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VALUE ADDED TAX AND ECONOMIC GROWTH IN NIGERIA

Bachelor's thesis

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TABLE OF CONTENTS

ABSTRACT

Value-added Tax (VAT) for developing nations of the world has been a significant source of internally generated revenue to meet up to par with its ever-growing expenditure, curbing inflation and unstable exchange rates. This study focused on VAT and economic growth in two ways. First, VAT and Gross domestic Product (GDP) as proxies for VAT; and economic growth and VAT and Gross national income (GNI) as the second set of proxies. Futhermore, VAT is viewed from the angle of output and input tax and how the net is remitted to the government for fiscal responsibilities. Two hypotheses are generated and tested to examine the relationship between the variables.

The results showed a clear significant yet positive effect of VAT on GDP. Although the exact extent to which this has on GDP is unknown, there is evidence that there is a strong correlation between VAT and GDP. For VAT and GNI, the growing proportion of both variables was disproportional even though VAT values explicitly presented a higher growth rate than GNI. This is viewed as a positive trend that can help key stakeholders in Nigeria, including analysts, to predict realistic values of VAT's effect on economic growth.

Furthermore, the study recommended a more stable and robust VAT system that is less bureaucratic and centralised, increasing the VAT rate with corresponding welfare and social amenities.

Keyword: VAT, GDP, GNI, Economic growth, Input and Output tax.

1. INTRODUCTION

1.1. Background of the study

Nigeria, a oil rich-producing nation, ranked 13th globally by OPEC and funds 65% of its annual revenue federation accounts from crude and oil resources (Adio, 2021). Aside from this, other sources of revenue include crude sales, taxes and other income (like agriculture, export, to mention a few). In 2020, over 90 changes were made across the board on tax laws in Nigeria. Specifically, the Finance Bill 2019 signed by the Nigerian President against the Nigerian Tax and Fiscal Law (Amendment) Bill 2019, VAT (Value Added Tax) increased from 5% to 7.5% (Adio, 2021).

Taxes enforced in different forms ranging from country to country, are involuntary charges imposed by governments to fund their fiscal activities, usually for infrastructural development and essential provisions of social amenities. These monies collected are neither necessarily explained by governments of the world, nor do services provided by these governments equate to the monies collected (Paymaster & Angaye, 2020).

In 1993, VAT was introduced in Nigeria but fully implemented in 1994 under the VAT Acts No. 102 of 1993, which replaced the sales tax delegated under the authority of the Federal Government of Nigeria but administered by the thirty-six states of the federation (Isreal & Nuka, 2015, p. 279). VAT is a form of consumption tax levied on goods and services consumed rather than personal income(Point, 2021). Input and output taxes are forms of VAT where input tax is the tax paid by the retailer to a supplier of raw materials, and output tax is the tax charged to customers on the payment of goods and services. The retailer, therefore, pays the difference between both to relevant tax authorities (Jones, 2021). Although, taxes are heavily boycotted in the informal economy in Nigeria because many businesses operating are unregistered or registered and not paying taxes regularly. Thus, the need for increased tax revenues and diversification of revenue generation from the oil sector cannot be overemphasised. With current declining oil prices, Nigeria heavily depended on non-tax revenues and foreign aids, and their finances are highly volatile, unstable and unpredictable through tax revenues (Babatunde, Oluwatobi, & Oyeyemi, 2017). According to

Nairametrics (2020), Nigeria recorded a paltry 6.1% of tax revenue as a percentage of GDP, one of the lowest in the world comparable to the Organisation for Economic Co-operation and Development (OECD) countries with an annual average of 32.9% (and highest is France- 42.8%) (Nairametrics, 2020). Researchers have argued that the new tax law changes are set to improve tax revenue speedily with the hope of relying more on taxes to fund Federal Government expenditures to create stable economic activities in the country (Adio 2021; Point 2021; Paymaster & Angaye, 2020). However, for Nigeria to efficiently broaden its tax base, economic activities have to revamp from the pandemic (COVID-19); businesses in the informal sector have to be more involved through tax education and enforcements to ultimately achieve their targeted revenue forecasts (Nairametrics, 2020).

The economic growth of an emerging nation like Nigeria is slowly paving the way to tax revenues, especially its untapped internal generating revenues like VAT that can stimulate and fund its ever-increasing expenditures (Isreal & Nuka, 2015). Although personal income tax is the highest generating tax revenue for Nigeria, the recent tax revenue changes are expected to increase over time as economic activities resume full capacity. Economic growth, usually measured as a rise in Gross Domestic Product (GDP), is significant because it depicts the increase or decrease in living standards, caters for population increase, employment, or unemployment rates and high or low consumption of goods and services (Pettinger, 2017).

1.2. Statement of the problem

Tax policies designed by nations worldwide is expected to be somewhat attractive and convenient to encourage their citizens to remit taxes in the form of fees or charges regularly. These tax policies are expected to enhance economic and social obligations, including but not limited to capital allocation, which results in enhanced internal savings and higher economic growth rates, sustaining price stability, contingently regulating production and consumption of goods and services (Takumah, 2014, p. 2). These ingenious policies are the bedrock streams of tax revenue generated by nations around the world. Unfortunately, not enough of this is generated by Nigeria through its existing tax policies. This is attributable to negligence, over-dependence on crude oil, mismanagement and corruption, ignorance and a host of others. As a result of these, Nigerians are not further motivated to remit genuinely because of the absence of social amenities and improved living standards, which are rewards for persistent tax payments. Developed economies, as

aforementioned, utilise several tax revenue streams, including VAT; this is not evident in the Nigerian tax system but currently being revamped at a pace somewhat acknowledgeable to improve the economy and its GDP generally.

This research aims to examine the impact of revenue generated through Value-Added Taxes of consumption goods in the form of input and output taxes and how it affect the economic growth of Nigeria. Many research studies have been carried out on the impact of taxation, tax evasion, tax attitudes, and tax revenue, but minimal research on input and output tax impacts Nigeria's economic growth. Macroeconomic aggregates such as taxation, consumption and investments significantly affect the economic growth of any nation measured through its GDP. This determines whether or not a country is doing better comparatively with previous years. Many foreign investors and domestic investments weigh their risks of present and future investments on this. The Nigerian government is heavily dependent on oil revenue rather than revenue from consumption and other taxes. Revenue from taxes (particularly income tax, corporate tax, council tax, VAT and corporate tax) is also envisioned through ingenious tax policies to provide social amenities better. It strives to improve its emerging economy status. Generally, revenue generated from taxes is expected to provide infrastructural development and social amenities that create avenues for where businesses strive, increase employment opportunities, and attract foreign investments that directly improve the living standards of Nigeria's population. Thus, this study argues that adequate revenue generated from taxes, especially consumption taxes with strategic tax policies, have the propensity to increase GDP measured as economic growth.

Holistically, the question of whether VAT has a significant or insignificant impact on the Nigerian economic growth is examined, and the empirical reasons as to why the results may be as anticipated or otherwise.

1.3. Research questions and hypothesis

A. Does VAT (input tax and output tax) revenue enhance economic growth in Nigeria?
B. Is there a relationship between gross national income (nominal) and VAT?

H_{01}: There is no relationship between VAT and economic growth.

H_{02}: There is no relationship between GNI and VAT.

1.4. Significance of study

This study analyses the relationship between value-added tax revenue and economic growth in Nigeria from 2011-2020 using VAT values from the Central Bank of Nigeria annual bulletin and the National Bureau of Statistics to analyse the relationship between input and output taxes and GDP.

This study analyses the relationship between VAT and economic growth and valuable recommendations providing tax analysts, policymakers and other researchers an opportunity to explore, add and improve any limited spheres uncovered in this research. Tax revenues hold a significant scope in academia, particularly developing economies in Africa- Nigeria. Therefore, it will be a tremendous advantage for Nigeria to adopt its new tax policies of 2019 to enable its national income to increase, improve living standards of citizens, and most importantly, thrive economically and independently like other global economies.

1.5. Methodology and definition of terms

This study uses time series data from relevant sources. The Ordinary Least Square method (regression) is used to examine the relationship between the proposed variables.

VAT: This is also known as indirect tax or goods and services tax regulated by the Federal Government of Nigeria. It is also a type of consumption tax, a standard rate levied on goods and services at each stage of production (and distribution) and remitted to the federal government.

Input Tax: This is the VAT a company pays to its suppliers on goods and services bought. If the input tax exceeds the output tax, the difference is refunded by the government to the company (Financial Dictionary, 2012).

