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Fiscal policy and inclusive growth in Nigeria

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Abstract

This study investigated the effect of fiscal policy on inclusive growth in Nigeria from 1985-2022. Secondary data on the human development index, the ratio of total tax revenue to GDP, total government expenditure, inequality, and government expenditure on infrastructure and education were sourced from the Central Bank of Nigeria (CBN) and the United Nations Development Programme (UNDP). The Autoregressive Distributed Lag (ARDL) technique was employed as the main analytical tool. The ARDL Bounds test showed that in the long run, government expenditure on infrastructure, and education, has a positive and insignificant relationship with inclusive growth (human development index) in Nigeria. Also, total government expenditure and the ratio of total tax revenue to GDP have a negative and insignificant relationship with inclusive growth (human development index) in Nigeria. Interestingly, inequality has a negative and significant relationship with inclusive growth (human development index) in Nigeria. In the short run, the ratio of total tax revenue to GDP and government expenditure on infrastructure has a negative and significant relationship with inclusive growth (human development index) in Nigeria. At the same time, government expenditure on education, total government expenditure, and inequality has a positive and significant relationship with inclusive growth (human development index) in Nigeria. These results highlight the vital role that responsible fiscal policy management plays in promoting sustainable development and inclusive growth. The study recommended a need to augment tax revenue, enhance capital investment, and address income inequality to bolster inclusive growth efforts in the country further.

Keywords: Fiscal Policy; Inclusive Growth; Autoregressive Distributed Lag (ARDL); ARDL Bound Test; Human Development Index

1. Introduction

Government policies, particularly fiscal policies, are designed with the overarching objective of enhancing the overall well-being of its citizens. Fiscal policy, as defined by Umo (2012), involves the strategic manipulation of expenditure resources and taxation powers by the government to effectively manage and steer the economy. Conway (2009) expands on this definition, emphasizing that fiscal policy encompasses the government's decisions regarding expenditure allocation, tax structures, and borrowing levels.

The importance of fiscal policy in fostering inclusive economic growth is pivotal. By closely controlling taxes and public spending within an economy, fiscal policy becomes a powerful tool in reducing economic inequalities. It serves as a mechanism to mitigate poverty by directing resources towards essential social programs and services. Additionally, fiscal policy contributes to the creation of productive employment opportunities, thereby furthering economic development.

In essence, the government's fiscal decisions have far-reaching implications for the socio-economic landscape. When executed judiciously, fiscal policy becomes an instrument not only for economic stability but also for the promotion of

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a more equitable and prosperous society. As such, understanding and effectively implementing fiscal policy is crucial for governments striving to improve the lives and well-being of their citizens.

Benedict, Sanjeev and João (2022) assert that fiscal policy emerges as a powerful tool in addressing society's distributive concerns. This influence is manifested in its impact on household welfare through both monetary transactions, such as taxes and transfers, and the provision of in-kind benefits, exemplified by free education and health services. On the revenue side, fiscal policy plays a crucial role in establishing robust tax bases. This is achieved by minimizing exemptions, combating tax evasion, and fortifying tax administration. These measures not only facilitate non-inflationary financing but also ensure the sustainable and equitable distribution of both monetary and in-kind benefits.

Avcı and Tonus (2022) underscore the significance of fiscal policy as a paramount tool for achieving inclusive growth. Their argument centres on the multifaceted impact of fiscal measures in generating employment opportunities, reducing economic inequalities, and alleviating poverty. The arsenal of fiscal policy tools encompasses public expenditures, taxation, and debt management.

The instrumental role of fiscal policy in promoting inclusive growth becomes apparent when examining specific interventions. Investments in education and healthcare, for instance, contribute to heightened labour productivity and improved national output growth. This, in turn, has a cascading effect on unemployment reduction and poverty alleviation. Similarly, targeted expenditures on infrastructure such as roads, communications, and power can effectively reduce production costs. This not only encourages private sector investments but also enhances the profitability of businesses, thereby fostering economic growth and development. The support for these assertions is echoed in the works of scholars like Ranjan and Sharma (2008), Cooray (2009), Okulegu (2013), and Robinson, Eravwoke, and Ukavwe (2014).

Public expenditure, particularly in education, plays a pivotal role in fostering inclusive growth through various mechanisms. Firstly, investments in education contribute to the development of human capital, reducing the likelihood of unemployment among the skilled labour force and increasing wages for more educated workers. This, in turn, helps mitigate poverty and reduces income inequalities, especially when females are included in educational initiatives, enhancing labour force participation and employment opportunities. A commitment to equal access to education is emphasized for achieving inclusive growth (Avcı and Tonus 2022).

Avcı and Tonus (2022) highlight the significance of public health expenditures as another effective fiscal policy instrument. Acknowledging that the poor often face challenges accessing healthcare, they argue that investing in public health improves overall societal well-being. Healthier individuals are more productive and have a higher employment participation rate, positively impacting economic growth. Creating a healthier society contributes not only to economic growth but also aids in addressing issues of poverty, income inequality, and unemployment. Thus, equitable access to health services is crucial for building a robust and inclusive society.

Inimino, Abuo, and Bosco (2018) underscore the impact of taxation on poverty and income inequalities, emphasizing that taxation serves a fundamental purpose beyond revenue generation. They argue that the primary objective of taxation is to generate funds that can be strategically utilized to enhance the well-being of the nation's inhabitants. This is achieved by promoting the overall growth and development of the country's economy through the provision of essential amenities and improved public services, facilitated by efficient managerial systems and structures.

