activities.

2.15   Relationship between tax rates and economic growth

Congressional Research Service report, [62] gave a summary of the result generated from their study on the relationship between tax rates and economic growth. An analysis of their statistical result indicated that savings, investment, and labor supply are somewhat indifferent or insensitive to tax rates. Capital gains taxes are usually singled out as growth determinants; however, they have quite a little impact on the cost of capital. International capital flows also seem to have a little impact. Small and medium business taxes also are often pinpointed as substantial to growth, but the outcome from their review suggested a modest and uncertain effect on entrepreneurship. For rate reductions generally, the additional national deficit would affect tax cuts to have a greater cost implication on the economy both because of crowding out of investment and because of debt service which would overwhelm most behavioral impacts. According to the report, in the short-run period, spending rises and tax cuts are forecasted to raise output and employment in a developing economy. These effects however, functions through the economic demand side. Generally, the biggest impacts are from government direct spending and transfer to individuals with lower incomes, while the lowest impacts are from reducing taxes of businesses or high-income individuals. Meanwhile, long-run growth is a phenomenon of the supply-side economy. The availability of jobs is not an issue in the long run, as jobs are naturally created by the economy. Outputs can then increase through the rise in labor participation and hours worked, growth in capital, and changes such as technological advances and education that would improve and enhance the production potency of these inputs.

2.16   Optimal tax rate and economic growth

The optimal tax rate is the rate of tax that enhances the overall economic activities of a country. It includes reforms that can optimize the outputs of the nation and enhance people's welfare. Specifically, [63] in his study over the period 1927 - 1994, found for New Zealand the evidence of an inverted-U relationship. About 20 percent of GDP was the tax rate that amplifies the development rate. The ramification of this is for all taxation rates esteems that surpassed this level, charges go about as an unfriendly externality. Utilizing information from the period 1949 to 1989, [63] likewise found for the United States an ideal assessment rate that ranges between 21.5 percent and 22.9 percent of the GDP. The relating ideal development rate to that expense rate is around 5.56 percent contrasted with a 3.5percent normal development rate. In the meantime, when the information time frame was restricted to 1960 – 1990, the evaluated development-boosting charge rate was 19.3 percent for the United States and at that expense rate, 6.97 percent would have been the development rate every year, [64]. These outcomes show that among the created countries, impose rates far over the ideal rate are normal; this has caused the monetary development rate of a portion of these nations to be backed off. Keho, [65] broke down for the Ivorian economy the ideal taxation rate, the led observational examination used the Scully quadratic relapse models and yearly information which covered from 1960 to 2006 for Cote D'Ivoire. The development-boosting charge rate agreeing to the models is between the scope of 21.1 percent and 22.3 percent of GDP. The rate of financial development at that duty rate would be around 6.2 percent rather than 3.2 percent real rate. The genuine least duty rates are acknowledged to be the explanations behind significant misfortunes in impose incomes and development. This work is an attempted to add to the assortment of literary works by dissecting the conjugal link between tax expense rates and economic growth over 1989 – 2018

3   METHODOLOGY

The study adopted the ex-post facto design based on the fact that the values for the independent variables: company income tax, personal income tax, value-added tax, capital gains tax and petroleum profit tax, and the dependent variable gross domestic product (GDP) in Nigeria already exist and cannot be controlled. The fact is that the independent variables under study already exerted their influence on economic growth in Nigeria before the conception of this research. The variables are limited to published revenue and GDP figures of the Federal Inland Revenue Service, Central Bank of Nigeria, National Bureau of Statistics figures vis-à-vis the published income rates in Nigeria. The tax rates are generally adopted by various agencies of government in Nigeria concerned with tax assessment and collection including the (FIRS), the body saddled with the responsibility to assess, collect and account for all the federally collectible taxes in Nigeria. The study specifically examined the effect of the five major tax rates on the economic growth of Nigeria. This covers personal income tax (PIT) rates, value-added tax (VAT) rates, company income tax (CIT) rates, capital gains tax (CGT) rates, and petroleum profit tax (PPT) rate. Changes in the gross domestic product (ΔGDP) are used as a proxy

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for economic growth. The data for the variables under study covered the year 1989 to 2018 (thirty years). This study employed the autoregressive distributed lag model because the data have time-series attributes. The reason for choosing this method is based on the reality that it enabled the work to investigate the long-run and co-integrating connections between the variables of the investigation. The reasons for the choice of these taxes are that they are characteristically homogenous; they constitute the major

