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Fiscal Policy and Economic Development in Nigeria

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Abstract

The effect of fiscal policy on Nigeria's economic growth is the focus of this research. It zeroes attention on the effects of government spending and taxation on literacy rates and per capita income separately. The analysis was conducted using annual time series data that spans from 1981 to 2022. One method that was used to analyse the data was Ordinary Least Square (OLS). Revenue from taxes and inflation had a negative and substantial effect on per capita income, whereas government aggregate expenditure and population growth were found to have a positive and significant impact. The results also demonstrated that tax income had a negative and statistically significant effect on the literacy rate, whereas government aggregate expenditure and population growth had a significant positive effect. Another finding indicated that the literacy rate in Nigeria was significantly and negatively affected by gross fixed capital accumulation. When it comes to driving income growth and economic development, the government should prioritise growing investment in critical productive areas like infrastructure, education, healthcare, and social services. The government should also make sure that investments in educational development—like building schools and information and communication technology facilities—support capital expenditures, and that tax rules are revised to make them easier on families with school-aged children.

Keywords: *Tax Revenue, Government Spending, Per Capita Income, Literacy Rate, Healthcare.*

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Background to the Study

According to Vanek (2024), Nigeria's economy has slipped from being the largest in Africa in 2022 to the fourth largest in the world. More than 200 million people call this country home, making it the most populous Black nation in the world. Economic prosperity and well-being have been enhanced by the nation's resource base, which consists of petroleum, solid minerals, and agriculture. Raising people's level of living is the ultimate goal of economic development. The objectives of economic development include raising real incomes, extending life expectancy, improving healthcare and education access, and decreasing poverty. Growth in per capita income, unemployment rate, development of human capital, and poverty are important macroeconomic indicators linked to economic development (Guardian, 2023; Nwachukwu, 2023).

A country's or region's per capita income indicates the average amount of money that each individual makes within that country or region. The standard of living and quality of life of a people can be evaluated by looking at their per capita income, which measures the average per person income (Kenton, 2024). Having the means to engage in gainful employment, whether as an employee or a self-employed individual, is one definition of employment. People, especially the impoverished and disadvantaged, benefit economically, socially, and psychologically by having jobs because they give a steady stream of income, which in turn increases their sense of self-worth and confidence. Guaranteed employment programs and crisis institutions' palliative interventions are examples of how social protection encourages employment.

Links between employment enhancement and social protection channels include unemployment insurance, microfinance system support, growth promotion for small and medium-sized enterprises, pension support based on age or retirement, regulations pertaining to hiring and firing, and unconditional income assistance for those who are poor and unable to work (United Nations Development Programme - UNDP, 2013). On the other hand, investing in people is the key to a country's economic and social success. Because human skill and technology are complementary, an economy will not benefit from technological advancements unless human capital is developed.

The development of human capital can be attained through both certified methods, such as those obtained through formal education, and non-certified methods, such as knowledge acquired through on-the-job training. A person's health care costs and other intangibles like their education, work history, and expertise are all part of human capital development. There are several advantages to investing in human capital development, including improved health and higher revenues. Human capital is an asset that may be enhanced by investments in healthcare, education, and training (Nickolas, 2019). Government macroeconomic measures, such as fiscal policy, can impact an economy's development process.

The government's spending and tax policies are part of fiscal policy. The primary tools of fiscal policy include taxation, government spending, and the management of public debt or surplus

(Olweny & Chiluwe, 2012). Any time the government takes a cut of an individual's or company's earnings or adds a percentage to the price of a good or service in order to fund its operations, that's called a tax. When tax rates go up or down, people have more money in their pockets, which influences economic activity like consumption and investment. However, both the pattern and the component of output are affected by government expenditure. There are two main types of government spending: operating expenses and investments (Nchege, Aduku, Idika & Nwosu, 2019). Salaries, wages, and fringe benefits are examples of recurrent expenditures. The government also spends money on administration, defence, and social services like education, health, and pension plans, as well as on servicing activities. In contrast, capital expenditures are the money the government spends to build new things like institutions, services, and projects. Government spending on infrastructure includes things like roads, factories, schools, and the tools needed to run social and economic programs (Weinstock, 2021; Marioli, Fatás, & Vasishtha, 2023).

Effective fiscal policy fosters infrastructure, social services, and macroeconomic stability, which in turn produce an environment that is conducive to sustainable economic development. This is the connection between fiscal policy and economic development. Fiscal policy that is not well-managed has the potential to impede economic progress by leading to inflation, enormous debt, and economic stagnation. For instance, fiscal policy can help reduce income inequality by redistribution of wealth through fair taxes and targeted social programs.

Reducing income disparities is one-way governments can foster more equitable and long-term economic growth, which in turn can reduce social unrest and increase economic stability. Fiscal policy also helps keep the economy stable by balancing out economic cycles, lowering inflation, and controlling the national debt. In times of economic recession, the government may use expansionary fiscal policy, which entails more spending, to stimulate the economy, and in times of economic boom, it may use contractionary fiscal policy, which entails more taxes or expenditure, to prevent the economy from becoming too hot. A better adoption of new technology that can promote economic growth is another potential benefit of public investment in education (Weinstock, 2021; Marioli, Fatás, & Vasishtha, 2023).

Statement of the Problem

In an effort to stabilize the economy, improve infrastructure, raise per capita income, decrease poverty, and foster human capital development, fiscal policymakers in Nigeria have launched a slew of programs meant to spur economic growth. Fiscal policy is one example of this type of policy. Efforts to reorganise government spending have been ongoing for some time. To foster an environment conducive to rapid economic development, Nigeria has done a number of things, including rationalise government expenditure, reallocate funds to prioritise development expenditure, improve prudent government expenditure management, and limit the growth of less productive expenditure. A few examples of recent progressive tax initiatives are the Finance Act, which offers tax holidays, lower corporate tax rates, improvements to the Value Added Tax (VAT), incentives for small firms, and more. In order to alleviate the financial strain of gasoline subsidies, Nigeria has reduced or eliminated them as part of its

subsidy reforms, which aim to reallocate funds towards economic development initiatives. The goal of this controversial but economically vital action is to reinvest tax dollars in social programs and infrastructure. The Treasury Single Account (TSA) is one program that aims to consolidate government funds in order to reduce waste and leaks. The efficient and effective use of public funds and the prevention of their misappropriation are the goals of recent public procurement regulations.

Inadequate investment in human capital, extreme inequality, and widespread poverty plague Nigeria's economy, although decades of fiscal policy initiatives aimed at improving it. Inequality in Nigeria's income distribution is on the rise. More than four million individuals were living in poverty during the first two quarters of 2023, as reported by ThisDay (2023). By 2021, Nigeria's GDP per capita had fallen to $2,066—a decrease of 0.43% from the previous year. Nevertheless, GDP per capita jumped 5.74 percent from 2021 to 2022, reaching $2,184 (Macrotrends, 2024). Human capital development is another area where Nigeria falls short when compared to other developing nations. The country's human capital development ranks are among the lowest globally, and things seem to be getting worse. Olaopa (2023) reports that out of the world's 8.5% school-aged children, 33% are not in school. This amounts to around 11.5 million youngsters. The country's human capital crisis is evident in this. The unemployment rate in Nigeria has also been high for many years and shows no indications of going down. In 2022, the unemployment rate stood at 37.7 percent, and in 2023, it was projected to rise to approximately 40.6%. It is clear from Nigeria's increasing unemployment rate that the country is falling more into poverty. These and other factors have raised questions regarding how fiscal policy influences economic growth.