The optimal deployment of government revenue, as suggested by Inimino et al., enables strategic investments in public and merit goods. These goods, when consumed, have the potential to alleviate poverty, particularly among the economically disadvantaged segments of the population. In essence, a well-designed and efficiently managed taxation system can contribute significantly to the reduction of poverty and the mitigation of income inequalities by channeling resources toward initiatives that benefit the broader society.

Tax and social transfers contribute to inclusive growth, especially with their positive effects on poverty and income inequalities. Rich nations' increased tax revenue enables for increased public spending on social protection, health and education services, transfers, and subsidies. Higher tax revenue nations perform better economically and have lower income disparity. (Heshmati, Kim and Park, 2014). In addition to cash transfers or in-kind benefits, social expenditures like setting up job workshops and training facilities are made to introduce new and respectable careers to underqualified or outmoded occupational groups. Increasing the skills and employment of the unskilled labor force through public transfer expenditures is a very effective way to reduce poverty. (Avcı and Tonus, 2022).

In an attempt to improve the quality of life of people in Nigeria, succeeding governments have formulated and implemented several macroeconomic policies (including fiscal policy – the decisions a government makes about what to spend its money on, how to raise taxes and how much to borrow). For instance, in 2016, a report by the Central Bank of Nigeria (CBN) revealed that Nigeria's 2016 budget was anchored on macroeconomic policies and growth strategies that would enhance the welfare of the citizens and reflate the economy through investment in critical infrastructure and social development (CBN, 2016).

The empirical landscape on the impact of fiscal policy instruments on inclusive growth in Nigeria from 1980 to 2022 reveals a noticeable gap. Despite a wealth of existing literature exploring the effects of fiscal policy on various macroeconomic variables, there is a paucity of empirical records specifically addressing the relationship between fiscal policy instruments (government expenditure, tax revenue, external debt, and domestic debt) and inclusive growth, as measured by the human development index (HDI).

A review of the available literature highlights studies such as those conducted by Imide and Imoughele (2019), Omodero (2019), Akanbi and Oyetade (2019), Ezenwobi and Anisiobi (2021), and Okere, Uzowuru, and Mbaeri (2022). These investigations primarily focused on related aspects, such as fiscal policy and human development, government spending on human development, government borrowings and economic development, and the impact of external debt on inclusive growth.

Interestingly, diverse methodological approaches were employed across these studies, ranging from the ordinary least squares (OLS) method to more sophisticated techniques like Error Correction Mechanism (ECM), vector error correction mechanism (VECM), or vector auto-regression estimation. The incongruent empirical results obtained from these varied methodologies underline the complexity of the relationship between fiscal policy instruments and inclusive growth in the Nigerian context, warranting further research to bridge the existing gap and offer more insights.

Given the apparent gaps in empirics, the broad objective of this study is to examine the effect of fiscal policy on inclusive growth in Nigeria from 1985-2022. Specifically, other objectives are to: examine the relationship between total government expenditure and inclusive growth in Nigeria; examine the relationship between total tax revenue and inclusive growth in Nigeria; ascertain the relationship between total public debt on inclusive growth in Nigeria; and investigate the relationship between total public debt servicing and inclusive growth in Nigeria.

2. Literature Review

2.1. Conceptual Clarification

Fiscal policy, rooted in Keynesian economic theory, is perceived as a crucial tool for managing economic fluctuations and ensuring the well-being of citizens. Akpakpan (1994) defines fiscal policy as the intentional use of government income and expenditure to influence economic activities. Onuchuku and Adoghor (2000) characterize it as changes in government expenditure and/or taxes aimed at achieving macroeconomic stability and promoting income growth, employment, and price stability. Gbosi (2015) explains fiscal policy as the impact of government spending and taxation policies on macroeconomic activities.

Fiscal policy involves the deliberate manipulation of government income and spending to attain macroeconomic objectives, including inclusive growth. It is often referred to as "spending and taxing policy" or budgetary policy (Gbanador, 2007). The instruments of fiscal policy include taxation, public spending, and managing the budget deficit or surplus.

Furthermore, fiscal policy can be categorized as expansionary or contractionary. An expansionary fiscal policy involves increasing government expenditure and/or reducing taxes to stimulate aggregate demand and address issues like unemployment. On the other hand, a contractionary fiscal policy entails decreasing government expenditure and/or raising taxes to reduce aggregate demand and counter inflationary pressures.

2.1.1. Inclusive Growth

The concept of Inclusive Growth (IG) recognizes that economic growth alone is insufficient to ensure improvements in social welfare. While a country may experience robust economic growth, the benefits may not be equitably distributed among its citizens, leading to inadequate improvements in overall well-being. Inclusive growth seeks to elevate the standards of living and welfare of the entire population. Avcı and Tonus (2022) emphasize two dimensions of inclusive growth: economic growth and the equitable sharing of its benefits across society.

The Asian Development Bank (2013) defines inclusive growth as economic growth that provides wider access to sustainable socio-economic opportunities for a broader population while protecting vulnerable groups, all within an environment of fairness, equal justice, and political plurality. Central to inclusive growth are goals such as sustainable economic growth, poverty reduction, income and opportunity equality, improved income distribution, equal access to healthcare and education, and the creation of gainful employment for marginalized segments of society.