ECGROWTH = ΔGDP
ECGROWTH $\Box\Box$ f [TAX RATES]
ΔGDP= f[TAX RATE] …………..…………………1

Where:　ECGROWTH = Economic growth
ΔGDP = Changes in Gross Domestic Product
TAX RATE =Tax Rate

Econometrically:
$Ln\Delta GDP_{it} \Box\Box\Box_\Box + \Box_{\Box\Box\Box}\Box TAX\ RATES_{it}] + \Box_{it}$…………………..……..2
Where:　$_{it} =$ Time variant variable
$Ln\Delta GDP$ = Log of changes in Gross Domestic Product
$\Box_\Box\Box\Box Beta\Box\Box\Box$ is the constant term
($\Box_{\Box\Box\Box}\Box$ = are the coefficients of the estimated parameters
$\Box\Box$represents the Error term

Recall that TAXRATE is represented by five major tax rates as follows:
TAXRATES = [(PITR + VATR + CITR + CGTR + PPTR]………….3
This invariably depicts that
ECGROWTH= f [PITR + VATR + CITR + CGTR + PPTR]………...4
Econometrically, equation 4 is re-specified thus:
$ECGROWTH_{it} \Box\Box\Box_\Box + \Box_\Box PITR_{it} + \Box_\Box VATR_{it} + \Box_\Box CITR_{it} + \Box_\Box CGTR_{it} + \Box_\Box PPTR_{it} + \Box_{it}$..5

In the equation above, ECGrowth is the aggregate economic growth which is mirrored by the changes in Gross Domestic Products over the relevant years; the TAXRATE is the total tax rate: PITR is the rate of personal income tax, $PITR_{it}$ is the change in the time-variant of the personal income tax rate, VATR is the rate of value-added tax, $VATR_{it}$ is the change in the time-variant of the value-added tax rate, CITR is the rate of company income tax, $CITR_{it}$ is the change in the time-variant of company income tax rate, CGTR is the rate of capital gains tax, $CGTR_{it}$ is the change in the time-variant of capital gains tax rate, PPTR is the rate of Petroleum Profit tax, $PPTR_{it}$ is the change in the time-variant of Petroleum Profit tax rate. Changes in Gross Domestic Products (GDP) are used as a proxy for economic growth while the rates of company income tax, personal income tax, value-added tax, petroleum profit tax, and capital gains tax are the independent variables. The symbol $\Box\Box$is the error term as earlier defined while the lagged value/time-variant captures the relationship between the current year growth of the tax revenue and the previous year's value.

3.2 Data treatment method
The descriptive statistics summaries include the mean, standard deviation, range, and frequency distribution. The autoregressive distributed lag model (ARDL) was used to analyze the data because the data had time attributes. ARDL is a standard slightest squares relapse that utilizes regressors, the two slacks of the needed variables, and illustrative (free) factors. The model which is pertinent for time arrangement information connected a relapse condition for anticipating current estimations of a reliant variable because of both the free or logical variable and the slacked (past period) estimations of such illustrative

income tax handles under the jurisdiction of the federal government, and are also statutory taxes on income and profits.

3.1 Model specification
The model of this study examined the effect of tax rates on economic growth in Nigeria. To achieve the objectives of this study, the following models on panel data were developed:

variables. (Greene, 2018). The method incorporates nonstationary {I (0)} and stationary {I (1)} variables in the same estimation because if the factors are non-stationary I(0) the ordinary least square (OLS) ends up wrong. We cannot appraise ordinary OLS on the factors if any of them or every one of them is {I (0)} because these factors will not act like constants which is required in OLS and as a large portion of them are changing in time, so OLS will erroneously indicate high t estimates and huge outcomes however in actuality, it would be expanded because of basic time past, in econometrics, it is called deceptive outcomes where R square of the model winds up higher than the Durban Watson statistic. However, before ARDL is conducted, the necessary residual diagnostic tests such as normality test, multi-collinearity test, serial correlation, and heteroscedasticity test were conducted. Normality tests were conducted on the thirty-year data used for the research. Distribution normality describes a condition in which a variable follows the standard normal distribution. The Jargue-Bera test was utilized to test whether the arrangement is typically circulated by estimating the distinction of skewness and kurtosis of the arrangement with those from the ordinary conveyance. If the residuals are typically circulated, histogram ought to be chime molded and the Jargue-Bera (JB) measurement immaterial. It is in this way inferred that an arrangement will be regularly conveyed if the likelihood of the JB measurement is under 0.05. Mult-collinearity tests were equally carried out to evaluate the extent of correlation between the explanatory variables. Multi-collinearity among the independent variables implies that they are perfectly correlated. In a multivariate regression analysis of this nature, there is the possibility that one or more explanatory variables could correlate among themselves thus