The impact of fiscal policy on economic development has been thoroughly investigated in empirical studies (Ekong, Orebiyi & Iriabije, 2024; Onabote, Ohwofasa, & Ogunjumo, 2023; Oruku, Mumen, Ale, Chukwuto, & Uzor, 2023; Ukangwa, Wolugbon, Nwanosike, Ekpendu, Onwuka, & Nzelu, 2023). There is a dearth of empirical evidence on how fiscal policy tools (total tax revenue, total government expenditure) affect per capita income and human capital development in Nigeria, in contrast to the wealth of literature documenting the empirical relationship between fiscal policy and other macroeconomic indicators of economic development. Previous research has addressed a variety of issues, including the relationship between fiscal policy and real GDP, the effect of government borrowings on economic growth, and the effect of external debt on inclusive growth. This research aims to fill a vacuum in the existing literature by studying how fiscal policy affects economic development in Nigeria. It will focus on per capita income and human capital development as its primary indicators.

Furthermore, a good way to expedite development for Nigeria is to empirically determine the role of fiscal policy on economic growth. This will ensure that the country is prepared to become one of the world's largest economies. It is worth considering whether the fiscal policy measures taken by the government have a favourable effect on economic development indicators. In this context, the research is being conducted.

Study Objectives

The overarching goal of this research is to analyse how fiscal policy has affected Nigeria's economic growth. To be more precise, we want to:

i. Learns how tax revenue and government spending affect Nigerians' per capita income
ii. To analyse how revenue from taxes and overall government spending affects the literacy rate in Nigeria

Conceptual Literature

Fiscal Policy

When the government changes the amounts and distributions of taxes and government spending, it is implementing fiscal policy. This policy aims to stabilise the economy. Amadeo (2018) explains that fiscal policy is the process by which the government manipulates aggregate demand and other macroeconomic activity by altering taxation and government spending levels. Fiscal policy was described by Hayes (2023) as the use of government spending and tax policies to influence the state of the economy as a whole. According to Bennett (2023), fiscal policy encompasses a wider range of actions taken by governments to impact and accomplish economic policy goals through the employment of tax instruments, public expenditure, and public borrowing. According to Alkasasbeh and Haron (2018), taxation and government spending constitute fiscal policy. Taxation, government borrowing, and spending actions designed to influence the macroeconomy was characterised by the CFA Institute (2023). Fiscal policy is defined as the use of government spending, taxes, and public debt to influence the performance of the industrial sector in this study, following Bennett (2023) and the CFA Institute (2023).

Any money that the government spends is considered government spending. Among the many types of government spending are transfers and consumption. When the government gives money to private companies, this is called a transfer. Among the many forms of transfers are those for pensions, unemployment insurance, and company subsidies. Spending on products and services accounts for the bulk of consumer expenditure. In order to fund governmental operations and accomplish other macroeconomic goals, the government or its relevant agency levies a mandatory charge on taxable persons, entities, and organisations. Businesses, partnerships, and individuals are all subject to this mandatory tax, which is paid to the government out of their earnings, assets, and assets. Taxation is the process by which the government, or its agents, compel its subjects or citizens to pay a certain amount out of their earnings, revenue, or consumption. Taxation is seen as a tool to affect the efficiency of the manufacturing sector, according to this research.

In addition, fiscal policy can either expand or decline. Increasing overall economic activity is the goal of expansionary fiscal policy. The government can achieve this by increasing expenditure or decreasing taxes, or even both. Conversely, the goal of contractionary fiscal policy is to reduce overall economic activity. Reducing aggregate demand is part of this process. Government spending (G) will be reduced and/or taxes will be raised as a result. Amadeo (2018) argues that a drop in aggregate demand is inevitable as a result of higher taxes on consumers.

Economic Development

Economic growth is just one component of a country's development; other important aspects include improvements in people's access to healthcare, education, nutrition, leisure activities, and overall quality of life (Feldman, Hadjimichael, Kemeny, & Lanahan, 2016). Economic growth is the act of raising standards, according to Malizia (2000). Significant improvements or attainments in human capital, per capita income, etc., lead to economic growth. Economic development is characterised according to Feldman, Hadjimichael, Kemeny, and Lanahan (2016) for the sake of this research. In its current form, capabilities are described as circumstances that encourage a range of intermediate outcomes, each one of which might lead to the actualisation of capabilities or potentials. A country's economy is said to have developed when it goes through a major shift. Indicators like human capital development and GDP per capita are commonly used to measure economic development.

As a ratio of population to GDP, per capita GDP is calculated. Gross domestic product divided by total population. It also aims to alleviate poverty by raising real incomes, life expectancies, standards of living, and access to excellent healthcare and education. Conversely, according to Chen (2023), persons are considered to be living in poverty if they do not have access to adequate financial resources and other fundamental necessities. A comparable description is given by the Economic Times (2023) as a situation in which a person or group does not have access to basic essentials, such as money.

Human capital refers to a person's health, knowledge, abilities, and skills that they acquire and invest in throughout their lives. It enables individuals to become fully functional members of society. Development of human capital, on the other hand, is the act of acquiring and increasing a population's stock of knowledge, abilities, and experience—the building blocks of a prosperous economy (Nwachukwu, 2024). Human capital is the sum of an organization's employees' expertise, experience, and training. No other species possesses the unique combination of intelligence, flexibility, imagination, and originality that humans have. In order for individuals to thrive in the modern job market and make meaningful contributions to economic growth, human capital development is crucial (Bartolucci, Pennoni, & Vittadini, 2023; Febriyanti & Ihsani, 2019). Tax and spending decisions made by the government affect resource allocation, income distribution, investment, and macroeconomic stability, all of which are important for economic growth. This is why fiscal policy is seen as having a direct impact on economic development. Important for economic growth are fiscal policy decisions like taxation and government spending, which affect investment, income distribution, and the distribution of resources.

Theoretical Literature

Theories Related to Fiscal Policy

Wagner's Theory of Increasing State Activities

In 1876, the German economist Adolph Wagner put forth Wagner's Theory of Increasing State Activities, most often referred to as Wagner's Law. This theory dates back to the late nineteenth century. Using data on government spending growth and public sector size,

Wagner developed his theory of increasing public expenditures. According to popular belief, the proportion of a country's GDP attributable to the public sector increases with time in progressive nations. Wagner's theory, as stated by Chude & Chude (2013), proposes the following:

i. More government spending on economic administration and regulation results from states' expanded functions
ii. As industrial society progresses, there will be more political pressure for social progress, which means that economic development measures will need to take social considerations into account more heavily.
iii. The public sector will grow relative to private sector organisations because rising public spending exceeds increases in national revenue (income elastic wants).

According to Wagner (1999), government spending is positively correlated with per capita income, to the point where the income elasticity of government spending is consistently higher than one. A different school of thought has shown that this isn't necessarily the case; in fact, there are times when government spending as a percentage of GDP falls when income is inelastic, meaning it's less than one (Chude & Chude, 2013).

Musgrave and Rostow's Development Model

Economists Richard Musgrave and Walt Rostow established the Musgrave and Rostow Development Model in the 1960s. Separately, economist Musgrave and economic historian Rostow proposed a possible relationship between a society's pattern of economic growth and development with the expansion of governmental expenditure. At the beginning of a society's development, there is a need to spend a lot of money on things like education and infrastructure (also called social overhead capital). At this point in time, private savings aren't enough to cover these costs, so the government has to spend a lot of money relative to total output. Then, there's a period of fast growth, when private savings go up and public investment goes down. Lastly, in high-income societies, where demand for private goods goes up, complementary public investment is necessary, like the automobile and urbanisation. Education is becoming an investment excellent for society overall due to the growing need for skilled labour in high-income nations. The growth of urban slums is a direct result of the increased mobility of people. Public spending as a percentage of GDP rises for the same reasons and more (Chude & Chude, 2013).