In measuring inclusive growth, various indicators are employed. Obayori, Briggs, and Yusuf (2021) use GDP per capita as a proxy, considering it alongside other changes in the system. However, a widely recognized indicator is the Human Development Index (HDI), developed by the United Nations. HDI incorporates education, health, and adjusted real income per capita, offering a comprehensive measure of well-being. It ranks countries based on life expectancy, knowledge, and standard of living, categorizing them into groups ranging from low to very high human development.

The HDI's significance lies in its emphasis on expanding the richness of human life rather than solely focusing on economic wealth. It underscores the importance of enhanced quality of life, including higher educational attainment, access to employment, healthier living conditions, food security, access to water, affordable housing, environmental sustainability, and increased life expectancy. HDI reveals that per capita income alone is insufficient to measure human development, emphasizing the broader aspects of well-being.

2.2. Theoretical Literature

2.2.1. The Keynesian Theory

John M. Keynes (1936), a British economist and the father of macroeconomics in his book "The General Theory of Employment, Money and Interest" provided both a theoretical foundation and practical policy perspective to the challenge of the Great Depression which was facing the world in the 1930s. Umo (2012), Keynes developed a new perspective on the workings of the macroeconomy, as he (Keynes) made known the following: (a) supply does not create its demand automatically as assumed by Say's Law of the Market. This is because savings are not automatically translated into investment so full employment cannot be guaranteed at all times. (b) Wages and prices were not as flexible as assumed by the classicists. (c) Aggregate supply of an economy represents its GDP which could be either flat or upward-sloping but not completely vertical as assumed by the classicists. (d) Aggregate demand which is defined as the sum of consumption, government expenditure, gross investment and net exports, is not necessarily stable: it can shift up or down. Following the above perspectives, Keynes reached the following fundamental conclusions: (a) a modern economy can be trapped in an underemployment equilibrium whereby AD=AS at any point less than full employment, and (b) the manipulation of aggregate demand by monetary and fiscal policies can push the economy to attain full employment.

Furthermore, Keynes's theory made it clear that fiscal policy instruments (i.e., total tax revenue, government capital expenditure, government recurrent expenditure, domestic debt and external debt) are important tools for achieving short-term stability and superior long-run growth rate which will help to raise the welfare or standards of living of people in the country. To achieve stability in the economy, this theory prescribes government interventions in the economy through economic policy specifically fiscal policy. From the Keynesian idea, fiscal policy (i.e., total tax revenue, government capital expenditure, government recurrent expenditure, domestic debt and external debt) will contribute positively to economic growth which in turn will reduce unemployment and poverty. For instance, government expenditure in the educational sector - in building quality classrooms, and laboratories, purchase of teaching and learning aids including computers and payment of salary, agricultural sector, health sector transport and communication sector will have a multiplier effect on the economy.

In addition, Keynesian economics believes in the existence of market failures such as uncertainty to be responsible for one's economic situation given that the poor are more vulnerable to shocks that affect their income. According to the liberal approach; institutional rigidities, market distortions as well as general underdevelopment do cause poverty rather a person's choices. Government intervention is viewed as a means to encourage economic development and welfare (Davis and Sanchez-Martinez, 2014). Keynes argued in the 1930s that stabilization policy by the government using an expansionary fiscal policy would stimulate output (economic growth), aggregate demand, investment and employment thus reducing poverty.

The outcomes of government spending such as access to good roads, healthcare, an increase in agricultural productivity and an increase in literacy rates, etc. lead to economic growth and poverty reduction. Put differently, according to the Keynesian school of thought, an increase in government spending leads to a multiple rise in the total output of an economy. This as posited by Keynes is the multiplier effect of government expenditure. $Y = C + I + G (X-M)$ (1^n)

Where; Y = Output, C = Consumption, I = Investment, G = Government Expenditure, X-M = Net Export (Export minus Import). Hence, expansionary fiscal policy can be used to influence macroeconomic performance and hence increase output growth and raise the welfare or standards of living of people in the country.

In this theory, the researcher assumes that inclusive growth (i.e., growth which can reduce poverty and allow people to contribute to economic growth and at the same time benefit from the growth process) is a function of total tax revenue, government capital expenditure, government recurrent expenditure, domestic debt and external debt.

$$Y = TTR + GCEX + GREX + DDT + EXD \ldots\ldots\ldots\ldots\ldots (2.2)$$

Where; Y is inclusive growth (human development index), TTR is total tax revenue, GCEX is government capital expenditure, GREX is government recurrent expenditure, DDT is domestic debt and EXD is external debt. Thus, an increase in total tax revenue, government capital expenditure, government recurrent expenditure, domestic debt and external debt is likely to lead to a multiple increase in economic growth and human development index and, a reduction in unemployment and poverty.

2.2.2. Human Capital Theory

The concept of human capital may be described as the accumulation of productive wealth in the form of labour, skills, and knowledge (OECD, 2001). It encompasses the whole of an individual's knowledge and the inherent or acquired attributes that enhance their economic production (Garibaldi, 2006). Essentially, HCT posits that education enhances the efficiency and income of people, therefore making education a worthwhile investment. Indeed, this investment has significant importance not only for people but also serves as a pivotal factor in fostering the economic development of a nation. According to Alfred Marshall (1920), investment in human beings is considered the most valuable kind of capital.