undermining the regression result. The variance inflation factor (VIF) statistic was used to ascertain the presence or absence of multi-collinearity among the independent variables. The decision rule is that if each of the explanatory (independent) variables has a VIF of less than ten (10), it does not correlate with other independent variables (s). Any variable with VIF greater than 10 was dropped as it correlates with other independent variables (s). A serial correlation test was also conducted. Serial correlation or auto-correlation is usually as a result of the correlation of the model error term, it occurs as a result of the similarity between observations as a function of the time lag between them. In the presence of serial correlation, OLS estimates no longer exhibit the best linear unbiased estimator (BLUE) properties. Moreover, the R^2 may be overestimated, standard errors underestimated, and t-statistic overestimated. The Bruesch-Godfrey serial correlation Lagrange Multiplier test was used to test for autocorrelation. The decision rule for the Bruesch-Godfrey autocorrelation test is to reject the hypothesis of no correlation in the model if the probabilities (Prob F-stat, Prob. Chi-square is less than 0.05). Auto-correlation comes up in a model when a particular assumption surrounding the OLS model is violated. For example, if the assumption holds that in the OLS model, the error term has zero expectation value $E(E_{it}) = 0$, and if this assumption should be violated, that is $E(E_{it}) \neq 0$, then there is the problem of autocorrelation. Given such an assumption and likelihood of its violation in the OLS model, it is necessary to test whether such an assumption was violated in the multivariate regression of this study. Heteroscedasticity test was utilized as a part of the measurement, particularly with regards to straight relapse or for time arrangement examination, to depict the situation where the change of mistakes or the model is not the same for all perceptions, while frequently one of the fundamental supposition in the display is that the differences are homogeneous and that the blunders of the model are indistinguishably appropriated. In straight relapse investigation, the way that the blunders of the model (additionally named residuals) are heteroskedastic has the outcome that the model coefficients evaluated utilizing normal slightest squares (OLS) are neither unprejudiced nor those with least differences are solid.

4   RESULTS AND DISCUSSION OF FINDINGS

TABLE 1
DESCRIPTIVE STATISTICS

	LNGDPGROWTH	PITR	CITR	VATR	PPTR	CGTR
Mean	12.38	0.16	0.29	0.03	0.849	0.099
SD	0.28	0.02	0.00	0.02	0.00	0.00
Minimum	12.06	0.13	0.29	0.00	0.848	0.096
Maximum	12.86	0.19	0.30	0.50	0.85	0.10
Median	12.2	0.16	0.30	0.05	0.85	0.10
Skew	0.54	0.05	-3.18	-1.05	-3.56	-2.16
Kurt	1.56	3.09	13.04	2.11	14.54	5.65
JB	4.04	0.02	176.89	6.55	230.1	32.07
p-value	0.13	0.98	0.000	0.04	0.000	0.000
N	30	30	30	30	30	30

Source: Researchers' compilation (2017) from E-view 9.5

TABLE 2
MULTICOLLINEARITY TEST

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	1878.67	16701358	NA
PITR	0.96	227.66	3.00
CITR	42.95	34222.84	1.51
VATR	0.60	10.17	2.45
PPTR	2729.6	17529749	1.86
CGTR	210.04	18521.32	2.7

Source: Researchers' computation (2017) from E-view 9.5

TABLE 4.3

Heteroscadasticity test

Heteroskedasticity Test: Gleiser			
F-statistic	1.11	Prob. F (3,25)	0.37
Obs*R-squared	3.40	Prob. Chi-Square (3)	0.33
Scaled explained SS	5.19	Prob. Chi-Square (3)	0.16
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.372	Prob. F (3,25)	0.77
Obs*R-squared	1.24	Prob. Chi-Square (3)	0.77
Scaled explained SS	3.95	Prob. Chi-Square (3)	0.27

Source: Researchers' computation (2017) from E-view 9.5

TABLE 4.4

Serial correlation LM test

Breusch-Godfrey Serial correlation LM test			
F-statistic	0.0055	Prob. F (3,23)	0.995
Obs*R-squared	0.014	Prob. Chi-Square (2)	0.993