Theories of Growth and Industrial Development

Structural-Change Theory or Structuralism

In the 1950s and 1960s, Structuralism, also known as the Structural-Change Theory, came into its own as a theory of development. This method was created by a number of economists, including W. Arthur Lewis, Hans Singer, and Raúl Prebisch. The primary idea behind this theory is that developing nations can undergo a structural shift towards a more modern, urbanised, and industrially diversified manufacturing and service-based economy by the application of appropriate policies (Hussain, 2007). All nations go through a similar developmental process known as development, according to the structural-change theory

(Todaro & Smith, 2009). Many elements, such as government regulations, the availability of foreign finance, technological advancements, etc., impact the development process, including its rate and pattern. W. Arthur Lewis's "two-sector surplus labour" hypothesis and Hollis Chenery's patterns of development empirical study are two prominent versions of the structural-change theory.

The sequential process that will lead to the alteration of the country's economic, industrial, and institutional structure over time to bring about industrialisation is the focus of Hollis Chenery's analysis of the pattern of development. According to Hollis Chenery, saving and investing are prerequisites for industrial transformation, but they are not enough on their own to spur economic growth and progress. The shift to industrialisation necessitates a number of interconnected structural changes in the economy, including the accumulation of capital (both physical and human), among other things (Todaro & Smith, 2009). A country's socioeconomic factors, such as its rate of urbanisation and population growth and distribution, as well as its production methods, consumer demand patterns, resource utilisation, and international trade undergo structural changes as a result of industrialisation (Todaro & Smith, 2009).

Rostow's Stages of Growth Theory

American economist Walt W. Rostow proposed his theory of economic growth stages in 1960. His non-communist manifesto, "The Stages of Economic Growth," is where the theory was first proposed. According to Rostow's phases of growth theory, there is a predetermined path that every nation must follow in order to progress from a state of underdevelopment to one of development. There is a traditional society, a period of preparation for takeoff, the actual takeoff, a period of maturity, and finally, an era of heavy mass consumerism. Among these steps, takeoff is the most important. Developing nations would go from a condition of underdevelopment to one of development at this point (Todaro & Smith, 2009).

Innovation is not a regular feature of economic development in the stage of traditional civilisation because the progress of science and technology is seen as inadequate to bring about innovation. However, innovation does occur. The result is a ceiling on productivity growth and persistently low income per capita. Capital accumulation is low and methods of production and economic organisation are subject to change from one generation to the next. In the lead-up to takeoff, unease develops and previous secure beliefs are severely tested. At this point, the export of agricultural or raw commodities paves the way for the import of capital goods, which in turn mark the modernisation of agriculture. These will increase the overall amount of capital available. This is the point when a functional nation-state forms and commercial institutions take root (Parr, 2001). More than one prominent industrial sector emerges throughout the takeoff to sustained growth. It may be a field that uses technology to improve related growth areas via both forward and backward connections (Parr, 2001). In the long run, this would boost the economy as a whole by creating growth sectors. If we want to get off the ground, we need to mobilise savings both at home and abroad so we can generate enough investment to drive economic growth.

The leading sectors of the economy appear to slowdown in growth rate while other leading sectors gain prominence throughout the drive to maturity stage. By this point in the economy's development, cutting-edge manufacturing techniques are commonplace throughout various industries, not just the ones at the forefront of the take-off phase. In fact, these processes are often more technically advanced than those used in the earlier stages. Raising the individual's degree of education facilitates this growth. Societies take economic growth—and the inevitable disruptions and significant social and economic changes it brings—very seriously (Parr, 2001). Attaining maturity brings about a substantial increase in economic excess, ushering in the era of high mass consumption. At this point in time, the importance of services in the economy, such as housing, consumer durables, education, recreation, and healthcare, is growing (Parr, 2001). Despite an emphasis on some implications for production, this stage is mostly focused with consumption.

Scholars have panned Rostow's phases hypothesis. In order for Rostow's phases theory to be taken seriously, a number of prerequisites must be met, as pointed out by Parr (2001) in continuation of Kuznets (1963). In order to meet these standards, an economy must have the following features: a shared set of traits with all economies in the same modern growth stage; a set of traits that are exclusive to a given stage when taken as a whole; and a list of the bare minimum of development that must occur before a stage ends. Among the many theories of economic development, Rostow's phases theory remains popular despite its detractors.

The Neoclassical Growth Theory

Nobel laureate economist Robert Solow originally proposed the neoclassical growth model—also known as the Solow-Swan model—in 1957. Since the capital-to-labor ratio rises and the marginal product of more capital is assumed to fall, the model predicts that sustained increases in capital investment will only boost growth rates in the short term. In the long run, however, the economy returns to its long-term growth path, with real GDP increasing at a rate equal to the workforce plus a factor to reflect improved productivity. The steady-state growth path is achieved when the growth rates of output, capital, and labour are all equal, leading to a constant output per worker and capital per worker. A typical aggregate production function, as proposed by Solow (1957), is the basis of the conventional neoclassical growth model.

$$Y_i = f(K_i, L_i, A_i) \qquad (1)$$

In this context, Y stands for production, K for capital, L for labour, and A for some measure of efficiency or technology. In particular, F exhibits constant returns to scale, diminishing returns to each input, and a positive and constant elasticity of substitution, according to Solow's neoclassical claims. Assuming a fixed savings rate and a fixed depreciation rate, the model's basic dynamic equation links the growth of the capital stock to these two constants. Both human labour and technological advancement occur at exogenous exponential rates. The expansion of this paradigm would inevitably stall in the absence of technical advancement. Nevertheless, the model's formulation is selected in a way that permits

efficiency gains to counteract the effects of diminishing returns to capital. As a result, the economy eventually settles into a steady state where the rate of saving or population increase is the only external variable that affects output and capital per worker. The long-run growth path's level, and not its slope, is affected by changes to these factors.

According to neoclassical economic theory, boosting a country's long-term trend rate of growth necessitates both a larger pool of available workers and higher efficiency in the use of both capital and workers. Assuming that productivity is unrelated to investment in capital, the new-classical model handles productivity advances as an external variable. This model is based on the assumptions that nations make good use of their resources and that the return on investment (ROI) decreases as the quantity of labour increases. The first of the three major assumptions of the Neo-classical model is that an increase in capital relative to labour will lead to economic growth. This is because, with more capital, people are able to be more productive. The second reason is that each investment in capital will yield a larger return than in wealthy countries with plenty of money, which means that impoverished countries with less capital per person will expand quicker. Finally, economies will hit a ceiling where further investments in capital will no longer boost growth, as a result of the law of diminishing returns. A "steady state" can be described as this exact moment.

Empirical Literature

Ekong, Orebiyi, and Iriabije (2024) reviewed the literature and found that fiscal policy had an impact on inclusive growth in Nigeria from 1985 to 2022. We used the ARDL (Autoregressive Distributed Lag) method to examine the data. A positive and statistically insignificant association between government spending on education and infrastructure and inclusive growth (human development index) was discovered over the long term. Additionally, there is a weak and negative correlation between inclusive growth (human development index) and total government expenditure and the ratio of total tax income to GDP. The human development index (HDI) also showed a negative and statistically significant correlation with inequality. Government spending on infrastructure and the ratio of tax income to GDP were discovered to have a negative and statistically significant link with inclusive growth (human development index) in the short run. Another important takeaway is that there is a positive and statistically significant correlation between inclusive growth (human development index), total government expenditure, and education spending.