Output tax: This is the VAT charges a company receives from its buyers on goods/services sold. If the output tax is higher than the input tax, the difference is remitted to the government (FinancialDictionary, 2012).

National income: known as the Gross Domestic Product of a country, it is a measure of its wealth over a specified period.

Economic growth: This is evidence of growth in a country's wealth either in population, labour force, employment or production of goods and services.

2. LITERATURE REVIEW

2.1. Value-added tax

The essential instrument of a well-structured tax system in the world is administration. Without proper administrative decisions on taxation rates, tax education and collection, government expenditure and project executions may be hampered, slowed down or frustrated (Andoh, Osoro, & Luvanda, 2018). The administration of appropriate tax laws is also key but relies heavily on the government to cushion its lasting effects on economic development and standard of living generally (Ali, Dalmar, & Sheikh, 2018). However, despite a proper administration of strategic regulations, collection and progressive or standard tax rates, the compliance and enforcement of these are also imperative as the increase or decrease in tax revenue is dependent on this. Taxes strongly influence improved productivity levels of businesses, investments, savings and consumptions and since economic growth is measured by indicators like GDP and gross domestic income (GDI) (Ali, Dalmar, & Sheikh, 2018); economic factors like "interest rates, laws, policies, wages, and governmental activities" (Thakur & Vaidya, 2021) and recession increase or decrease the propensity for GDP's growth.

It is no gain saying that VAT has more impact on goods and services because these are consumed in variations daily, and as such, a great source of government revenue and has more effect on transactions than other taxes (Banwo & Ighodalo, 2020). Aside from revenue generation of taxes, equity and other socio-economic issues (Johansson, Heady, Arnold, Brys, & Vartia, 2020), a silent rationale behind this is the prohibition of illegal and imported goods into the country through customs and excise duties (CED) (Omodero, 2020). Except for supplies and facilities that are VAT exempt, VAT (replaced sales tax in 1994) is an indirect tax imposed on all goods and services locally produced or imported and made in a country. The amount charged as a tax on the number of goods and services consumed by a person is designed so that from the hierarchy of production, distribution and retail, the costs incurred are spread and not borne by the final consumer alone (Omodero, 2020). African countries seek to develop a reliable revenue base through several indigenous strategies, especially taxation, to keep solidifying state power (Mackenzie, 2021). To

sustain public services and achieve economic growth by expanding and leveraging domestic revenue sources, they aim to maximise their domestic resource mobilisation activities using taxes as a fiscal policy instrument (Mackenzie, 2021).

For Nigeria, however, maintaining a sustainable internally generated revenue through other sources other than oil has been a challenge. Its recent revamp of taxes through Finance Acts 2019 spells out the gravity of how much diversifying from oil revenue is keen. With the drop in global oil prices, "The Federal Government launched the Strategic Revenue Growth Initiative (SRGI) early 2019 to improve revenue generation by government agencies and allow it to fulfil its ever-increasing financial obligations as part of its efforts to address its revenue challenges. The SRGI's goals include raising the VAT rate from its current level of 5% to 7.5%, identifying new revenue sources, and improving revenue collection from existing revenue sources" (Ezomike & Ango, 2019, p. 1).

The essential provisions of social amenities such as water, electricity, roads and other public services are rewards from taxes paid overtime. Although taxes are a great source of government revenue, this is not the major source of social amenity provisions in Nigeria like other African and developed economies. Several arguments have risen in favour of VAT as a valid system that discourages tax evasion (Maverick, 2020). Others believe that it also encourages tax compliance and discourages the evasive nature of traders or businesses in the black market (Maverick, 2020). This is not true for a country like Nigeria. The majority of its GDP is derived from oil, and a chunk is derived from the informal sector who live by on daily remittances and possibly little or no taxes remitted to the Federal Government.

Moreover, unlike the UK and US with standard VAT at 20% and sales tax in place of VAT, respectively, they have methods of enforcing VAT. The final consumer pays the UK's VAT, for instance, while the US uses sales tax. However, in Nigeria, stages of production are charged with a VAT, and the excess balance or less is remitted to Federal Government

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2.1.1. Input and output tax

Manufacturers and suppliers must receive VAT on their outputs, that is, the products they make or sell, to be compensated for paying VAT on their inputs (Banwo & Ighodalo, 2020). Thus, retailers then raise the tax from their buyers because it is the only way to get credit for the VAT they paid when purchasing their products wholesale (Maverick, 2020). There are two components of VAT: input tax and output tax. The only body speculated by the Finance Acts 2019 and VAT Acts 2007 is the Federal Inland Revenue Service (FIRS) to administer, manage and collect tax revenues in Nigeria on behalf of the Federal Government (Ogakwu & Nnenna, 2020). Businesses remit the difference of the output and input tax to FIRS. The question of why there have been meagre tax revenues over the years in Nigeria is still of debate and outside the scope of this study.

The current VAT rate in Nigeria is 7.5%, incomparable to South Africa at 15%, Tanzania 18%, Kenya 16%, Ghana 12.5%, Zambia 16%, Zimbabwe 14.5%, Uganda 18%, and Angola 14%; one of the lowest VAT rates in Africa. Both input and output tax is consumption charges on goods and services traded, manufactured or imported in Nigeria. An output tax represents a VAT charge on purchases by a vendor into the business. A vendor purchases items to run the business and is charged from the raw material or wholesaler's level; the vendor sells to retailers who finally sell to final consumers. Usually, input tax is lower than output tax (Banwo & Ighodalo, 2020), while output tax is the tax charged on supplies in the business (SARS, 2020). According to FIRS 2020, “Input VAT is VAT paid on raw materials or goods and services used for production purposes or goods for resale or goods imported directly for resale. The output VAT is VAT charged by taxable persons on goods and services supplied. Where output VAT is more than the Input VAT, the difference is paid to FIRS, but where input VAT is more than output VAT, the taxable person claims a refund”. Therefore, the VAT revenue received by FIRS is output tax minus input tax. Although there are zero-rated taxable goods, especially exports, agricultural supplies, medical supplies, and cross border services (SARS, 2020), businesses who trade exempted goods and services are not regarded as taxable persons. According to FIRS 2020, “in the VAT guidelines, a taxable person is any person or body who, independently, carries out in any place any economic activity, whatever the purpose or results”.

Final consumers cannot reclaim VAT paid on transactions; however, firms can reclaim VAT on purchased raw materials or supplies to manufacture additional supplies or provide services that are either directly or indirectly sold to them (Jones, 2021). Consequently, the total tax imposed at each

point of the economic supply chain is a constant fraction of the value added by a company to its goods. The majority of the tax collection costs are borne by the business (Oyedokun, 2016). Many consumers, especially post-pandemic, struggle with inflation with rising prices in consumables. Researchers like (Mercadante, 2021) believe inflation is a hidden tax that leaves final consumers more inferior and the government richer. At the time of this study, Nigeria's inflation is 16.47% (NairaMetrics 2021) and consequently reduces the take-home of final consumers, retailers, and manufacturers as a whole. “Although pressure from the nation’s border closure may have dissipated and slowed down the spike in the inflation rate, the effect of the new 7.5 per cent value-added tax (VAT) regime, as well as the impact of the coronavirus pandemic, may continue to drive inflation rate higher than expected” (Adekoya & Oji, 2020). However, this does not reduce consumption taxes in the form of input and output VAT remitted to FIRS except for goods and services exempted.

VAT, a multiple-stage tax (Macroeconomic Effects of Value-added Tax: A Computable General Equilibrium Analysis, 1999), with input and output tax components, is also used as a stability measure through the tax system. Daily consumption variations allow the use of input and output tax to stabilise a country's fiscal policy, fund the nation's debts and allow registered businesses to receive tax returns on overcharged taxes. However, for businesses, there have been criticisms as to whether or not input and output tax are beneficial in the long run. Aside from the regular filing of tax reports by businesses, some authors like Gale, 2016 and Riddix 2019) argue that small businesses may see VAT as a burden. In Nigeria, debates on exempting small businesses have been ongoing, and small businesses' definite value is yet to be defined. Another shortcoming is the rise in welfare expenditure provided by governments. In addition, other revenue sources are expected to be used to maintain their infrastructures, and so the need for tax revenue sources have been on the rise.

Furthermore, it has also been argued that it creates a massive gap between the rich and the poor. This is because the consumed goods cannot be levied with progressive taxes like income tax since VAT is standard. Thus, the essentials of living like food, water, shelter and clothing will be at standard rates for low-income earners and high-income earners (Riddix, 2019).