Source: Researchers' computation (2017) from E-view 9.5

4.1 Descriptive statistics and normality test

From the summary statistics presented in table 1, the average per capita gross domestic product is 12.38 which is closer to the minimum value than the maximum value suggesting that impact of the independent variables on the natural logarithm of the growth of gross domestic product (LNGDPGROWTH) is very minimal. The low standard deviation also attests to the low impact of the regressors on the dependent variable. The Jarque-Bera test of normality shows that the data in the distribution are normally distributed except the data on LNGDPGROWTH and PITR which have a probability value of 0.13 and 0.98 respectively. The p-values of CITR, PPTR, and CGTR are less than 1 percent, while the p-value of VATR is 0.04. The data for CITR, VATR, PPTR, and CGTR are all negatively skewed. The study carried out a multi-collinearity test to ensure that the explanatory variables are not excessively collinear. High collinearity tends to amplify the standard errors of the estimates and render the reliability of the estimated model quite low. In table 2, the result of the multi-collinearity test for the model is presented. As a result, both the uncentred variance inflation factors (VIF) and their coefficients are quite high. Indeed, the values for each

variable is more than 5 percent (or 5.0), implying that there is multi-collinearity among the variables of the model, but the centered variance inflation factors (VIF) for each of the variables are low. The estimates from the regression (OLS) results are therefore not very effective for drawing valid conclusions, resulting in the adoption of an autoregressive distributed lag (ARDL) model in the study. The test of heteroscedasticity intended to give direction on the appropriate estimation technique to be used in the study. A highly heteroscedastic set of observations may lose efficiency properties when estimated with the OLS technique. Both the Glejser and the Breusch-Pagan-Godfrey tests are used for the analysis and the test result is reported in table 3. The chi-square statistic for Glejser tests is highly non-significant at the 1 percent level as indicated by the probability values, while the chi-square statistic for Breusch-Pagan-Godfrey tests is highly not significant at 5 percent level, thus implying the absence of homoscedasticity in data series. For this study, the Bruesch-Godfrey serial correlation Lagrange Multiplier was used for the estimation of serial correlation LM test. The Chi-square statistic for Breusch-Godfrey tests is highly significant as both the probabilities of the F-statistic and Chi-square statistics are higher than 5 percent, thus implying the presence of autocorrelation in data series. The ordinary least square result revealed a coefficient that is statistically significant with a very tight fit, but since the error terms are serially correlated, the estimated OLS standard error term becomes invalid and the estimated coefficient becomes biased and inconsistent due to the presence of a

lagged dependent variable. In this circumstance, it becomes inappropriate to use the Durbin-Watson statistic. In table 4, the F-statistic and the Obs*R-squared are not significant, hence the null hypothesis of no serial correlation is rejected. The implication is that it was inappropriate to use OLS to estimate the model. This justified the use of ARDL in this study to test for higher-order autoregressive moving average (ARMA) error.

4.2　Tests of hypotheses

In this section, the hypotheses of the study are tested based on the outcome of the model. The study analyzed the effect of tax rates on economic growth, the model of the study in compliance with the hypothesis of the study is as stated thus:

$$ECGROWTH_{it} = \beta_0 + \beta_1 PITR_{it} + \beta_2 VATR_{it} + \beta_3 CITR_{it} + \beta_4 CGTR_{it} + \beta_5 PPTR_{it} + \varepsilon_{it}$$

The result of the estimation model is presented in table 4.5. The autoregressive distributed lags (ARDL) approach is used for the estimation of the error correction model (ECM). The adjusted R^2 is approximately 0.95. The result indicates that the predictors explain 95% of the variance, thus, implying that the model has high predictive power. Moreover, the F-statistic is 83.08 with $p < 0.01$ indicating that the model is statistically significant. The result shows that there is a strong positive significant relationship between PITR, VATR, and PPTR and ln∆GDP and negative but significant relationship between CITR and the ln∆GDP, while CGTR has no significant relationship.

TABLE 5
ESTIMATION RESULTS FOR THE MODEL

Variable	Coef.	t-Stat.	Prob.
C	21802.9	20.82	0.0000
Ln∆GDP(-1)	0.06	1.33	0.20
PITR	0.41	2.12	0.05
CITR	-270.49	-21.60	0.0000
VATR	0.36	2.28	0.03
PPTR	43.95	3.86	0.0008
CGTR	-11.23	-1.14	0.266
R-Squared	0.96	Adjusted R quared	0.95
F-Stat	83.08		0.000

Dependent Variable: LN∆GDP
Method: ARDL
Independent Variables: PITR, CITR, VATR, PPTR, CGTR