Focussing on developing economies, emerging markets, and commodity exporters, Marioli, Fatas, and Vasishtha (2024) analysed the fiscal policy volatility in a broad sample of nations. The study's sample years ran from 1990 to 2021. We used VAR modelling to examine the data. Fiscal policy was determined to be more unpredictable in developing and emerging markets compared to developed nations, as well as in commodity exporters compared to non-commodity exporters. From 2001 until 2022, Pugu, Rizani, and Yumame (2024) looked at how fiscal policy affected economic development in border areas. The fixed effect technique was used to analyse the data. Research in border regions revealed that fiscal policy significantly boosted economic development. Fiscal incentives, such as reduced taxes and faster investment in infrastructure, were also determined to effectively increase economic growth.

In 2024, Tala looked at how fiscal policy affected economic growth in South Africa. We looked at data from 1993Q3 all the way up to 2022Q4. To check for cointegration, the data were run through the NARDL bounds test, which stands for non-linear autoregressive distributed lag. A personal income tax was determined to be growth-friendly in the near term. However, both positive and negative shocks to personal income taxes impact GDP in the long run. Additional research showed that even beneficial increases to personal income taxes have a negative impact on long-term economic growth. The plan to increase the economy's GDP will be jeopardised if the personal income tax is raised.

Oyadeyi, O. O., Sani Okunlola, and Ayetigbo (2024). Examined the influence of government expenditure on real economic growth in ECOWAS, with the major aim of examining the moderating role of corruption and conflict from 1999 to 2021. The methods of POLS, FMOLS, and DOLS were used to the data for analysis. Government spending is associated with higher rates of real economic growth. There was an improvement in the efficacy and efficiency of government spending on economic growth when corruption was better controlled, according to the results. Fiscal decentralisation, economic development, and environmental quality were studied in Pakistan by Tunio, Nabi, Dawood & Shaikh (2024). From 1979 to 2019, the study encompassed those years. Two models, autoregressive moving average and structural vector autoregressive (SVAR), were used to analyse the data. A rise in carbon emissions was associated with positive fiscal decentralisation shocks, a fall in emissions was associated with positive expenditure decentralisation and economic progress.

Utilising yearly data from 1986 to 2021, Onabote, Ohwofasa, & Ogunjumo (2023) employed an Autoregressive Distributed Lag (ARDL) Bounds testing methodology to examine the impacts of government sectoral spending on human development in Nigeria. The results showed that there is no significant correlation between government sector spending and human development in Nigeria, either in the short or long run. From 1983 until 2022, Oruku, Mumen, Ale, Chukwuto, and Uzor (2023) looked at how fiscal policy affected Nigeria's economic growth. Ordinary Least Squares regression was used to analyse the data. Fiscal policy variables were determined to have negative coefficients, as predicted by economic theory, but they were determined to have no discernible effect on GDP. From 1995 to 2018, Tran (2023) used the vector autoregression (VAR) model to look at how much money ASEAN countries spent on education compared to their GDP growth. The study's favourable correlation between government spending on education and GDP growth highlights the significance of high-quality education in achieving long-term literacy goals.

The effect of government spending on GDP growth in Nigeria was studied by Ukangwa, Wolugbon, Nwanosike, Ekpendu, Onwuka, and Nzelu (2023). The time spans that were included in the study were 1990–2021. The analysis of the Johansen co-integration test was used in the study. Public debt (PDBT) and tax income (TAX) were discovered to have a negative correlation with GDP, whilst total government expenditure (TGE) had a positive correlation with GDP; and a linear link between these three variables was also discovered. Additionally, fiscal policy and economic growth did not co-integrate, suggesting that their long-term relationship is fragile.

The effect of fiscal measures on inclusive growth in Turkey during 2006-2018 was studied by Avci & Tonus (2022). Using yearly data, Autoregressive Distributed Lag (ARDL) Bounds models were used to examine the impact of public health, education, transfer spending, and indirect taxation on inclusive growth. During the time period under review, with the exception of 2009, the results showed that Turkey saw more inclusive growth. Between 1986 and 2017, Okere, Uzowuru, and Mbaeri (2022) examined the effect of fiscal policy on human development in Nigeria using an Autoregressive Distributed Lag (ARDL) Bunds testing technique. Fiscal policy was positively and significantly associated with Nigeria's Human Development Index, according to the study. While the study did find a positive correlation between recurrent expenditure and Nigeria's human development index, the correlation between capital expenditure and the score was weak. Additionally, the results showed that tax revenue was negatively associated with Nigeria's human development index, although this link was not statistically significant.

In Pakistan, Abbadi, Olabi, Owida, and Abu-Shokor (2021) looked at how several tools of fiscal policy—including current and capital expenditures, tax and non-tax income, foreign aid, and value-added tax—impacted GDP growth. Multiple regression analysis was used to examine data that spanned the years 1996 to 2018. Results showed that tax and non-tax revenue negatively affected economic growth, whereas current and development expenditure positively affected growth. Additionally, it was determined that in order to keep growth rates high, the government required to allocate spending between current and development expenditures, or increase the share of development expenditures. From 2015 through 2019, Joel and Onuora (2021) analysed the effect of fiscal policy on GDP growth in Nigeria. The Ordinary Least Square method was employed for the data analysis. A favourable and statistically significant correlation was seen between corporate income tax (CIT) and GDP expansion. Government spending and GDP growth were also shown to have a weak and negative correlation in the study.

Between 1985 and 2020, Ikharo-Kadiri (2021) examined the effect of tax policy on inclusive growth in Nigeria using an Autoregressive Distributed Lag (ARDL) model. Using HDI as a measure of inclusive growth, the structural coefficients of the tax factors were uncovered by the long-run ARDL results. At the 5% level, the results showed that HDI was negatively and statistically significantly affected by corporate income tax. At the 1% level, value-added tax has a negative and statistically significant impact on inclusive growth. The oil profit tax has a devastating effect on inclusive growth at 5%. Capital expenditure has a positive, albeit small, effect on GDP, but recurrent expenditure has a negative effect, according to Onifade et al. (2020) who used the ARDL model with data from 1981 to 2017 in Nigeria. The results of these studies support the assertion made by Barro's (1990) endogenous model, which states that productive expenditures can raise the rate of economic growth and level production in the short and long term.

Between 1994 and 2018, Obaretin and Uwaifo (2020) examined the effect of VAT on the HDI in Nigeria. Data for the study came from the UN Data Bank and the Federal Inland

Revenue Service; researchers used a longitudinal methodology. The results demonstrated that VAT significantly and positively affected HDI in Nigeria, as estimated using the Autoregressive Distribution (ARDL) regression method. The results demonstrate that the country's human development indices improve over the given time period after VAT is implemented and collected. From 1981 to 2016, the effects of fiscal policy on the performance of the Nigerian economy were examined by Aliyu et al. (2019). The Cointegration and Error Correction model was used to examine the yearly time series data that was collected for the study. Fiscal policy had a small effect on GDP growth in Nigeria during the research period, according to the results.

Ideh (2019) used the ARDL method to look at the correlation between different parts of tax income and GDP growth in Nigeria from 2003–2017. The results showed that a large portion of Nigeria's tax revenue came from petroleum profit taxes. However, there was a negative correlation between these taxes and real GDP and HDI, suggesting that the money wasn't going towards building the infrastructure that would help the country's economy grow. Using an error correction model, Imide and Imoughele (2019) looked at how fiscal policy affected Nigeria's HDI from 1999 to 2016. There was a long-run association between HDI and several fiscal policy variables over the time period, according to the results. Additionally, the study discovered that domestic debt and taxes, which are fiscal policy factors, significantly affect HDI in Nigeria over the short and long term, while total government expenditure had a little negative effect on HDI over the same time period. This proved that overall government expenditure in Nigeria during the democratic period had no positive effect on the welfare of the people. The effect of external indebtedness on HDI is negative and small.