The theory of human capital (HCT) extends beyond the realm of economics. This method offers a thorough framework for analyzing a diverse range of human problems within the context of a certain mentality, and then formulating policies in response. In this strategy, education is positioned as the focal point and seen as the primary catalyst for economic progress. The concept of HCT is rooted in the neoclassical paradigm within the field of economics. Hence, to have a clear and comprehensive understanding, it is important to grasp the neoclassical economic model and its fundamental presumptions on human behaviours. In the present paradigm, it is posited that people are motivated to optimize their economic interests. HCT posits that people allocate resources towards education and training with the expectation of attaining a greater income in the future. According to Dupré (1994), these investments are made not just for immediate pleasure but also to obtain financial and non-financial benefits in the future. This particular approach is strongly linked to the concept of methodological individualism. The idea posits that the origins of all social phenomena may be traced back to the actions shown by individuals. This aligns with the premise that the process of human capital development is often pursued by people who want to optimize their interests (Dupré, 1994). However, it should be noted that human capital economists do not necessarily overlook the nonmonetary impacts of education on both individuals and society. In addition, they recognize the beneficial externalities of education, which include social, cultural, intellectual, and artistic advantages.

2.2.3. Monetarist Theorist

The works of Milton Friedman, who championed management of the money supply as preferable to Keynesian fiscal policies for stabilizing aggregate demand, are the pieces of literature that are most strongly connected with the ideology of monetary stability. Friedman (1948) advocated that the government should release new money to support budget deficits and that budget surpluses should be used to finance the retirement of money. The countercyclical changes in the money stock that would arise would be able to stabilize the economy, assuming that the government would structure its expenditures and tax rates in such a way that they would balance the budget when full employment was achieved. Nevertheless, Friedman claimed in his book "A Program for Monetary Stability" (1960) that "constant growth of the money stock, divorced from the government budget, would be simpler and equally effective for stabilizing the economy" (Tavlas, 2015).

Friedman's proposal states that "this would be the case." These propositions adhered to a long-standing practice of the Chicago School of Economics by placing a strong focus on the significance of monetary resources. Before Friedman arrived at the University of Chicago, Henry Simons had pushed for the regulation of the money supply to create a stable price level (Kasper, 2022). Lloyd Mints also proposed a particular monetary program to stabilize an index of the price level (Demeulemeester, 2022).

According to monetarism, its origins may be traced back to the quantity theory of money, which served as the foundation for classical monetary economics beginning at least in the 18th century. Changes in nominal aggregate expenditures, which represent changes in both the physical volume of production and the price level, are explained by the quantity theory in terms of changes in the money stock and an increase in the velocity of circulation of money (the ratio of aggregate expenditures to the money stock). This theory was developed to explain the relationship between these two variables. Generally speaking, changes in velocity are often less significant than those in the money stock throughout a lengthy period.

2.3. Empirical Literature

Empirical studies on the relationship between fiscal policy instruments and inclusive growth are uneven. Mobolaji, Ehigiamusoe and Lean (2015) employed ordinary least squares and Granger causality test techniques to examine the role of fiscal policy in inclusive growth in Nigeria using 1980-2013 as the sample period. Evidence from the study revealed that fiscal policy has a positive and significant impact on inclusive growth. The Granger causality test indicated that a unidirectional causal relationship runs from fiscal policy to inclusive growth in Nigeria. This implies that changes in fiscal policy variables, such as government expenditures, tax revenue and fiscal deficits, can be used to enhance variations in inclusive growth in Nigeria.

Ofoegbu, Akwu and Oliver (2016) examine the effect of tax revenue on the economic development of Nigeria to ascertain whether there is any difference in using HDI and GDP in establishing the relationship using annual time series data for the period 2005 and 2014. This study adopted a linear ordinary least square (OLS) regression model for the variables, tax revenue and HDI; and findings showed a positive and significant relationship between tax revenue and HDI which is the proxy for economic development. The researcher, therefore, concludes that tax revenue can be an instrument of economic development in Nigeria. Hence, the development of any tax policy to generate tax revenue for economic development should better be based on the human development index rather than the gross domestic product.

Khemais (2018) examined the relationship between external debt and human development for a panel data set of 95 developing countries during the period 2002 – 2015. By performing a Panel Smooth Threshold Regression (PSTR) model developed by Gonzàlez et al. (2005), estimation results showed that this relationship is non-linear and characterized by the presence of an optimal threshold of external debt equal to 41.7775%. Below this debt threshold, external debt has a positive effect on human development. Any 1% increase in the external debt ratio induces an increase in the HDI of 0.02%. However, above the debt threshold, external debt becomes detrimental to human development since the human development index decreases by 0.01% when the external debt ratio increases by 1%. In a low external debt regime, countries are encouraged not to exceed this threshold to benefit from the leverage effect and to modify the structure of imports while avoiding unnecessary ones. In a high external debt regime, countries are compelled to reduce their external debt ratio to reach the optimal threshold, avoid the waste of highly remunerated foreign resources know how to allocate them to the most productive sectors, and control their demographic growth.