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LN∆GDP(-1)	0.060342	0.045399	1.329142	0.1974
PITR	0.408175	0.192387	2.121633	0.0454
CITR	-270.4851	12.52128	-21.60204	0.0000
VATR	0.357444	0.156569	2.282985	0.0325
PPTR	43.95016	11.35936	3.869070	0.0008
CGTR	-11.23140	9.842494	-1.141113	0.2661
C	21802.90	1047.471	20.81480	0.0000

R-squared	0.957732	Mean dependent var		26.56597
Adjusted R-squared	0.946204	S.D. dependent var		5.275640
S.E. of regression	1.223632	Akaike info criterion		3.448029
Sum squared resid	32.94005	Schwarz criterion		3.778066
Log likelihood	-42.99642	Hannan-Quinn criter.		3.551392
F-statistic	83.08056	Durbin-Watson stat		1.791694
Prob(F-statistic)	0.000000			

Source: Researchers' computation (2017) from E-view 9.5

4.3 Decomposed results

ECGROWTH$_{it}$ ☐☐☐$_☐$+ ☐$_☐$PITR$_{it}$ +☐$_{it}$
In the result shown in Table 5, the coefficient of PITR is positive and significant (0.41, p = 0.05). This result implies that indeed, personal income tax rates have significant positive relationship with changes in gross domestic product. The result indicates that a percentage change in PITR will bring about 41 percent change in gross domestic product.

ECGROWTH$_{it}$ ☐☐☐$_☐$+ ☐$_☐$VATR$_{it}$ +☐$_{it}$
The regression result of VATR shows that value-added tax rates have positive and significant relationship with changes in the gross domestic product (0.36, p = 0.03). This implies that a change in the value-added tax rate will lead to a 0.36 change in gross domestic product. The null hypothesis which states that VATR has no significant relationship with change in gross domestic product is therefore rejected.

ECGROWTH$_{it}$ ☐☐☐$_☐$+ ☐$_☐$CITR$_{it}$ +☐$_{it}$
The regression result of CITR shows that the company income tax rate has a negative but significant relationship with growth in the gross domestic product (-270.49, p = 0.0000). Therefore, the null hypothesis that CITR has no significant relationship with gross domestic product growth is rejected. Impliedly, a unit change in CITR will result in an inverse change of about a 270.49 change in gross domestic product.

ECGROWTH$_{it}$ ☐☐☐$_☐$+ ☐$_☐$CGTR$_{it}$ +☐$_{it}$
The regression result of CGTR shows a negative and insignificant relationship with changes in the gross domestic product (-11.23, p = 0.27), which implies that CGTR has negative insignificant relationship with changes in gross domestic product This result indicates that a unit change in

capital gains tax rate will lead to a 11.23 inverse change in gross domestic product.

ECGROWTH$_{it}$ ☐☐☐$_☐$+ ☐$_☐$PPTR$_{it}$ +☐$_{it}$
The regression result of PPTR shows that the petroleum profit tax rate has a positive and significant relationship with changes in the gross domestic product (43.95, p = 0.0008). The implication is that a unit change in the petroleum profit tax rate will result in a 43.95 change in the growth of gross domestic products. Testing the statistical significance of the overall model, the F-statistic showed a significant relationship between economic growth and tax rates between 1989 – 2018, at a 5% critical level and 28 (30-2) degree of freedom. The aggregate result is strongly significant with a value of 83.081 (P = 0.000), confirming the hypothesis that there is a statistically significant relationship between economic growth and tax rates in any economy.

4.4   Discussion of findings
From the decomposed results, the coefficient of PITR is positive (0.41) and significant (t = 2.12), (p = 0.05). This implies that PITR significantly predictor of economic growth as mirrored by changes in gross domestic products. Thus, in Nigeria, personal income tax rates tend to influence the rate of growth of the economy. This result negates the findings of [66], who found out that PIT has a negative correlation with growth and the conclusions of [67], who found out that tax rates above the optimal rate tend to slow economic growth rate. The coefficient of VATR (0.36) is positive and significant (t = 2.28), (p = 0.03). This implies that VATR significantly predicts changes in economic growth. Thus, any increase in the VAT rate is likely to increase GDP. This result is however different from the findings of [68], who found that variation in earnings is responsible for variation in the gross domestic product (GDP) and [69], whose result shows that low tax rates are responsible for losses in growth and tax revenue but agrees with the conclusions of [9], who found out that tax