The process by which both input and output tax work is described in the diagram below. The supply chain: supplier (raw material), production (manufacturing), procurement (wholesale purchase), distribution, retailers and the final consumer pay taxes in the form of input tax at every stage as

aforementioned and then output tax to the final consumer. This means that the input tax is spread from the suppliers to retailers. The final consumer bears the output tax, and the net of input and output tax is remitted to the government. The government receives these taxes, and any excesses refundable, and deficits are payable, which are both received and paid by the business, respectively.

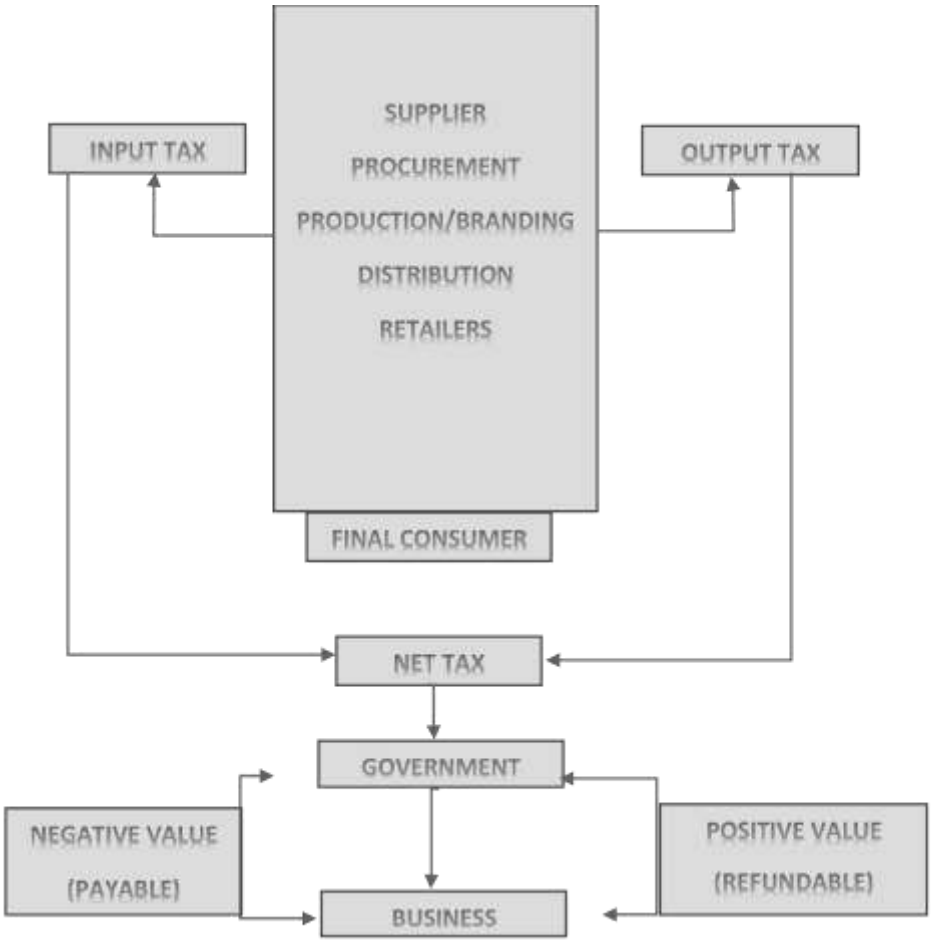

Figure 1. How input and output tax works
Source: Computed by the author.

2.1.2. Revenue potential of VAT in Nigeria

The implementation phase of the Finance Bill 2019 on 1st February 2020 is expected to foster fiscal policy, promote fiscal equity, complement local laws with global best practices, capital market projects, implement tax incentives for infrastructure with the existing ease of doing business reforms while simultaneously helping small businesses (Rofiat & Adeyemi, 2021). Nigeria's attempt to standardise its tax system to match global trends, especially with the 50% VAT increase from 5% to 7.5%, several economists have argued on the good, bad and ugly of this move

by the Federal Government. However, they would strategically, if well managed, achieve additional revenue to improve the overall economy. Due to the peculiarity of the culture, diversity, and people in Nigeria, the informal sector, according to Adio (2021), is about 60% of the country's population, providing an enticing sphere for the country to milk tax revenues. Although, Agbo and Nwadialor (2020) argue that even developed countries struggle with tax evaders and loophole exploitations in the existing systems, the increase in VAT also burdens the formal sector that has been compliant with tax regulations (Asquer, 2020). Additionally, they argued that with sophisticated administrations in a tax system, tax evaders could not be eliminated, and a major challenge for a developing nation like Nigeria is its large informal sector which may wreck or advance the tax revenue generation. This is because over 60% of the informal sector contributes majorly to employment and national GDP (IMF, 2017) and hence populated with a majority not remitting to the government. However, Arogie and Inyama (2020) agree that the informal sector indirectly pays input tax or some consumption tax since they utilise services provided by the government or purchase some raw materials from suppliers. The 'untapped informal sector is peculiar to Nigeria and other countries like Vietnam, India, Egypt, Turkey, Indonesia, and China. If this sector was strategically attracted to remitting taxes (including VAT), it would represent one of the 'cash cow' channels for Nigeria.

The poverty rate in Nigeria is also an alarming aspect of VAT which many have argued may increase those below the poverty line (below $1.90 daily), and only those who can afford to get to be financially unscathed (Arogie & Inyama, 2020). The Federal Government of Nigeria has argued that the consumption tax is not imposed on essentials for survival like food, education and medical supplies, and so only those consumables outside these exempts are liable to be levied for VAT (Ali, Dalmar, & Sheikh, 2018). Other arguments have been arraigned to the timing of VAT increase and if this is one of the real issues facing the Nigerian economy at this time (Agbo & Nwadialor, 2020; Arogie & Inyama, 2020).

2.3. VAT and economic growth

The average VAT rate in the West African sub-region is 18%. Aside from Ghana (currently on 15% VAT rate but additional consumption tax at 2.5%), Nigeria has the lowest in this region (Arogie & Inyama, 2020). How then can the Nigerian government enforce recent taxes and minimise their negative economic effect?

The essence of VAT, whether as an input or output tax, is to share the burden costs in production, distribution and logistics until the product or service is received by the final consumer, the net VAT received by the government. However, principally, taxes imposed on consumption, personal income, corporations or businesses garble decisions made by consumers if the taxes were not in place (Asquer, 2020). A typical example is excise duty imposed on goods at the stage of production or licensing and sale, which often cause the producers to raise commodity prices, thus, passing the tax burden on to customers (Ali, Dalmar, & Sheikh, 2018). Like the laws of demand and supply, increased prices create a fall in sales (demand) and lower consumption rates. This results in changes in consumer behaviour to prioritising necessary (survival) items or needs and eliminating luxury items that eventually also affect one or more sectors of the economy than the other (Mackenzie, 2021; Asquer, 2020).

The relationship between VAT and economic growth can be summarised to be a 'needle in a hay stack' in Nigeria. The higher the amount of VAT remitted to the government, the more the revenue available for government spending and projects that create infrastructural developments, offset government debts, and employment opportunities that generally improve the standard of living. The new tax Acts is expected to renew this narrative and hopefully reduce external borrowings or debts and eliminate currency prints which may result in higher inflation.

Economic growth, a significant economic indicator, can be described as a measure of increase or decrease in the production of goods and services in a country over a specified period (Boyle & Amadeo, 2020). Since the benefits of this increase can improve the consumer purchasing power of goods and services through an improved standard of living, business profits, robust capital for investment and employment, an increased purchases automatically accentuate and actuate economic growth (Boyle & Amadeo, 2020). Cornwall (2016) defines economic theory as relatable to economic theory; economic growth is the increase in a country's wealth over a certain or extended period, usually in the short term. Although the definition of what short term is subjective, growth in general terms means something gradually increasing in size at a pace. This means a country’s increase in wealth: production of goods and services, human development, employment, resource management, infrastructure, consumer price index and national income, has added in value from an unbalanced or uneven stage to slowly gaining balance compared to other parts of the world (Cornwall, 2016). Renowned economists like Colin Clark according to Cornwall (2016) has argued that the economic growth measured for certain indices have to be decided to portray a

certain aspect of an economy undergoing growth and not many indices for different sectors portraying a holistic economic growth. Therefore, the importance of different sectors of an economy at various different stages of modernisation and growth are essential determinants (Akintunde, 2021; Cornwall, 2016). Several theories relating to economic growth include Mercantilism (the measure of a country's growth by the worth of increase in gold and trade surplus), endogenous growth theories (a measure of growth by a country's domestic technological innovation and human capital), neo-classical theory (measure of growth by factor inputs, labour productivity and size of labour force), limits-to-growth theory (a country's growth degraded by global warming) and Keynesian demand-side theory (short- and medium-term effect from aggregate demand and recession) (Johansson, Heady, Arnold, Brys, & Vartia, 2020; Cornwall, 2016; Akintunde, 2021). These theories have formed the basis of modern analysis of economic growth for both developing and developed economies. There are several indicators for economic growth. These are but not limited to GDP (real and PPT), GNI (includes income generated from overseas), consumer price index, employment rates, consumer spending, inflation, industrial production, and many others.