Morris, Ozigbu and Ezekwe (2018) examined the impact of external loans from foreign institutions, especially the Paris Club, London Club and Bretton Woods institutions on poverty reduction in Nigeria spanning from 1981 to 2015. The estimation techniques relied on the Stock-Watson Dynamic Least squares (DOLS) method, Johansen co-integration and Granger causality. The result of the Johansen co-integration test indicates that the variables are co-integrated at a 5 percent level. The result of the estimated co-integration result reveals that borrowing from the Bretton Woods institutions tends to intensify the problem of poverty in Nigeria. Again, loans from the London Club and servicing of public debt are found to exert an insignificant positive influence on poverty reduction in Nigeria. However, the result showed that loan from the Paris Club is negatively related to poverty reduction. The Grander causality test revealed that unidirectional causality runs from poverty headcount to loans from the Paris Club. Similarly, a unidirectional causality runs from poverty headcount to loan from the London Club. More importantly, it was found that Nigeria's debt to the Bretton Woods institutions causes poverty.

Using the technique of error correction mechanism, Ozigbu (2018) examined the impacts of public debt sustainability on poverty incidence in Nigeria. The result revealed that external debt stock as a share of GNI has a significant positive relationship with poverty headcount; a 10 percent increase in external debt stock induces a 7.59 percent increase in poverty headcount. Egungwu (2018) adopted the Ordinary Least Square (OLS) method of econometrics to examine the impact of an increase in external debt stock and its servicing on human capital development from 1986-2015. The study found that both external debt stock and external debt servicing had a significant negative effect on human capital development; external debt stock borrowed from the Paris Club and multilateral creditors had insignificant negative effects; those borrowed from the London Club had insignificant positive effects while those borrowed from bilateral

creditors had a significant positive effect. On debt servicing, all the creditors showed insignificant positive effects except London Club which had a significant positive effect.

Imide and Imoughele (2019) employed an error correction model to examine the effect of fiscal policy on the human development index (HDI) in Nigeria spanning 1999 -2016. The result revealed that HDI and selected fiscal policy variables included in the model have a long-run relationship during the period. The study also revealed that fiscal policy variables of domestic debt and tax have a direct and significant impact on HDI in Nigeria both in the short and long-run period; total government expenditure has an inverse and insignificant impact on HDI in Nigeria both in the short and long run. This meant that total government expenditure during the democratic era did not improve the welfare of Nigerians. Furthermore, external debts have an inverse and insignificant impact on HDI in the short run but have an inverse and significant impact on HDI in the long run. This implies that budget deficit financing by external debt does not improve the welfare of Nigerians.

Akanbi and Oyetade (2019) examined the impact of external debt on inclusive growth in Nigeria spanning from 1981 to 2016. The study utilized a generalized linear model to examine various factors. The regression results brought forth significant insights, indicating a negative and substantial impact of the crowding-out variable on inclusive growth. Notably, the findings also highlighted a positive and significant effect on inclusive growth stemming from the debt relief initiative of 2005. These outcomes contribute to the understanding of the intricate relationship between external debt dynamics and inclusive growth in the Nigerian context

Atueyi (2019) examined the effect of external debt on human capital development in Nigeria from 1986-2017 using an error correction mechanism method. The study found that external debt has a negative and significant effect on human capital development in Nigeria, debt financing has a negative insignificant effect on human capital development, and lastly gross fixed capital formation has a positive insignificant effect on human capital development. Akindutire (2019) employed a Auto Regressive Distributed Lag (ARDL) bounds testing approach to investigate the effects of external debt on poverty reduction in Nigeria spanning 2000 to 2017. The result revealed that in the short run, external debt, domestic debt, exchange rate and inflation reduced poverty as they all had negative signs but in the long run, debt service payment, inflation and exchange rate were found to have negative effects on poverty, which indicated a poverty reduction. The distributional impact assessment model employed in the study further indicated that education, health, agriculture, and rural development, along with water resources, had a positive marginal impact, while energy, housing, and environmental protection exhibited a negative marginal impact. These results underscore the importance of targeted public expenditure on specific components and sectors to enhance human development in Nigeria, emphasizing the pivotal role of public policy in shaping human development outcomes.

Ugondah and Amadi (2019) investigated the difference between taxation and income inequality. The research design employed was the Quasi-Experimental Design. Data for the study were analyzed using the Ordinary Least Square technique. The co-integration, unit root and error correction mechanisms were also employed. The findings revealed that company income tax has a positive relationship with income inequality. Anyaduba and Otulugbu (2019) investigated the impact of taxes on income inequality (GINI), in Nigeria from 1990 to 2016. The Co-integration and Error Correction Models were utilized. They found that company income tax fundamentally affected GINI. In light of the discoveries, they infer that company income tax alone was largely responsible for inequality.

Using the ARDL technique, Ideh (2019) studied the relationship between components of tax revenue and economic development in Nigeria spanning 2003 to 2017. The results obtained revealed that petroleum profit tax stood as a major component of tax revenue, and its relationship with measures of economic development (real GDP and HDI) was negative; thus, suggesting that revenue generated from petroleum profit tax is not properly and directly channelled to the provision of the required infrastructure that will boost the economic development of Nigeria. In their 2020 study, Obaretin and Uwaifo delved into the impact of Value-Added Tax (VAT) on the Human Development Index (HDI) in Nigeria, covering the period from 1994 to 2018. Employing a longitudinal research design, the study sourced data from the office of the Federal Inland Revenue Service and the United Nations Data Bank. Utilizing the Autoregressive Distribution (ARDL) regression estimation technique, the findings indicated a positive and significant impact of VAT on HDI in Nigeria. This suggests that the imposition and collection of VAT contribute positively to the country's human development indicators over the specified period.