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reforms (VAT inclusive) can stimulate economic growth. From the results, the coefficient of CITR (-270.49) is negatively significant (t = -21.60), (p < 0.01). This implies that CITR significantly related negatively with economic growth and a unit reduction in CITR will result in a 270.49 increase in GDP. Thus, in Nigeria, company income tax rate changes tend to inversely impact the rate of growth of the economy. The consequential downturn in economic growth could result from an upward review of the CIT rate which equally adversely affects new inventions, growth of small and medium enterprises, and investments. This agrees with Arthur Laffer's theory that a higher tax rate on income has an adverse effect on work and output. The result also indicates that any increase in GDP as a result of the increase in company income tax revenue is not necessarily due to company income tax rate changes but other factors like general increase in the volume of transactions in the economy and increased profits declared by each company in the country which gave rise to high revenue generated from company income tax. This finding agrees with the conclusion of [25], which reveals that CITR significantly related negatively with GDP. However, this study finding negates the conclusions of [70], who found out that tax reforms (CIT inclusive) can stimulate economic growth especially if the reform involves an upward review of CIT rate. The coefficient of CGTR is negatively (-11.23) insignificant (p = 0.27). This implies that CGTR insignificantly relates negatively to economic growth. Thus, a unit increase in CGTR leads to a 11.23 reduction in GDP. This result agrees with the findings of [65], whose result shows that low tax rates are responsible for losses in growth and tax revenue. From the result, the coefficient of PPTR is positive (43.95) and significant (t = 3.86), (p = 0.0008). This implies that PPTR significantly relates and positively predicts changes in economic growth. Thus, an increase in PPTR leads to an increase in GDP. This is evidenced by Nigeria's over-dependent on oil revenue and taxes from petroleum products. This finding agrees with the conclusions of [71], and [72], who found out that tax reforms (PPT inclusive) can stimulate economic growth. From the general model, the F-statistic is 83.08 with p < 0.01 indicating that the model is statistically significant. This implies that the collective tax rates of PITR, CITR, VATR, CGTR, and PPTR have a significant influence on changes in economic growth in Nigeria.

5　CONCLUSION AND RECOMMENDATIONS

From the findings of this study, personal income tax rate, value-added tax rate, and petroleum profit tax rates have significant positive effect on economic growth in Nigeria, signifying that rate increases in these taxes will support the increase in economic growth, and decreases in the rates of these taxes will witness a decline in the growth of the economy. The company income tax rate has a negative significant effect and Capital gains tax rate has a marginal influence on the economic growth of Nigeria. These two tax handles relate inversely with economic growth, signifying that rates increases in these tax handles will cause a significant decrease in economic growth and vice versa. It is concluded that the collective influence of the studied tax rates of PITR, CITR, VATR, PPTR, and CGTR is significant in the economic growth of Nigeria. Based on the findings of this investigation, the accompanying suggestions become

imperative for ensuring the imposition of effective tax rates that can stimulate economic growth. There is a need to review the existing obsolete personal income tax law provisions on assessment, collection, and compliance. The agency empowered with the duty of administering personal income taxes must be fully automated in their operations to enhance the compilation of a comprehensive database for the taxpayers for easy identification. Also, electronic revenue monitoring and collection procedure are recommended which must incorporate the unique taxpayer personal identification number for all eligible taxpayers under the personal income tax law. It is recommended that the VAT rate on luxury goods should be proportionately increased for income redistribution and economic growth. The government should implement this new policy so as improve revenue derived from this consumption tax and enhance economic growth. The study recommends that companies' income tax rate should be systematically reviewed downward and the tax base be broadened. If the company income tax rate is reviewed, the compliance level will increase, activities will boom, tax evasion and avoidance will be discouraged and more businesses will be captured into the tax net. A conducive environment for business survival and improved productivity should be encouraged and consequently, economic growth will be achieved. There is equally a need for the government to reduce the rate of CGT and broaden its base so that more assets holders will be captured into the tax net; which will make be an effective economic growth-enhancing instrument. Furthermore, a comprehensive database is crucially needed to ease Capital Gain Tax assessments and a descending survey of the duty rate on accruable pick up should be considered in the Capital Gains Tax Act subsequent review. No provision was made for capital gains on appreciation in the Nigerian Tax Law, and as an economy prone to inflation, capital gains tax on appreciation will be equitable. There should be a systematic review of tax laws and rates in the country as well as other tax-related issues to align the macroeconomic target of enhanced economic growth. In other words, Governments should embark on a comprehensive overhaul of tax rates especially personal income tax rate, company income tax rate, value-added tax rate, and petroleum profit tax rate to ensure that the rates contribute to economic growth rather than impede it.

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