Can high tax rates be a drive for economic growth? The answer is yes, according to Boyle and Amadeo (2020), if tax revenues generated at increased rates are used efficiently to reinforce the key economic drivers like education (world-class), high standard of living and social programs (Banwo & Ighodalo, 2020) which is embedded in a solidified and skilled human capital or labour force (Chand, 2018). Some of the countries that practice this include Germany, Belgium, Denmark, Sweden, Norway, Finland, Iceland, Greenland, and many more (Boyle & Amadeo, 2020). An analysed economic growth rate depicts what stage of the economic cycle a country is at a particular period. The points on a trade circle are peak, expansion, contraction and trough. The trade or economic cycle of Nigeria is coordinated and analysed by NBS (National Bureau of Statistics) and CBN. Many studies like (AfricanEconomicOutlook, 2020; Agbo & Nwadialor, 2020; Gale, 2016) argue that the best point a country should be is at the expansion stage as they have the open options to recover quickly than countries at the trough, contraction or peak stage.

Nigeria is Africa’s leading economy (30th world ranking economy by GDP volume) with the highest GDP of $443billion in 2020, followed by Egypt ($362billion), South Africa ($283billion), Algeria ($147billion), Morocco ($112billion), Kenya ($101billion), Ethiopia ($96billion), Ghana ($67.34billion), Tanzania ($64billion) and Angola ($63billion) (Statistica, 2020). According to Export-Entreprises-SA (2021), “the economic crisis caused by the COVID-19 pandemic and the

fall in oil prices strongly influenced the country's growth. In 2020, the Nigerian economy retracted due to the COVID-19 outbreak, reporting a negative growth balance of 4.3%, compared to 2.2% in 2019. According to the IMF's October 2020 forecast, growth is expected to resume 2021, estimated at 1.7% of GDP, and stabilise in 2022 at 2.5%. In its most recent January 2021 update of the World Economic Outlook, the IMF revised its GDP growth projections for Nigeria to 1.5% in 2021 and 2.5% in 2022, representing a difference from the October 2020 WEO projections - 0.2% in 2020".

Since the resumption of economic activities from the lockdown to revamp the economy, the country's leaders have empowered businesses with capital, industrialised the agricultural sector with modern and competitive technology, reinvestment in education and educational enhancements (African Economic Outlook, 2020). However, the weak infrastructure in current amenities like water, transport, electricity for individuals and business; corruption, weak judiciary system and inflation coupled with the double value of the currency (CBN nominal price and black-market price), unwinding fall in quality assets in the banking sector have pulverised the country's efforts to restabilise its economy and national development at a speedy rate (Export-Entreprises-SA, 2021). Nigeria's debt to GDP volume is currently at 35.5% (35% in 2019), which is high coupled with these previously mentioned factors and an incessant increase in population (especially below the poverty line of $1.90per day) that will further push harder on the numbers of underemployed and unemployed labour force (Export-Entreprises-SA, 2021). Apart from the oil sector, other key sectors that drive the economy’s GDP is agriculture (primary sector), information technology, industrial and service sector. Below is a summary of key sectors contributions to GDP as analysed by the World Bank (2020):

Table 1. Summary of key sector drivers of GDP in Nigeria. World Bank data retrieved from (Boyle & Amadeo, 2020

Economic Activity by sector	Agriculture	Industry	Services
Employment by sector (% of total employment)	34.7	12.2	53.1
Value-added (by GDP)	21.9	27.4	49.7
Value-added (annual change %)	2.4	2.3	2.2

Source: World Bank data extracted from (Boyle & Amadeo, 2020)

Table 2. Summary of VAT revenue, annual VAT growth rate, inflation rate and Real GDP values.

Periods	VAT Revenue (₦'millions)	VAT growth rate	Inflation (%)	Real GDP (₦'millions)
2011	564,891.6	12%	10.84%	57,511,041.77
2012	659,153.62	14%	12.22%	59,929,893.04
2013	710,555.1	7%	8.48%	63,218,721.73
2014	802,683.5	11%	8.06%	67,152,785.84
2015	802,964.7	0%	9.01%	69,023,929.94
2016	767,333.5	-5%	15.68%	67,931,235.93
2017	828,199.1	7%	16.52%	68,490,980.34
2018	972,348.4	15%	12.09%	69,799,941.95
2019	1,108,039.98	12%	11.40%	204,107,951.71
2020	1,534,771.87	28%	12.88%	in view

Source: Computed by researcher but VAT revenue values from OECD statistics (2020), Inflation values from Macrotrends (2021) and Real GDP values from CBN Bulletin (2020)

2.4. Empirical review

This study views the works of Johansson et al. (2020), Adegbemi et al. (2017), Omodero (2020), Ali et al. (2018), Paymaster and Angaye (2020), Babatunde et al. (2017), Andoh et al. (2018) and Odhiambo and Olushola (2018). These studies presented unique fronts that solidly founded the subject matter for this research and showed gap areas that needed to fill.

In their study, Johansson et al. (2020) examined the relationship between tax and economic growth. Their work argued that revenue generated through several tax channels is meant for public service amenities and provisions and equity and social and economic issues. This simultaneously affects household savings and investment reactions, human development, employment rates, and investment channels and assets portfolio. With a focus on OECD countries, the study centred on the effect of tax structure changes on GDP per capita and effecting determinants thereof. The study was limited to the dilemma of examining how much impact tax structures had on GDP levels or growth as long-term effects on GDP levels are purely theoretical. Finally, it reiterated the importance of eliminating tax burdens on taxpayers (optimal taxation), costs of tax reform transitions and practical experiences of OECD member countries. The tax aspect of the study was generic but focused on corporate, personal income, consumption and property taxes. The study shed light on tax structures of developed economies which broadened the scope of this study and were relatable to the subject matter from a general point of view. Even though VAT was not the centre of the study, it portrayed the importance of transition costs, especially the recent

amendments to Acts 2007 and new Finance Acts 2019 in Nigeria. Due to different development levels in the countries examined, the paper could not have a unanimous finding or conclusion on discourse. Thus, the study could not conclude on a positive or negative impact of tax revenue on GDP.

Adegbemi et al. (2017), on the other hand, focused on the effect of tax revenue on the economic growth of nations in Africa. This study was relatable because they revolved their research around developing nations of Africa, Nigeria being one of them between 2004 and 2013. With a significance level of 5%, the study concluded that their tax revenue had a significant (positive) effect on economic growth in Africa. Although the study presented an outlook of African nations taxation reforms and strategies, it focused on Nigeria but failed to show empirically how much or to what extent which of the tax revenues (corporate, income, capital gains, consumption and property) had the most or least effect and the increasing or decreasing effect of each tax revenue channel had on the GDP between 2004 and 2014. Similar to Johansson et al. (2020), it also emphasised the importance of stable tax reforms, especially with the new implementation of current Finance Acts of 2019, and argued that the sloth pace of the implementation processes generally might cause the informal sector that is robust with tax evaders to be unremittable.

Omodero (2020) assessed the relationship between custom excise duty (CED) and VAT on consumption in Nigeria. The study adopted econometric tools to understand the effect between CED, VAT, consumption and produced a result that VAT has a significant effect on consumption. Her study further reiterates the thriving of the informal sector because of the discouraging importation of illegal goods into the country. The study recommended that prices on indigenously grown foods be significantly reduced, and customs duties on illegal goods should be banned altogether. Other areas covered include open innovation and tax administration in Nigeria.