Between 1986 and 2015, Egungwu (2018) used the Ordinary Least Square (OLS) approach to examine the consequences of an increase in the stock of external debt and its servicing on the growth of human capital. The study's findings showed that the development of human capital was significantly hindered by both the servicing of external debt and the stock of external debt. On the other hand, the effects of external debt borrowed from multilateral creditors and the Paris Club were minimal, while the effects of external debt borrowed from the London Club were negligible at best, and from bilateral creditors, it was significantly beneficial. All of the creditors showed very little improvement, with the exception of London Club, which significantly improved debt servicing.

Researchers Morris, Ozigbu, and Ezekwe (2018) looked at data from 1981–2015 to determine how much of an impact foreign loans from groups like the Paris Club, the London Club, and the Bretton Woods organisations had on reducing poverty in Nigeria. Stock-Watson Dynamic Least Squares (DOLS), Johansen cointegration, and Granger causality were the estimating methodologies employed. The variables are co-integrated at the 5% level, according to the Johansen co-integration test. Poverty in Nigeria is worsened by borrowing from Bretton Woods groups, according to the anticipated co-integration outcomes. Once again, the favourable impact of public debt servicing and loans from the London Club on poverty reduction in Nigeria is assessed to be minor. Nevertheless, the findings showed that

the fiscal policy's impact on Turkey's macroeconomic aggregates from 2003 to 2015 was examined by Karagoz and Keskin (2017). This study used the BVAR (Bayesian vector auto-regression) method. Data analysis revealed that the set of macroeconomic indicators—GDP, external debt, stock market index, inflation, and interest rates—was very unaffected by government revenue and expenditures.

Literature Gap

In conclusion, there is a dearth of empirical data concerning the effects of fiscal policy tools (total tax revenue, total government expenditure) on per capita income and the development of human capital in Nigeria from 1981 to 2023, despite the fact that prior researchers have recorded several conclusions about the empirical relationship between fiscal policy and different macroeconomic indicators of economic development. There is a lot of literature on various topics, such as fiscal policy and real GDP, government borrowings and economic growth, the impact of external debt on inclusive growth, and more (Ekong, Orebiyi & Iriabije, 2024; Onabote, Ohwofasa, & Ogunjumo, 2023; Oruku, Mumen, Ale, Chukwuto, & Uzor, 2023; Ukangwa, Wolugbon, Nwanosike, Ekpendu, Onwuka, & Nzelu, 2023; Okere, Uzowuru, & Mbaeri, 2022; Joel & Onuora, 2021). This research aims to fill a vacuum in the existing literature by studying how fiscal policy affects economic development in Nigeria. It will focus on per capita income and human capital development as its primary indicators. Acquiring an empirical knowledge of the impact of fiscal policy on economic development will help Nigeria speed up its progress towards its objective of becoming one of the world's biggest economies. Some question if the fiscal policy measures taken by the government actually improve economic development metrics. This investigation is carried out in this specific setting.

Methodology

Research Design

This study used a time series approach, sometimes known as a longitudinal research strategy. In order to draw causal conclusions, researchers need a strategy for gathering, analysing, and interpreting time series data. Common to time series research designs are the use of a large number of observations taken at regular intervals from a single topic or research unit.

Source of Data

The data is derived from a variety of sources, including the World Development Indicators (WDI) and the Central Bank of Nigeria (CBN) Statistical Bulletins. The variables listed in the model specification are derived from these sources. The data for per capita income, population growth rate, and literacy rate are from the WDI, while the remaining variables are from the CBN Statistical Bulletins, various issues. The data datasets are annual secondary time series, and they cover the years 1981 to 2023.

Model Specification

One way to conceptualise the relationship between government spending and tax revenue and per capita income is as follows:

$$PERINC = TGEXP, TREV, PGR, INF \qquad (1)$$

Where:
PERINC = per capita income
TGEXP = total government expenditure
TREV = tax revenue
PGR = population growth rate
INF = inflation rate

The econometric model for estimation is presented as:

$$PERINC = a_0 + a_1 TGEXP + a_2 TREV + a_3 PGR + a_4 INF + u_{1t} \qquad (2)$$

Where all the variables remained as defined earlier
u_{1t} = error term

The parameters that need to be estimated are α1, α2, α3, and α4. With the exception of PGR and INF, all of the parameters have favourable a priori expectations. Keep in mind that the first objective is captured by equation (2).

The second purpose is to determine how government spending and tax income affect the literacy rate. To do this, we specify the following function form:

$$LITRAT = TGEXP, TREV, PGR, GFCF \qquad (3)$$

Where:
LITRAT = literacy rate
TGEXP = total government expenditure
TREV = tax revenue
PGR = population growth rate
GFCF = gross fixed capital formation

The econometric model for estimation is presented as:

$$LITRAT = \beta_0 + \beta_1 TGEXP + \beta_2 TREV + \beta_3 PGR + \beta_4 GFCF + u_{2t} \qquad (4)$$

Where all the variables remained as defined earlier
u_{2t} = error term

Definition of Variables in the Model
The term "per capita income" (PERINC) refers to the average amount of money a country's citizens make in a given time frame, usually one year. To get it, take the area's total income and divide it by the population. Consequently, providing a sense of the typical economic prosperity of the nation's inhabitants. When we talk about how much money the government spent in a given time frame, usually a fiscal year, we're talking about total government expenditure, or TGEXP. It encompasses all expenditures made by governments on various public goods and services, including transportation, schools, hospitals, defence, social welfare programs, and office overhead.

Tax Revenue (TREV): A mandatory charge that the government or its relevant agency levies on taxable individuals, companies, and other entities in order to fund governmental operations and accomplish other macroeconomic goals. How Fast a Country's Population Is Increasing: This is known as the Population Growth Rate (PGR). The study takes the rate of population increase as a stand-in for the expansion of the work force because, generally speaking, a larger population usually means a larger labour force. A country's GDP is defined as its Gross Fixed Capital Formation (GFCF), which is the sum of all investments made by its economic units. To rephrase, it is a measure of the annual stock change as well as the net acquisition value of goods and services purchased by businesses and individuals. The use of gross capital formation as a measure of investment is appropriate in this study because it represents the expenditure on capital goods that leads to capital formation, which is what investment is. An economy's inflation rate (INF) measures the annual percentage change in the general level of prices for goods and services. A decline in the buying power of a currency, as measured by price increases, could have an impact on a country's economic well-being.

Estimation Technique

The Ordinary Least Square method would be employed for the model's estimation. We say that this estimator is BLUE, or the Best Linear Unbiased Esimator, if it:

1. It follows a straight line, or is a linear function of some random variable, such Y in a regression model.
2. It is objective since the average or expected value, E(âi), is the same as the actual value, ai.
3. Among all linear unbiased estimators, it has the lowest variance; an efficient estimator is one that has the least variance.

A multicollinearity test would be run before estimation to rule out any correlation between the explanatory variables. Also, economic time series (variables) might not always adhere to the OLS assumptions. In light of this, the Augmented Dickey Fuller (ADF) unit root test procedure will be employed in the study to detect unit root. Furthermore, autocorrelation in the models will be investigated using the Durbin-Watson test, and robust standard errors will be employed to adjust the standard errors for autocorrelation.

Augmented Dickey – Fuller (ADF) Unit root Test

Time series statistical inference can be impacted by the presence of a unit root, which is a characteristic of certain random processes. If one is a root of the equation describing the properties of a linear random process, then the process has a unit root. This type of process is called a non-stationary process, and it doesn't necessarily follow a pattern. In the event of a shock, the unit root process sticks with the mean indefinitely, meaning it doesn't converge with time. A process is considered explosive if one of its properties has a root greater than 1. Finding the unit root can be done in various ways. Methods such as the ADF and the Philips Perron tests fall within this category. Augmented Dickey-Fuller unit root testing, on the other hand, is used in this investigation.