Karimanzira, Maradze, Nyoni and Nyoni (2020) examined the impact of external debt on poverty in Zimbabwe spanning 1980 – 2013. The Ordinary Least Squares (OLS) estimation technique was applied to annual changes in household consumption per capita (a measure of welfare) which was the dependent variable and a proxy for poverty. Independent variables were budget deficit, external debt, private investment and annual GDP growth. Results obtained indicated that external debt is a driver of poverty. Therefore, the researchers recommended that the government of Zimbabwe should

put efforts into reducing the external debt to open capital injections from foreign institutions to stimulate economic growth and poverty reduction schemes.

Using an Autoregressive Distributed Lag (ARDL) model, Ikharo-Kadiri (2021) examined the impact of tax policy on inclusive growth in Nigeria from 1985 to 2020. The long-run ARDL results revealed the structural coefficients of the tax variables and their relationship with inclusive growth measured by HDI. The result revealed that company income tax has a negative and statistically significant impact on HDI at a 5% level. VAT has a negative and statistically significant impact on inclusive growth at a 1% level. Petroleum profit tax has a negative and statistically significant impact on inclusive growth at a 5% level. In the same year, Okoh, Edo, Akhigbodemhe and Edeoghon (2021) investigated the impact of direct taxes on income redistribution in the context of Nigeria, using personal income tax. The study covered the period 1990 to 2019 using an annualized data set from the Federal Inland Revenue Service (FIRS) and Central Bank of Nigeria Statistical Bulletin. The study employed the Fully Modified Least Squares (FMOLS) to analyze the data. Empirical results revealed that personal income tax had significant positive effects on income redistribution, thus reducing income inequality in the context of Nigeria.

Ezenwobi and Anisiobi (2021) employed the Error Correction Mechanism (ECM) technique to examine the resultant effect of government borrowings on economic development in Nigeria from 1990 to 2020. The result revealed a positive statistically significant relationship between external debt and economic development, the same as domestic debt and economic development in Nigeria, while interest rates have a negative statistically significant relationship with economic development in Nigeria. However, inflation was found to be negatively statically insignificant to economic development in Nigeria.

Okere, Uzowuru and Mbaeri (2022) adopted an Autoregressive Distributed Lag (ARDL) Bunds testing technique to investigate the effect of fiscal policy on human development in Nigeria spanning 1986-2017. The study revealed a positive and significant relationship between fiscal policy and the Human development index in Nigeria. Specifically, the result revealed that recurrent expenditure has a positive relationship with the human development index in Nigeria while capital expenditure has a positive but insignificant relationship with the human development index in Nigeria. The result also revealed that tax revenue exerted a negative though insignificant relationship with the human development index in Nigeria.

Avci and Tonus (2022) investigated the Impact of fiscal policies on inclusive growth in Turkey from 2006-2018. The impact of public education, health, transfer expenditures and indirect taxes on inclusive growth was tested with Autoregressive Distributed Lag (ARDL) Bounds models by annual data. The results obtained revealed that Turkey had more inclusive growth in the period under consideration except for the year 2009. Since 2002, the Turkish government emphasized that they have increased public expenditure for education, health and social transfers. They also tried to answer the question of whether public expenditures for education, health, social transfers and tax policy as a fiscal policy could affect inclusive growth in Turkey. The results they obtained showed that health expenditures had a decreasing effect on inclusive growth. They observed the reducing effect of indirect taxes on inclusive growth. They determined that social transfers could boost inclusive growth. It is known that transfers do more to reduce inequality than taxes. Obtained results showed that education expenditures in Turkey had a reducing effect on inclusive growth.

Using an Autoregressive Distributed Lag (ARDL) Bounds testing technique, Onabote, Ohwofasa and Ogunjumo (2023) examined the effects of government sectoral spending on human development in Nigeria using annual data spanning 1986–2021. The results indicated that the link between government sectoral spending and human development in Nigeria is insignificant both in the short and long run. However, outcomes from the error correction form suggest that government sectoral spending may affect human development in the long run. Nanfa, Ajang, Timnan, Azi, Diemsan, Magit and Janet (2023) employed the technique of Error Correction Mechanism (ECM) to investigate the effect of public debt on poverty reduction in Nigeria from 2000– 2021. The result revealed that external debt exerts a positive and significant effect on poverty alleviation in Nigeria, while domestic debt and debt servicing had an inverse and significant relationship with poverty reduction in Nigeria as well.

2.4. Summary of Empirical Literature

In summary, an examination of the existing empirical literature revealed that previous scholars have reported a plethora of findings on the efficacy of fiscal policy on various macroeconomic endogenous variables, but hardly is any empirical record on the effect of fiscal policy instruments (total tax revenue, total government expenditure, total public debt and total public debt servicing) on inclusive growth (human development index) in Nigeria from 1985 to 2022. What is rather easily found in existing literature were fiscal policy and human development in Nigeria, government general spending on human development in Nigeria, government borrowings and economic development in Nigeria,

external debt on inclusive growth among others (Imoughele, 2019; Omodero, 2019; Akanbi and Oyetade, 2019; Ezenwobi and Anisiobi, 2021; Okere, Uzowuru and Mbaeri, 2022; etc.). While some of these studies adopted the ordinary least squares (OLS), others applied an Error Correction Mechanism (ECM), vector error correction mechanism (VECM) or vector auto-regression estimation techniques for data analysis, thereby recording incongruent empirical results. Given the apparent gaps in empirics, the broad objective of this study is to examine the effect of fiscal policy on inclusive growth in Nigeria from 1985-2022.