Ali et al. (2018) examined the impact of tax revenue on Kenya's economic growth between 1980 and 2017. The study focused on critical areas that marred the growth of tax revenue in Kenya. It attributed them to lack of professionalism, ignorance on the education of impediments or benefits of taxation, poor accountability, tax evasion and impoverished strategic tools for tax collection. Infrastructural deficiency, including inadequate human resources, money and machinery, contributes to lower revenues generated by the Kenyan government. The study used grant revenue as added independent variable that nullifies the actual relationship between tax revenue and GDP based on the data analysed. Paymaster and Angaye (2020) Conducted a study on Nigeria focusing

on "the impact of VAT on economic growth in Nigeria". the study also centred around input and output VAT, and GDP was used as a proxy for economic growth. The study conducted produced a significant (positive) effect of both input and output tax contributing significantly to total tax revenue and ultimately the economic growth in Nigeria. Like Babatunde et al. (2017), the Nigerian government recommended obstructing all loopholes in tax revenue collection and a revamp/sensitisation of collection agencies responsible for remitting to FIRS and strategic but accountable use of all revenues collected. The study did not consider inflation in the data analysed as the economy's growth is also strongly influenced by this factor.

Andoh et al. (2018) investigated whether VAT was a money machine for developing economies, a case study of Ghana. The study indeed viewed VAT as a whole while considering total tax revenue. They argued that VAT truly contributes to the total tax revenue generated by Ghana annually but does not significantly create an imbalance in the figures' long-run values. Furthermore, the study recommended too many 'dramatic' monetary policies and strategies to consumption tax like VAT. These strategies should be balanced or commixed with other taxes order than the consumption tax in Ghana.

Similarly, Odhiambo and Olushola (2018) examined the relationship between taxation and economic growth in a resource-rich country: a case study of Nigeria. They exquisitely investigated the relationship between high resource revenue availability, low tax efforts in terms of administration and implementation and the combined effects of these on the overall growth of the Nigerian economy. It descriptively analysed existing tax structures, national and foreign data and concluded that taxation had a significant impact on economic growth, but tax efforts to economic growth rates were lagging. Ultimately, they recommended that the Government institutes broaden and implement tax strategies (and tax efforts) that would enlarge the tax revenue base and revamp the tax system as a whole. Maganya (2020) focused her study on Tanzania and the effect of tax revenue on economic growth. The study's central view was from the challenges faced by developing nations (similar to Odhiambo & Olushola (2018) and Ali et al., (2018) and the quest to strive economically and otherwise is a viable option through taxation. The study also highlighted that taxation was a viable and sustainable strategy to eliminate poverty, and the deliberate efforts of the government were keen in developing nations, particularly in Africa. The study found a significant relationship between taxation (income tax and VAT) and economic growth (GDP).

3. RESEARCH METHODOLOGY

3.1. Research design

The research design used in this study is a quantitative approach based on an empirical style of research. It examines the significant relationship between VAT and GDP (economic growth), VAT, and GNI (Gross National income). The GDP represents the total domestic production of goods and services in Nigeria at market values; VAT represents the net of consumption tax of input and output tax, while GNI represents the total income produced by Nigeria in addition to the net remittances from abroad within the specified periods of this study that is 2011-2020. GDP at nominal values was chosen for this study because GDP (real) includes factors order than inflation deducted from it. Therefore, inflation is used as an additional explanatory variable.

Also, Nigeria's VAT, GNI and GDP values are used to answer research questions and prove the null hypothesis.

3.2. Unit root test

Data extracted from relevant sources are expected to provide reliable data with unit root, therefore this study made use of Augmented Dickey Fuller (ADF) for unit root testing. An ADF test is a test for unit root, and the null hypothesis of an ADF test is the time series containing a unit root (the series is a non- stationary process). The alternative hypothesis is the time series which does not contain a unit root. If we proceed to use non-stationary data in the regression analysis, our statistical inference is invalid. Therefore, we use stationary data in this regression analysis.

The advantage of ADF is but not limited to handling more complex models, better than Dickey-Fuller (DF) tests and can be used in serial correlation (Statistical, 2020). Stationarity allows statistical data, especially over a specified period or process, to be unchanged over time (Gale,

2016). Stationarity is essential for this study because it is helpful for analytical tools and statistical test models (Gale, 2016).

3.3. Sources of data

This study used secondary data from the published annual statistical bulletins of the Central Bank of Nigeria (CBN) for the years 2011 to 2020. Nigeria's quarterly GDP nominal values 2020 are retrieved from OECD's statistics (2020), National Bureau of Statistical data and Macrotrends statistical database (2021). VAT revenue values are retrieved from Macrotrends statistical database (2021) and OECD's statistics (2020), and GNI values are also retrieved from Macrotrends statistical. Consumer Price Index (CPI) measured Inflation growth rate are retrieved from OECD's statistics (2020) and Macrotrends stats.

To ensure validity and reliability of the data collected from relevant sources, the organisations mentioned above and agencies have reputable information recognised by the World Bank and International Monetary Fund (IMF) as primary and supporting data sources for various countries globally, including Nigeria.

3.4. Model specification

This study has adopted and modified the models of Paymaster and Angaye (2020), Ayeni and Afolabi (2020) and Babatunde, et al. (2017). The relevance of these models is that they fit perfectly well into the present study. The significant difference between the models adopted by these authors is that they were applied using additional variables like infrastructural development, foreign direct investment, and money supply, which have been completely exempted from this study.

Even though regression analysis can be used in any field of interest, this research investigated the significance of VAT to GDP in Nigeria and using comparative analysis to see the proportion of growth between GNI and VAT revenues. Often, questions regarding the complexity of variables to be used for this type of methodology arise, but major variables like GDP as a macroeconomic aggregate depicting the economic health of Nigeria is used.

$$GDP = f(VAT, INF)$$

$Y_1 = b_0 + b_1X_{1,t} + b_2X_{2,t} + e_t$……

Where: Y = GDP representing the dependent variable;

b_0, b_1, b_2; are regression parameters or coefficients;

X_1, X_2; are independent variables;

$X_{1,t}$ = VAT Revenue at period "t"

$X_{2,t}$= Inflation (INF) growth rate at CPI measured at period "t"

Therefore, $GDP = \beta_0 + \beta_1 VAT_t + \beta_2 INF_t + e_t$asd

3.5. Dependent and independent variables

The dependent variable for this study is the GDP while VAT and INF are independent variables. Thus, the proxy for economic growth is GDP.

3.6. Techniques of analysis

The study utilised regression analysis. The estimation method is Ordinary Least Squares (OLS) to establish the relationship between VAT and GDP amongst the chosen study variables covering periods of 2011-2020 quarterly that provides 40 observations to be analysed. This method was utilised to answer research questions while meeting research objectives and testing the hypothesis. To achieve the objectives of this study, a model was developed using GDP as the dependent variable and VAT and INF as the independent variable.

The statistical package used to run the regression model for this research is the Microsoft Office Excel 2019. This analytical tool was used to run the regression to estimate and understand the relationship between both dependent and independent variables specified for this study.

4. ANALYSIS AND INTERPRETATION

4.1. Data presentation

This study presents quarterly values of GDP, INF and VAT (raw data) to examine the propensity and the extent to which VAT affects economic growth in Nigeria. There are 40 observations of the dependent and each independent variable, the values are shown from the year 2011 to 2020. From appendix 1A, all values for each year 2011-2020 are displayed and spread across quarters for each year. This has summed the total of 40 observations as seen in Table 12, appendix 1A where GDP is Gross Domestic Product, and VAT is Value added tax and INF is inflation rate at CPI (Consumer Price Index) rate.

4.2. Data analysis and test of hypothesis

Research Question 1: Does VAT (Input Tax and Output Tax) Revenue Enhance Economic Growth in Nigeria?

VAT is revenue generated by the FGN (Federal Government of Nigeria) to be an additional source of internally generated revenue (IGR) to meet its extensively colossal budget. Although, several authors like Kagan (2021) and Francois and Joana (2018), who are proponents of VAT, have argued that VAT increases government revenue without necessarily harming wealth created, thereby punishing the low-income earners (Takumah, 2014, p. 5) without a proper balance from high-income earners and simultaneously overstretching already complying companies even further. Businesses input and output tax differences are one of the IGR avenues for developing nations worldwide. The increase in VAT automatically increases the amount (Output tax less Input tax) remitted to the FGN (Federal Government of Nigeria). If more revenue is being generated from VAT, does this increase economic growth? Yes, theoretically and in the long run, using the parameters of a macroeconomic aggregate like GDP nominal values. This is because, in government accounts, VAT is recorded as income and accessible after legislative processes to fund

infrastructural projects, welfare, some rewards of public service, especially with a robust tax system under effective management. This eventually foster growth in various or unique sectors that improve standard of living, earning more profits for businesses, indigenous production of goods and services, increased export and many more. Theoretically, this may be seen as possible but may be hindered by factors order than mismanagement of tax revenues. The approval of funds, time, or duration of execution, and so many others may reduce or increase the degree to which VAT may increase GDP.