Cointegreation Test

Stationarity and the series' integration order define the statistical property of cointegration, which is present in certain time series data. Estimating and testing stationary linear relations, also known as cointegration relations, between non-stationary time series variables is the purpose of cointegration analysis. When two or more non-stationary time series have the same integration order and a linear combination of the series is stationary, we say that there is cointegration between them. Cointegration analysis is useful for non-stationary series, especially those thought to be in a long-run equilibrium relationship, because of its intuitive appeal for handling these types of problems.

Results and Discussion

Descriptive Statistics of the Variables

Table 1 Shows the results of estimating the descriptive statistics for the variables.

Table 1: Descriptive statistics

Variables	Obs	Mean	Standard Deviation	Minimum value	Maximum value	P-value (Skewness)	P-value (Kurtosis)
PERINC	43	1466.089	769.3254	465.4881	3088.721	0.5778	0.0031
TGEXP	43	3186.499	4475.38	9.6365	19808.44	0.0000	0.0020
TREV	43	1719.362	2737.908	2.9841	13587.5	0.0000	0.0000
PGR	43	2.6231	0.2243	2.0928	3.0749	0.0059	0.1295
INF	43	19.0794	16.2812	5.3880	72.8355	0.0000	0.0094
LITRAT	43	84.5301	12.1953	50.1457	99.7802	0.0010	0.0508
GFCF	43	8743.094	1992.303	5668.868	15789.67	0.0039	0.0186

Source: Estimated by the researcher

The average figures of tax revenue, total government expenditure, population growth rate, and per capita income are 2.6231, 1719.362, 3186.499, and 1466.089, respectively. In other words, whereas population increase accounts for 2.62% across the sample, total government expenditure accounts for 3186.499 billion NGN, tax revenue accounts for 1719.362 billion NGN, and per capita income accounts for 1466.089 billion NGN. Additionally, 19.07% and 84.53% of the total, respectively, are attributable to inflation and literacy rates, whereas N8743.094b, on average, is attributable to gross fixed capital formation.

The standard deviations (SD) for population growth, inflation, literacy rate, total government expenditure, and tax revenue are 0.2243, 16.2812, 12.1953, 4475.38, and 2737.908, respectively. The mean values of these variables are close to the standard deviations. That these variables' data values are quite close to the mean is another consequence of this. However, there is a lot of dispersion in the data when looking at gross fixed capital creation (SD = 1992.303) and per capita income (SD = 769.3254), and the means of these two variables are significantly larger than the standard deviations. In other words, the data values for the variables are significantly bigger than the standard deviations for those variables.

The lowest numbers for population growth rate, total government expenditure, tax revenue, and per capita income are 2.0928, 2.9841, 9.6365, and 465.4881, respectively. In contrast, the lowest recorded values for gross fixed capital creation, literacy rate, and inflation are 5,3888, 50.1457, and 5668.868 respectively. Per capita income, total government expenditure, tax revenue, and population growth rate all reach their maximums at 3088.721, 19808.44, 13587.5, and 3.0749, respectively. Meanwhile, 72.8355, 99.7802, and 15789.67 reach their maximums as well. You can see that the minimum values of all the variables are lower than their respective means, and that the maximum values are higher. This means that in comparison to the mean values, some of the data points for the variables are higher and some are lower. This further ensures that the study's variables do not contain any outlying data points.

Government spending, tax income, population growth, inflation, literacy, and gross fixed capital formation all have 5% significant probability values for skewness. Statistically, it disproves the normal distribution null hypothesis at the 5% level. This indicates a right-or left-handed bias in the data. The data for the variables does not follow a normal distribution, in other words. Conversely, the p-value for per capita income was not statistically significant. Thus, at the 5% level, it is acknowledged that the null hypothesis is that the data follows a normal distribution. So, the distribution of per capita income follows a typical pattern. Aside from literacy and population growth rate, all of the other variables are statistically significant at the 5% level when it comes to the Kurtosis. With the exception of population growth and literacy rate, all other variables support the null hypothesis of normal distribution with respect to kurtosis at the 5% level. The data for the variables, with the exception of literacy rate and population growth rate, deviate from the tails of a normal distribution. They do not follow a normal distribution, in other words. Having said that, the literacy rate and the rate of population growth follow a normal distribution.

Lag Order Selection

After considering all of the possible lag orders, the one that met the Akaike Information Criterion (AIC) was chosen. According to the data in Table 2, the most significant lag was lag 1. Thus, the variables in this investigation are appropriately lagged with respect to lag 1.

Table 2: Lag Order

Lag	LL	LR	df.	P	AIC	HQIC	SBIC
0	-1652.39				80.9459	81.0524	81.2385
1	-1430.43	443.93	49	0.000	72.5086*	73.3609*	74.8491*
2	-1393.64	73.564*	49	0.013	73.1046	74.7026	77.493

Source: Estimated by the researcher

Unit Root Test

To ensure that the time series variables in the models were stationarity tested, the Augmented Dickey-Fuller and Phillips-Perron tests were utilised. You can see the test results in Table 3.

Table 3: Augmented Dickey-Fuller and Philips–Perron unit root test results

Variable	Augmented Dickey-Fuller Result		Philips–Perron Result		Lag order	Order of Integration
	Level	1st Difference	Level	1st Difference		
PERINC	-2.974	-3.742	-2.908	-4.762	1	I(1)
TGEXP	-1.654	-4.310	-3.489	7.024	1	I(1)
TREV	-2.854	-3.909	-3.109	-6.390	1	I(1)
PGR	-1.621	-9.503	-1.557	-5.320	1	I(1)
INF	-1.234	-4.086	-3.367	-5.900	1	I(1)
LITRAT	-0.202	-3.407	-2.521	-5.902	1	I(1)
GFCF	-1.772	-6.443	-2.501	-6.540	1	I(1)

When the null hypothesis that there is no unit root is rejected, the symbol * indicates significance at the 5% level. Using Akaike's information criteria and Final Prediction Error (FPE), the ideal lag length was determined to be 2. While it is -3.540 at the first difference, the ADF 5% critical value is -3.536 at levels. At levels and the first difference, the Philips -Perron critical values are -3.532 and -3.536, respectively. Unit root test models generated by Augmented Dickey -Fuller and Philips -Perron both incorporated a trend.

Source: Estimated by the researcher

All of the variables evaluated at the level form have an Augmented Dickey-Fuller critical value more than 5%, which is higher than the test statistics. The variables at this level are thus not significant at the 5% level of analysis. Consequently, the assumption that there is no unit root is true at the level. In level form, the variables have a unit root, indicating that they are nonstationary. This is why the variables were changed once and the test was run again at the first difference. At the first difference, the test statistics for the variables seemed to be more than the 5% critical value. That is why; after taking the first difference into account for the variables under test, we may reject the null hypothesis that a unit root is present. It reveals, at the first difference, if the examined variables are stationary. There is no difference between the results of the Philips-Perron and the Augmented Dickey-Fuller tests. It demonstrates that the variables were not stationary at the level. However, the nonstationary variables turned stationary at the first difference.

Impacts of Government Aggregate Expenditure and Tax Revenue on Per Capita Income

The findings for the first aim are presented and discussed in this section. The Johansen test for cointegration of the objective one model's variables is the first item we'll look at. You can see the outcome in Table 4.