3. Research Methodology

The study employed the econometrics method of Autoregressive Distributed Lag (ARDL) Bounds testing approach as the main analytical technique to capture the influence of fiscal policy instruments (the ratio of total tax revenue to GDP, total government expenditure, government expenditure on infrastructure and government expenditure on education) on inclusive growth in Nigeria (regressand) proxied by Human Development Index (HDI). In this study, predominantly secondary data sourced from the Statistical Bulletin of Nigeria's apex bank and the United Nations Development Programme (UNDP) were used. The data covered the period 1985-2022.

3.1. Framework Specification

The research model for this study was founded on the explicit form of the Keynesian idea which made it clear that government intervention (fiscal policy – the ratio of total tax revenue to GDP, total government expenditure, government expenditure on infrastructure and government expenditure on education) is needed to improve the quality of life of inhabitants of a country. Put differently, this study adopted the Keynesian framework in which an increase in total government expenditure on infrastructure, education, etc. results in increased consumption and economic growth thus leading to an increase in human development index and poverty reduction. That is,

$$Y = f(FP) \quad \text{.....(1)}$$

Where; Y is inclusive growth (human development index) and FP is fiscal policy instruments - the ratio of total tax revenue to GDP, total government expenditure, government expenditure on infrastructure and government expenditure on education. Importantly, and inequality also have the potential to influence inclusive growth (Human Development Index). Therefore, the model for this study is presented thus:

$$HDI = f(TTR/GDPR, TGE, INE, GEIF, GEDU) \quad \text{.....(2)}$$

The linear form of equation (2) produced;

$$HDI_t = \alpha_0 + \alpha_1 TTR/GDPRt + \alpha_2 TGEt + \alpha_3 INEt + \alpha_4 GEIFt + \alpha_5 GEDUt + \varepsilon_t \text{....(3)}$$

The long form of equation (3) produced;

$$HDI_t = \alpha_0 + \alpha_1 TTR/GDPRt + \alpha_2 LnTGEt + \alpha_3 INEt + \alpha_4 LnGEIFt + \alpha_5 LnGEDUt + \varepsilon t \text{.....(4)}$$

Where; HDI is human development index, TTR/GDPR is the ratio of total tax revenue to GDP, TGE is total government expenditure, INE is inequality, GEIF is government expenditure on infrastructure, GEDU is government expenditure on education, ε is error term which denotes other variables not included in the model, t is the period of time and Ln is Natural Logarithm. **Expected Signs:** The parameter estimates are expected to behave in line with $\alpha_1, \alpha_2, \alpha_3, \alpha_5$ *and* $\alpha_6 > 0$ *and* $\alpha_4 < 0$.

3.1.1. Methods of Data Analysis

The methods that were employed to analyze our data are the unit root test via the Augmented Dickey-Fuller test (ADF) test and the Autoregressive Distributed Lag (ARDL) model. The unit root test helps to ascertain the stationarity of the variables and the ARDL helps to display the short- and long-term relations between the fiscal policy instruments and inclusive growth in the model. The unit root test via the ADF test precedes the ARDL test to test for the stationarity of the variables. The general form of ADF is estimated by the following regression

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \Sigma\alpha_1 \Delta y_i + \delta_t + U_t \quad \text{.....(5)}$$

Where: y is a time series, t is a linear time trend, Δ is the first difference operator, α_0 is a constant, n is the optimum number of lags in the independent variables and U is the random error term. The general form of co-integration is given by

$$y_t = \mu + \Delta_1 y_{t-1} + - - - + \Delta P\, y_{t-p} + U_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(6)$$

Where: y_t is a nx1 vector of variables that are integrated of order commonly denoted (1) and U_t is a nx1 vector of innovations. To examine the short- and long-term relations between the inflation rate and output growth rate in the model, Autoregressive Distributed Lag (ARDL) will be used. The ARDL cointegration approach was developed by Pesaran and Shin (1999); and Pesaran, Shin and Smith (2001). The advantages of this technique over the traditional cointegration techniques include, ARDL cointegration requires a small sample size, it provides two sets of critical values, low and upper-value bounds for all classification of explanatory variables into pure I (1), purely I(0) or mutually cointegrated. Certainly, these critical values are generated for various sample sizes. In addition, Johensen's procedure requires that the variables should be integrated in the same order, whereas the ARDL approach does not require variables to be of the same order. ARDL approach provides unbiased long-run estimates with valid statistics if some of the model repressors are endogenous and it provides a method of assessing the short-run and long-run effects of one variable on the other and also separates both once an appropriate choice of the order of the ARDL model is made. Therefore, the ARDL models for this study are presented thus:

$$\Delta HDI_{t,j} = C_0 + C_1 HDI_{t-1,j} + C_2 LnTTR/GDPR_{t-1,j} + C_3 LnFDI_{t-1,j} + C_4 LnTGE_{t-1,j} + C_5 INE_{t-1,j} + C_6 LnGEIF_{t-1,j} + C_7 LnGEDU_{t-1,j} + \sum_{i=1}^{n1} a_{1i,j} \Delta\, HDI_{t-1,j} + \sum_{i=0}^{n2} a_{2i,j} \Delta\, LnTTR/GDPR_{t-1,j} + + \sum_{i=0}^{n3} a_{3i,j} \Delta\, LnFDI_{t-1,j} + \sum_{i=0}^{n4} a_{4i,j} \Delta\, LnTGE_{t-1,j} + \sum_{i=0}^{n5} a_{5i,j} \Delta\, INE_{t-1,j} + \sum_{i=0}^{n6} a_{6i,j} \Delta\, LnGEIF_{t-1,j} + \sum_{i=0}^{n7} a_{7i,j} \Delta\, LnGEDU_{t-1,j} + \mu_t \quad - - - - - (7)$$

Note the variables as earlier defined.