From Appendix Two A, dependent and independent variables were regressed at non-stationary values. However, when the first difference of natural log variables VAT and GDP were taken, the data became stationary. This was then regressed to produce results in table 4 below (Appendix Two B):

Table 3. Augmented Dickey-Fuller test

	Undifferenced	**Differenced**
Variables	**ADF**	**ADF**
GDP	-1.809911	-2.5555026
VAT	-1.4654	-1.6905526
INF	-0.260019607	-
T-Score	**1.68487**	

Source: Computed by author

Table 4. Dependent Statistics

Variables	**Mean**	**Std. Dev**	**N**
Df_ GDP	0.0282	0.078815	40
Df_ VAT	0.0677	0.204175	40
INF	0.1175	0.030011	40

Source: Computed by author

Table 5. Regression Statistics

Multiple R	**R Square**	**Adjusted R Square**	**Standard Error**	***Significance F***
0.724284	0.589728	0.669355	0.007855	0.006334841

Source: Computed by the author

Table 6. ANOVA

	Coefficients	***Standard Error***	***P-value***
Intercept	0.161157453	0.05186446	5.77994E-07
VAT	0.089958639	0.06246956	1.58497E-05
INF	0.154678516	0.425000014	0.718024646

Source: Computed by the author

Table 3 above shows the ADF tests on research question one with GDP as dependent variable, VAT, and INF as independent variables. The undifferenced values show that they are non-stationary while the differenced values are used matched against the t-test value 1.68487. Regardless of the negative signs, the differenced values above are higher than t-test value 1.68487. Thus, these show that the values are stationary after the first difference. Inflation was ignored for differencing since the data was already stationary.

From table 4 above, the dependent statistics depict the mean on average, standard deviation and total observations of the data set from quarter 1 to 4 of years 2011 to 2020. The regression statistics above shows the results of the combined effect of VAT and INF on GDP. The multiple R at 0.72, which can be approximated to 1, depicts the strength of VAT and INF on GDP. It also represents the correlation coefficient between variables from values 0 and 1 where -1 is a strong negative correlation, +1 is a strong correlative relationship and 0 a non-existing correlation. Therefore, the results above show that there is a strong positive correlation between variables. The R2 represents the goodness of fit on the probability plot and also known as the "coefficient of determination". With a value of 0.58 (approximated), this is not a strong but fair fit of all variables on the regression line. Thus, 58.97% of GDP variable is explained by variables INF and VAT. The significance F-value at 0.006334841 represents the degree to which results from regression are reliable or statistically significant. It is, therefore, expected to be less than the p-value of 5% for this study. In absolute terms, the results of the data set above are statistically significant. The coefficient figures of 0.161157, 0.0899586 and 0.154679 for the intercept, VAT and INF respectively depict the degree to which GDP values (nominal) changes at an increased or decreased value. The equation can be rewritten as:

GDP = 0.161157453+ 0.089958639(VAT)+ 0.154678516(INF)…… (stationary at first difference)

Therefore, with an increase in VAT growth (0.090) means an increase in GDP and a corresponding increase in inflation depicts a corresponding increase of GDP value at 0.155 (approximated).. This

is a valuable means of prediction for economists, researchers and analysts. The p-value is measured at a confidence level of 95%, 5% significance level. The values 5.77994E-07, 1.58497E-05 and 0.718024646 for intercept, VAT and inflation, respectively, have depicted the significance of each variable on GDP. Although the p-value does not precisely describe the extent to which VAT or INF affect GDP, it only shows that it influences GDP based on these results. The value for INF at 0.7180 is insignificant (negative) to GDP. Although the focus of this study is on VAT, inflation is present as an explanatory variable because of the use of nominal GDP.

From Appendix Two B and table 5, VAT's p-value is 1.58497E-05, approximated to 0, which depicts that VAT is positively significant at $\alpha < 0.05$. VAT contributes to GDP and has the propensity to increase or decrease its annual or quarterly values. The mismanagement or not of VAT revenue is not as important as a robust and effective tax system that can have a smooth transition from the collection, education, reimbursement, management to administration to create value from revenues collected to the members of the public. This will, in turn, encourage evaders to contribute, speed up development, ease of doing business through basic infrastructures and social amenities.

In order to reject or not reject the hypothesis, therefore, the null hypothesis for this study, that there is no relationship between VAT and GDP, is rejected, and the alternative hypothesis stating there is a relationship between VAT and GDP is not rejected.

Research Question 2: Is there a relationship between GNI (norminal) and Value Added Tax?

There are several metrics for measuring national income, including GDP. GNI (nominal) is selected as the metric for measuring national income in this study. GNI, according to Britannia (2020), is the total amount of goods and services produced in a country, inclusive of remittances from outside the country. Therefore, Nigeria's GNI value its activities within a specified period generated domestically and internationally.

Table 7. GNI and VAT growth rates

Years	GNI (₦'Billions)	GNI (growth rate)	VAT(₦'Millions)	VAT (growth rate)
2011	54,193,152.665	12.9%	564,891.600	12%
2012	64,348,190.082	18.7%	659,153.618	14.3%
2013	73,858,720.780	14.8%	710,555.100	7.2%
2014	85,342,862.661	15.5%	802,683.500	11.5%

2015	101,139,503.437	18.5%	802,964.700	0.0%
2016	90,398,211.207	-10.6%	767,333.500	-4.6%
2017	133,113,394.364	47.3%	828,199.100	7.3%
2018	139,001,797.144	4.4%	972,348.400	14.8%
2019	146,952,160.713	5.7%	1,108,039.982	12.2%
2020	188,306,147.028	28.1%	1,534,771.870	27.8%

Source: Computed by the author

VAT, as aforementioned, is an income for the government retrieved from the net of output and input taxes and relatable to GNI. It is revenue expended by the government at assumed necessary and timely intervals. Nigeria is a country that also receives VAT on goods produced within and outside its territory; thus, the need to compare its growth rate with GNI. Analysing growth rate values generally enable analysts to assess the current trends and change in values of variables and predict future changes based on certain metrics. According to Chen (2020), a general rule of thumb is that an increase in growth rate values, especially for GDP or GNI, is seen as positive, and a two-time quarterly reduction of 2% puts a country into recession. This means that the increasing population of a country has less than 2% disposable income in that year. For GNI, positive increase of growth in its values are from 2011-2015 with 12.9%, 18.7%, 14.8%, 15.5%, 18.5% respectively. A slight wave at negative percentages in 2016 at -10.6% and pick up of the economy from 2017 to 2020 at 47.3%, 4.4%, 5.7% and 28.1%respectively. VAT only recorded negative growth in the year 2016.

From table 7 above, all values are in billions (GNI) and millions of ₦ (VAT) retrieved from Macrotrends (2021). With all other influencing variables assumed to be static, the growth rate for GNI calculated by Excel 2019 is growing at an average of 15.5% annually and VAT at an average of 10% (although, it is best that VAT has a higher growth rate than GNI). Since Nigeria is one of the countries heavily dependent on foreign earnings, GNI is an essential factor in measuring economic growth.

GNI and VAT growth rates were regressed and produced results:

$$\text{GNI} = -0.026703915 + 0.640152827\ (\text{VAT}) + 0.993561782\ (\text{INF})$$

Table 8. Regression result for GNI, VAT and inflation growth rate

Multiple R	**R Square**	**Adjusted R Square**	**Standard Error**	***Significance F***
0.399620629	0.159696647	-0.0803900	0.15859556	0.543909116

	Coefficients	*Standard Error*	*P-value*
Intercept	-0.026703915	0.237501185	0.913633362
VAT at %	0.640152827	0.602355005	0.32317786
INF	0.993561782	1.867746619	0.611213995

Source: Computed by the author

Additionally, to further reiterate the effect of VAT on economic growth, VAT growth and inflation were regressed against GNI growth rates. The results are presented in the table above (table 8).

From table 8 above, the VAT growth and INF rates were regressed against GNI growth rates and produced an approximated R-square of 0.1597, adjusted R-square of -0.0803 which shows that the goodness of fit on the probability plot and also known as 'coefficient of determination' is not a strong fit of the variable on the regression line. Thus, only 15.97% of GNI variable is explained by variable VAT and INF.