Table 4: Johansen tests for cointegration of the variables in the model for objective one

Maximum Rank	Eigenvalue	Trace statistic	Critical value (5%)
0	-	68.8623	59.46
1	0.5675	34.4946*	39.89
2	0.3763	15.1388	24.31
3	0.2597	2.8075	12.53
4	0.0472	0.8247	3.84
5	0.0199	-	-

Source: Estimated by the researcher

Up to rank 1, the trace statistic is higher than the 5% critical value, according to our comparison with the critical values. At the 5% level of significance, the absence of cointegration as a null hypothesis is thus rejected. The variables are cointegrated, in other words. For the first goal, the model includes one cointegrating equation among the variables. The variables are thus related in the long term. Also, we estimated the model for the first objective, and you can see the results in Table 5.

Table: 5: Estimates of the impact of government aggregate expenditure and tax revenue on per capita income

PERINC	coefficients	Standard Errors	t-Statistics	P-value
TGEXP	0.4220	0.1317	3.20	0.003
TREV	-0.4122	0.1975	-2.09	0.044
PGR	2.1853	0.6982	3.13	0.003
INF	-5.3470	5.9606	-0.90	0.375
Constant	-4.8014	1.9841	-2.42	0.020
R2		0.5013		
Adjusted R-Squared		0.4488		
F-statistics		9.55 (0.0000)		
Durbin-Watson d-statistic (5, 43)		2.1329		
Breusch–Godfrey LM test		0.016 (p = 0.9220)		
Breusch–Pagan/Cook–Weisberg test for heteroskedasticity		0.27 (p = 0.6029)		

Source: Author's computation

There was a positive and statistically significant coefficient for total government expenditure and population growth, a negative and statistically significant coefficient for tax income, and an inflation rate that was both negative and statistically insignificant. Total government expenditure has a coefficient of 0.4220, a t-value of 3.20, and a p-value of 0.003. According to the 2-t rule of thumb, a t-value greater than 2 indicates statistical significance. The

government's collective spending does have a significant effect on Nigerians' per capita income, therefore rejecting the null hypothesis. A p-value this large indicates that rejecting the null hypothesis was a correct decision. This indicates that the per capita income was positively and significantly affected by the government's aggregate expenditure. In particular, there is a statistically significant correlation between a rise in government aggregate expenditure and a rise in per capita income of 0.42%.

The coefficient for tax revenue was -0.4122, and the corresponding t-value and p-value were -2.09 and 0.044, respectively. The null hypothesis that tax revenue does not significantly affect per capita income in Nigeria is rejected because the t-value is statistically significant. There was no substantial mistake in rejecting the null hypothesis, as indicated by the significant p-value. Hence, there was a negative and statistically significant relationship between tax revenue and per capita income. Specifically, there was a notable decrease of 0.41% in per capita income as a consequence of an increase in tax revenue.

With respect to the increase in the population, the calculated coefficient was 2.1853, and the corresponding t-value and p-value were 3.13 and 0.003, respectively. At the 5% level of significance, the t-value is noteworthy. Thus, we reject the null hypothesis that Nigeria's per capita income is unaffected by population growth. Additionally, the p-value is highly significant. In light of this, we may likewise conclude that the null hypothesis is false at the 5% level. So, per capita income increased, and the effect was statistically significant, as the population grew. The per capita income rose significantly by 2.19% as a direct consequence of the acceleration of population growth.

With a t-value of -0.90 and a p-value of 0.375, inflation has an insignificant coefficient of -5.3470. At the 5% level of significance, we accept the null hypothesis that inflation has no appreciable effect on Nigeria's per capita income because the t-value is not statistically significant. The null hypothesis can be accepted without mistake because the p-value is 0.375, which is not statistically significant. This indicates that per capita income in Nigeria was negatively and insignificantly affected by the inflation rate. In particular, the per capita income fell by 5.35%, which is not a huge amount, as a result of an increase in the inflation rate.

An R2 value of 0.5013 was displayed for the coefficient of determination. Which indicates that the model's independent variables accounted for around half of the variance in per capita income. This analysis does not account for the other variables that account for the remaining 49.87% change in per capita income. But there was a solid match indicated by the independent variables' 50.13 percent explanatory power. A statistically significant p-value of 0.0000 accompanies the F-statistic of 9.55. This indicates that per capita income was significantly affected by inflation, total government expenditure, population growth, and tax revenue. There is a d-statistic of 2.1329 according to Durbin-Watson. We accept the null hypothesis that there is no autocorrelation because the value is close to 2. To rephrase, there was no evidence of autocorrelation among the independent variables. Additionally, the p-value for the Breusch-Godfrey LM test is 0.9220, and the statistic is 0.016. The lack of serial correlation

as the null hypothesis is upheld due to the statistical insignificance of the p-value. Consequently, the Durbin-Watson test was used. A p-value of 0.6029 indicates that the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity statistic is 0.27. The null hypothesis of homoscedasticity, or constant variance, is accepted due to the non-significant p-value. This indicates that the variance of the variables remained constant. As an additional step in establishing a linear relationship among the model's independent variables, we checked for multicollinearity. You can see the results of the test in Table 6.

Table 6: Multicollinearity Test Result

Variable	VIF	1/VIF
TGEXP	4.79	0.2088
TREV	3.63	0.2755
PGR	3.16	0.3165
INF	1.21	0.8247
Mean VIF	3.19	

Source: Estimated by the researcher

All of the variables' variance inflation factors (VIFs) are significantly lower than the standard value of 10, according to a comparison with the VIFs. Additionally, the inflation factor with the mean variance is below 10. It seemed reasonable to accept the null hypothesis that there was no multicollinearity based on the low variance inflation factors. So, there isn't any major multicollinearity in the independent variables.

Impact of Government Aggregate Expenditure and Tax Revenue on Literacy Rate

The findings for the second aim are presented and discussed in this section. First, we look at the outcome of the Johansen test to see if the variables in the second objective model are cointegrated. Table 7 displays the outcome.

Table 7: Johansen Tests for Cointegration of the Variables in the Model for Objective two

Maximum Rank	Eigenvalue	Trace statistic	Critical value (5%)
0	-	79.3405	59.46
1	0.6430	37.1007*	39.89
2	0.3854	17.1412	24.31
3	0.2693	4.2748	12.53
4	0.0985	0.0218	3.84
5	0.0005	-	-

Source: Estimated by the researcher

Upon comparison with the 5% critical values, the trace statistic, up to the highest rank 1, is discovered to be greater than the 5% critical value. At the 5% level of significance, the absence of cointegration as a null hypothesis is thus rejected. The variables are cointegrated, in other words. For the first goal, the model includes one cointegrating equation among the variables.

The variables are thus related in the long term. The first objective's model was likewise estimated, and the results are in Table 8.

Table 8: Estimates of the impact of government aggregate expenditure and tax revenue on literacy rate

LITRAT	coefficients	Standard Errors	t-statistic	P-value
TGEXP	0.0345	0.0089	3.88	0.000
TREV	-0.0447	0.0135	-3.30	0.000
PGR	18.0685	5.3936	3.35	0.000
GFCF	-0.0238	0.0062	-3.84	0.000
Constant	64.6781	16.7559	3.86	0.000
R2		0.5947		
Adjusted R-Squared		0.5205		
F-statistics		13.97 (p = 0.0000)		
Durbin-Watson d-statistic (5, 43)		1.6914		
Breusch–Godfrey LM test		1.599 (p = 0.8109)		
Breusch–Pagan/Cook–Weisberg test for heteroskedasticity		2.42 (p = 0.1198)		

Source: Estimated by the Researcher

While tax income and gross fixed capital formation were negatively correlated and statistically significant, total government expenditure and population growth were positively correlated. With a t-value of 3.88 and a p-value of 0.000, the total government expenditure coefficient is 0.0345. According to the 2-t rule of thumb, a t-value greater than 2 indicates statistical significance. That is why we can say that the government's aggregate spending has a significant effect on Nigeria's literacy rate, contrary to the null hypothesis. A p-value this large indicates that rejecting the null hypothesis was a correct decision. This indicates that the literacy rate was substantially affected by the collective expenditure of the government. The literacy rate rises by a statistically significant 0.03 percentage points for every percentage point increase in government aggregate expenditure.