Similarly, the p-values at 95% confidence level show that VAT, INF against GNI growth rates are insignificant. Therefore, this study does not reject the null hypothesis and agrees that VAT and INF do not have a relationship with gross national income at p-value of 0.32317786 and 0.611213995 which are greater than α=0.05.

4.3. Summary of hypothesis and findings

The results of the regressed data from 4.2.1 can be concluded that VAT has a significant (positive) effect on GDP nominal values from years 2011-2020 (quarterly). A total of 40 observations where observation 1-4 represented quarter 1-4 of the year 2011, 5-6 of the year 2012 and continues like this to 2020. This study has empirically proven that although big countries like the USA only uses sales tax, VAT for developing or emerging market like Nigeria is significant vis-à-vis proper management processes and consistent tax system policies. Among many demerits, VAT is an expensive system to run, tedious complexities and calculations, and its unique regressive nature. For a country like Nigeria that is slowly withdrawing from petroleum and the likes, VAT is a viable option expendable to suit its ever-growing budgets and weak infrastructural developments. Therefore, the importance of this internal generated revenue for Nigeria despite its demerits increases its sustainability away from heavy dependence on crude oil and its products to the less solitary source to multi-sourced income from all milking sectors like agriculture, commerce and industry as well as Information technology.

Additionally, GNI and VAT were matched against their growth rates compared to how much one variable- GNI grows more or less to VAT and vice versa. Therefore, the summary of the hypothesis tested for this study are summarised below:

Table 9. Summary of Hypothesis

	Hypothesis	Null/Alternative	Results
1	There is no relationship between VAT and economic growth	H0	Rejected
	There is a relationship between VAT and economic growth	H1	Not Rejected
2	There is no relationship between GNI and VAT	H0	Not Rejected
	There is no relationship between GNI and VAT	H1	Rejected

Source: author's summation based on discussion above

5. CONCLUSION AND LIMITATION

5.1. Conclusion

This study examined VAT in Nigeria from both a holistic and empirical point of view to analyze its effect positive or negative on economic growth. This was examined in two parts from the GDP and GNI nominal values. GDP represented the total monetary value of goods and services produced in Nigeria within the periods of 2011 and 2020. GNI represented the GDP plus foreign remittances factored less non-citizens' earnings within Nigeria. Since VAT is remitted to the government through goods and services, GNI and GDP were selected as dependent variables, suitable for this study.

The recent increase in VAT rates has been examined as one of the essential elements of this study and the need for increase in subsequent years is imperative. Since the country is speedily drifting away from oil to non-oil revenue generating sources, this study showed that VAT and GDP have a strong correlation and most importantly have a positive relation with GDP. The study was uniquely structured from VAT's perspective that included input and output tax. Companies generate taxes in both forms for the government and although these cannot be generated from each company and enterprise including foreign and border shipping etc., the VAT remitted to the government is retrieved from reliable sources as shown in the study.

Additionally, during the study, it found that the administrative tax system of the country has several loopholes and evasions was possible especially from the informal sector that keeps rising. To increase VAT revenue generated within and outside Nigeria, a detailed database on input tax by all registered companies and output tax to final consumers should be implemented so these companies could auto-remit to the government digitally. This will help in fishing out tax evaders and hopefully highlight the companies that are trading (or unregistered) illegally. A high education on benefits of taxes for both payees and the government should be pursued by Nigerian stakeholders like wildfire

and successive management of revenues received should also be transparent but utilised efficiently and essentially for social amenity provisions and welfare.

5.2. Further studies and limitation

The study viewed economic growth from GDP and GNI values but could be expanded to other measures order than influence of inflation and VAT. For example, CPI index, human capital, population, VAT policies and technology could all be explored simultaneously or independently against GDP and GNI to view how VAT affects economic growth.

Additionally, other methods order than linear regression could be adopted in order to empirically estimate the actual extent to which VAT affects economic growth in addition to inflation and other factors.

The major limitation for this study was retrieving data from unitary source. Although each value from the data was retrieved from reputable sources, it would have been advantageous to retrieve from a unitary source like CBN or FIRS. Time constraint was also a contributing limitation to the study.

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APPENDICES

Appendix 1. Annual values of GDP, VAT, and INF in Nigeria from 2011-2020

	GDP				VAT				INF			
Years	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
2011	14,501,448.14	15,054,961.20	16,163,642.18	17,260,345.71	32,414,855.12	51,181,350.18	51,181,305.18	35,826,945.13	12.00%	11.30%	9.67%	10.43%
2012	16,450,359.58	17,743,632.52	18,521,600.56	18,998,342.40	55,663,834.79	58,632,118.78	46,638,664.79	48,335,199.01	12.20%	12.83%	11.93%	12.00%
2013	18,295,631.91	19,931,015.71	20,464,395.99	21,401,519.78	119,510,261.28	119,510,261.28	114,917,804.03	127,832,030.69	9.03%	8.83%	8.33%	7.90%
2014	20,169,778.04	21,734,829.86	22,933,144.01	24,205,863.34	127,048,638.31	121,484,295.59	116,884,409.96	128,537,024.19	7.83%	8.03%	8.37%	8.00%
2015	21,041,701.10	22,859,153.01	24,313,636.94	25,930,469.41	196,706,892.87	191,028,215.47	192,529,339.43	179,168,248.57	8.36%	8.96%	9.30%	9.41%
2016	22,235,315.29	23,547,466.91	26,537,651.01	29,169,058.99	186,428,175.95	187,028,119.70	196,695,180.63	207,353,219.85	11.26%	15.26%	17.53%	18.45%
2017	26,028,356.03	27,030,250.47	29,377,674.03	31,275,354.08	221,380,461.52	246,303,322.47	250,560,689.06	254,103,934.48	17.92%	16.53%	16.01%	15.73%
2018	28,438,604.23	30,699,566.80	33,368,049.14	35,230,607.63	269,739,776.06	266,731,764.17	273,504,620.53	298,010,405.44	14.27%	11.77%	11.22%	11.33%
2019	31,824,349.67	35,001,877.95	37,806,924.41	39,577,340.04	289,038,337.45	311,943,065.87	275,116,219.97	305,097,116.97	11.31%	11.33%	11.11%	11.81%
2020	35,647,406.08	34,023,197.60	41,821,446.04	43,564,006.29	324,579,124.65	327,195,289.09	424,708,184.45	454,698,051.01	12.20%	12.43%	13.26%	14.96%
All GDP values are in Billions of Naira. Source: CBN (2021), NairaMetrics (2021)					All VAT values are in millions figures. Source: NBS (2015) (2018); (2020)							

Source: GDP values retrived from CBN(2021) and Nairametrics(2021), VAT values retrived from NBS (2015,2018 &2021) and Inflation retrived from OECD's statistics (2020)

Table 12. Extract of GDP, VAT, and Inflation of Nigeria from 2011 – 2020

Observation	Year	Quarter	GDP	L_GDP	VAT	L_VAT	INF
1	2011	1	14,501,448.14	7.1614	32,414,855.12	7.5107	0.1200
2		2	15,054,961.20	7.1777	51,181,350.18	7.7091	0.1130
3		3	16,163,642.18	7.2085	51,181,305.18	7.7091	0.0967
4		4	17,260,345.71	7.2370	35,826,945.13	7.5542	0.1043
5	2012	1	16,450,359.58	7.2162	55,663,834.79	7.7456	0.1220
6		2	17,743,632.52	7.2490	58,632,118.78	7.7681	0.1283
7		3	18,521,600.56	7.2677	46,638,664.79	7.6687	0.1193
8		4	18,998,342.40	7.2787	48,335,199.01	7.6843	0.1200
9	2013	1	18,295,631.91	7.2623	119,510,261.28	8.0774	0.0903
10		2	19,931,015.71	7.2995	119,510,261.28	8.0774	0.0883
11		3	20,464,395.99	7.3110	114,917,804.03	8.0604	0.0833
12		4	21,401,519.78	7.3304	127,832,030.69	8.1066	0.0790
13	2014	1	20,169,778.04	7.3047	127,048,638.31	8.1040	0.0783
14		2	21,734,829.86	7.3372	121,484,295.59	8.0845	0.0803
15		3	22,933,144.01	7.3605	116,884,409.96	8.0678	0.0837
16		4	24,205,863.34	7.3839	128,537,024.19	8.1090	0.0800
17	2015	1	21,041,701.10	7.3231	196,706,892.87	8.2938	0.0836
18		2	22,859,153.01	7.3591	191,028,215.47	8.2811	0.0896
19		3	24,313,636.94	7.3858	192,529,339.43	8.2845	0.0930
20		4	25,930,469.41	7.4138	179,168,248.57	8.2533	0.0941
21	2016	1	22,235,315.29	7.3470	186,428,175.95	8.2705	0.1126
22		2	23,547,466.91	7.3719	187,028,119.70	8.2719	0.1526
23		3	26,537,651.01	7.4239	196,695,180.63	8.2938	0.1753
24		4	29,169,058.99	7.4649	207,353,219.85	8.3167	0.1845
25	2017	1	26,028,356.03	7.4154	221,380,461.52	8.3451	0.1792
26		2	27,030,250.47	7.4319	246,303,322.47	8.3915	0.1653
27		3	29,377,674.03	7.4680	250,560,689.06	8.3989	0.1601
28		4	31,275,354.08	7.4952	254,103,934.48	8.4050	0.1573
29	2018	1	28,438,604.23	7.4539	269,739,776.06	8.4309	0.1427
30		2	30,699,566.80	7.4871	266,731,764.17	8.4261	0.1177
31		3	33,368,049.14	7.5233	273,504,620.53	8.4370	0.1122
32		4	35,230,607.63	7.5469	298,010,405.44	8.4742	0.1133
33	2019	1	31,824,349.67	7.5028	289,038,337.45	8.4610	0.1131
34		2	35,001,877.95	7.5441	311,943,065.87	8.4941	0.1133
35		3	37,806,924.41	7.5776	275,116,219.97	8.4395	0.1111
36		4	39,577,340.04	7.5974	305,097,116.97	8.4844	0.1181
37	2020	1	35,647,406.08	7.5520	324,579,124.65	8.5113	0.1220
38		2	34,023,197.60	7.5318	327,195,289.09	8.5148	0.1243
39		3	41,821,446.04	7.6214	424,708,184.45	8.6281	0.1326
40		4	43,564,006.29	7.6391	454,698,051.01	8.6577	0.1496

Source: (VAT): NBS (2015), (2018), (2020) (VAT values are in millions of ₦); Source (GDP): CBN (2021), NairaMetrics (2021), All GDP values are in Billions of ₦; Inflation values are expressed in decimals/percentages from CBN (2021), (2015), (2013). L_GDP and L_VAT values were computed by Researcher

Appendix 2. Dependent and independent variables

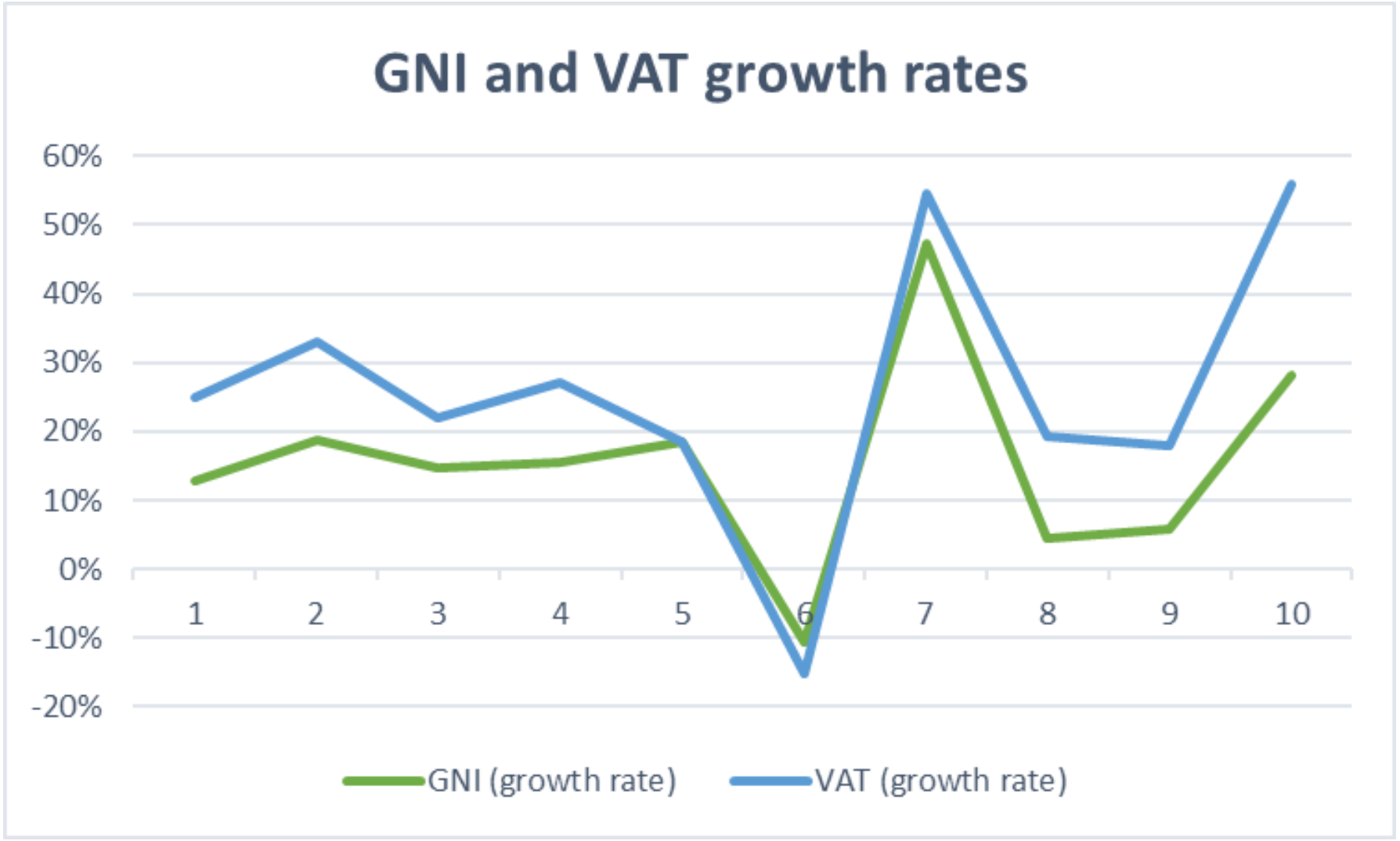
2.1. Part A – Regressed and undifferenced

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.954588651							
R Square	0.911239493							
Adjusted R Square	0.906441628							
Standard Error	2365660.104							
Observations	40							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	2	2.12578E+15	1.06E+15	189.926	3.4839E-20			
Residual	37	2.07065E+14	5.6E+12					
Total	39	2.33285E+15						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	12858946.68	1555215.676	8.268272	6.24E-10	9707780.395	16010113	9707780	16010113
VAT	0.068726932	0.003789266	18.13727	5.31E-20	0.061049149	0.076405	0.061049	0.076405
INF	-501979.6439	13749815.29	-0.03651	0.971073	-28361751.75	27357792	-2.8E+07	27357792

2.2. Part B - First difference regressed

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.724284							
R Square	0.589728							
Adjusted R Square	0.669355							
Standard Error	0.007855							
Observations	39							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	2	0.013920518	0.00696026	1.128034452	0.006334841			
Residual	36	0.222129137	0.00617025					
Total	38	0.236049655						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	0.161157	0.05186446	-2.5555027	5.77994E-07	-0.089070254	0.121302	-0.08907	0.121301745
Df_VAT	0.089959	0.06246956	-1.6905527	1.58497E-05	-0.216652779	0.036736	-0.21665	0.0367355
INF	0.154679	0.425000014	0.36394944	0.718024646	-0.707261462	1.016618	-0.70726	1.016618493

2.3. Part C- GNI and VAT growth rates



2.4. Part D-GNI, VAT and Inflation

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.399621
R Square	0.159697
Adjusted R Square	-0.08039
Standard Error	0.158596
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	0.033461068	0.016731	0.665162	0.543909116
Residual	7	0.176067862	0.025153		
Total	9	0.20952893			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	-0.0267	0.237501185	-0.11244	0.913633	-0.588304977	0.534897	-0.5883	0.534897
VAT (growth rate)	0.640153	0.602355005	1.06275	0.323178	-0.784190426	2.064496	-0.78419	2.064496
INF	0.993562	1.867746619	0.531957	0.611214	-3.42295717	5.410081	-3.42296	5.410081

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