With a t-value of -3.30 and a p-value of 0.000, tax revenue displayed a negative coefficient of -0.0447. The null hypothesis that tax income does not significantly affect Nigeria's literacy rate is rejected because the t-value is statistically significant. There was no substantial mistake in rejecting the null hypothesis, as indicated by the significant p-value. Thus, the literacy rate was negatively and significantly affected by tax revenue. The literacy rate dropped by a statistically significant 0.04 percentage points as a direct consequence of higher tax revenues.

With a t-value of 3.35 and a p-value of 0.000, the population growth coefficient that was found was 18.0685. At the 5% level of significance, the t-value is noteworthy. Hence, we reject the null hypothesis that Nigeria's literacy rate is unaffected by population growth. Additionally,

the p-value is highly significant. In light of this, we may likewise conclude that the null hypothesis is false at the 5% level. As a result, the literacy rate improved and became statistically significant as the population grew. With a t-value of -3.84 and a p-value of 0.000, the coefficient for gross fixed capital formation is -0.0238, which is not statistically significant. At the 5% level of significance, we reject the null hypothesis that gross fixed capital development does not significantly affect the literacy rate in Nigeria because the t-value is statistically significant. The p-value of 0.000 also shows that rejecting the null hypothesis was not erroneous. This proves that Nigeria's literacy rate was much and negatively affected by gross fixed capital formation. More specifically, the literacy rate dropped by 0.02% as a result of a percentage rise in gross fixed capital formation.

R2, or the coefficient of determination, came out to be 0.5947. Approximately 59.47% of the variation in the literacy rate was accounted for by the model's independent variables. additional factors, not addressed here, account for the additional 40.53 percent shift in the literacy rate. The independent variables, however, demonstrated an excellent fit with an explanatory power of 59.47%. A p-value of 0.0000 indicates statistical significance, and the F-statistic is 13.97. Government spending, tax revenue, population growth, and gross fixed capital formation all played a role in determining the literacy rate. You can see this in the 1.6914 Durbin-Watson d-statistic. We accept the null hypothesis that there is no autocorrelation because the value is close to 2. To rephrase, there was no evidence of autocorrelation among the independent variables. There is a p-value of 0.8109 and a Breusch-Godfrey LM test statistic of 1.599. The lack of serial correlation as the null hypothesis is upheld due to the statistical insignificance of the p-value. Consequently, the Durbin-Watson test was used. A p-value of 0.1198 shows that the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity statistic is 2.42. The null hypothesis of homoscedasticity, or constant variance, is accepted due to the non-significant p-value. This indicates that the variance of the variables remained constant.

As an additional step in establishing a linear relationship among the model's independent variables, we checked for multicollinearity. Table 9 displays the results of the test.

Table 9: Multicollinearity test result

Variable	VIF	1/VIF
TGEXP	4.23	0.2364
TREV	3.60	0.2778
PGR	3.29	0.3039
GFCF	1.49	0.6726
Mean VIF	3.15	

Source: Estimated by the Researcher

All of the variables' variance inflation factors (VIFs) are significantly lower than the standard value of 10, according to a comparison with the VIFs. Additionally, the inflation factor with

the mean variance is below 10. It seemed reasonable to accept the null hypothesis that there was no multicollinearity based on the low variance inflation factors. So, there isn't any major multicollinearity in the independent variables.

Summary, Conclusion and Recommendation

Summary of Findings

Here are the main takeaways from the study:

i. Under the first objective, it was observed that government aggregate expenditure and population growth had a positive and significant effect on per capita income.
ii. Under the second objective, it was determined that government aggregate expenditure and population growth had a significant impact on literacy rate.
iii. Under the third objective, it was found that tax revenue had a negative and statistically significant effect on literacy rate. Lastly, under the fourth objective, it was found that gross fixed capital formation had a negative and significant effect on literacy rate in Nigeria.

Implications of the Findings

Results for the first goal demonstrated that population growth and government aggregate expenditure significantly influenced per capita income in a good way. This data points to the idea that a larger population and more government spending contribute to an increase in the average income level of an economy. From an economic perspective, it suggests that spending on things like infrastructure, schools, hospitals, and social services is leading to higher productivity and overall economic activity, which in turn improves people's incomes. There is some evidence that a growing population can have a positive effect on the economy, including an increase in consumer spending, a larger pool of available workers, and the possibility of human capital development. From a policy perspective, these results provide more evidence that targeted public spending over the long run can promote income equality and inclusive growth. Furthermore, it stresses the need of population control measures that put a priority on education, skill development, and job creation to make the most of a growing population. Per capita income was also discovered to be significantly and negatively affected by tax revenue and inflation. It follows that lower average incomes are associated with higher prices and higher taxes. In terms of the economy, this might be a warning that high taxes are reducing consumer spending, discouraging private investment, and slowing growth. In a similar vein, excessive inflation lowers purchasing power, increases living costs, and may cause uncertainty, which in turn limits investment and consumption. From a policy perspective, our results stress the importance of a less income and productivity distortion tax system that is more balanced and conducive to growth. In order to keep prices stable, real incomes protected, and economic confidence high, it is crucial to have effective inflation control measures put in place through sound fiscal and monetary policies.

In regards to objective two, it was discovered that the literacy rate was significantly affected by both populations increase and government aggregate expenditure. This data points to the importance of public expenditure and demographic trends as elements influencing

educational outcomes. Raising literacy rates would be good for the economy if it meant that more government expenditure, especially on education, was improving both the quantity and quality of education available to the public. Improvements in educational outreach and infrastructure that match or surpass population growth might be an indication of a positive contribution from population growth. Negative effects, on the other hand, can mean that educational resources are limited and literacy rates are poor because the population is growing faster than the system can keep up with. The results have important policy implications because they show how much money the government should be spending on education and how it should be allocated to meet the needs of a growing student body in terms of both quantity and quality. Additionally, it stresses the significance of preparing ahead to guarantee that educational resources can accommodate a growing population.

Conclusion

The effect of fiscal policy on Nigeria's economic growth has been the focus of this research. Several conclusions were drawn from the study's use of the Ordinary Least Square (OLS) method. There was a positive and statistically significant relationship between government aggregate expenditure and literacy rates and per capita income in Nigeria, suggesting that both factors contribute significantly to human and economic development in the country. This demonstrates that higher incomes and better educational outcomes are possible outcomes of well-managed population structures and intentional state expenditure. The existing tax system is burdening families and reducing their ability to afford essential services like education, according to the negative and statistically significant impacts of tax revenue on literacy rates and per capita income. There is cause for concern regarding possible investment fund misallocation and macroeconomic instability due to the fact that inflation reduces income and gross fixed capital output reduces literacy. These results highlight the need of policies that encourage growth-oriented taxation, efficient management of inflation, capital investments that put an emphasis on human capital development, and more equitable public expenditure.

Recommendations for Policy

It is suggested that you consider the following options:

i. The productive sectors that propel economic development and income growth—infrastructure, education, healthcare, and social services—deserve more government funding.
ii. The government ought to reevaluate its tax policies in order to alleviate the financial strain on families with school-aged children. Additionally, it ought to make sure that expenditures in capital projects, including new schools and information and communication technology facilities, directly contribute to educational growth.
iii. Tax reform that is both progressive and less burdensome, particularly for middle- and low-income taxpayers, is an absolute necessity.

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