4. Empirical Results

4.1. Descriptive Statistics for Underlying Series

This study used descriptive statistics to describe the basic features of the data in the study. Specifically, the essence of descriptive statistics is to ascertain the stability of the time series.

Table 1 Descriptive Statistics Result

	HDI	TTRGDPR	TGE	INE	GEIF	GEDU
Mean	0.4606	0.0809	2586.041	41.0158	70865.22	426644.5
Median	0.4645	0.0855	1304.995	40.900	58568.70	101611.5
Maximum	0.5400	0.1933	9286.390	42.800	233547.5	2013373.
Minimum	0.3280	0.0008	13.04000	39.200	1031.700	653.5000
Std. Dev.	0.0606	0.0625	2801.444	1.0729	61844.74	748593.4
Skewness	-0.4384	0.0293	0.9266	0.2463	0.380254	1.599255
Kurtosis	2.0759	1.5461	2.6509	1.8421	2.186209	3.610540
Jarque-Bera	2.5693	3.3522	5.6305	2.5070	1.964331	16.78845
Probability	0.2767	0.1871	0.0599	0.2855	0.374499	0.000226
Observations	38	38	38	38	38	38

Source: Author's Computation (2024)

The descriptive statistics reported in Table 1 indicates that human development index (HDI), the ratio of total tax revenue to GDP (TTR/GDPR), total government expenditure (TGE), inequality (INE), government expenditure on infrastructure (GEIF) and government expenditure on education (GEDU) averaged 0.460624, 0.080944, 909517.1, 2586.041, 41.01579, 70865.22 and 426644.5 respectively. The standard deviation reveals that the human development index, the ratio of total tax revenue to GDP, inequality and government expenditure on infrastructure converge around their respective mean. While total government expenditure on infrastructure and government expenditure on education did not converge around their respective mean. The Skewness test result shows positive values for all the variables. This means that all the variables have high tails.

Furthermore, the human development index, ratio of total tax revenue to GDP, inequality and government expenditure on infrastructure are platykurtic relative to normal, since their values for kurtosis 2.075911, 1.546124, 1.586413, 1.842083 and 2.186209 are approximately less than 3. This suggests that the variables have short and thin tails, and their central peaks are lower and broader. Moreover, government expenditure on education has leptokurtic distribution relative to normal, since its value for kurtosis 3.610540 is approximately more than 3. This indicates a flatter than normal distribution and the variable has a large tail. That is, it has a longer and fatter tail, and its central peak is higher and sharper. In addition, total government expenditure is mesokurtic since its value for kurtosis 2.650935 is approximately 3. This means that it has a normal curve-it is neither flat nor peaked.

The probability of Jarque-Bera statistics suggests that the human development index, the ratio of total tax revenue to GDP, inequality and government expenditure on infrastructure are normally distributed at a 5% level while total government expenditure and government expenditure on education are not normally distributed at 5% level as their deviation from normality, as measured by the test statistic, is statistically significant. Therefore, the study concludes from the revealed statistical properties of the time series that some of the variables are not normally distributed, which may have resulted from the problem of unit root. This necessitated the unit root test for stationarity as shown in Table 2.

Table 2 Results of ADF Unit Root Test

Variables	**Level form**		**First difference**		**Order of integration**
	ADF Statistics	**5% Critical Value**	**ADF Statistics**	**5% Critical Value**	
HDI	-3.421508	-3.540328	-10.57920	-3.540328	1(1)
TTR/GDPR	-2.220417	-3.536601	-6.146517	-3.540328	1(1)
TGE	0.639473	-3.574244	-5.376501	-3.574244	1(1)
INE	-1.634707	-3.536601	-6.040099	-3.540328	1(1)
GEIF	-5.045683	-3.536601	-	-	1(0)
GEDU	-1.558734	-3.536601	-6.169301	-3.540328	1(1)

Source: Author's Computation (2024)

The stationarity - unit root test result revealed that GEIF was stationary at levels 1(0). That is, it was integrated at order zero. However, HDI, TTR/GDPR, TGE, INE, GEIF and GEDU were stationary at first differences 1(1). That is, they became stationary after first differencing. Given that the variables were integrated in order 1(0) and 1(1). The condition to fit in an ARDL model to test for a long-run relationship is satisfied.

Table 3 ARDL Bounds Co-integration Test Result

Model		**F-Statistic = 6.516396**
HDI = F(TTR/GDPR, TGE, INE, GEIF, GEDU)		K = 6
Critical Values	Lower Bound	Upper Bound
5%	2.27	3.28

Source: Author's Computation (2024)

From the ARDL bounds test result presented in Table 3, it is clear that there is a long-run relationship among the variables (HDI, TTR/GDPR, TGE, INE, GEIF and GEDU). This is because the computed F-statistic of about 6.52 is higher than the lower and upper critical bounds at a 5% critical value. This provided evidence to reject the null hypothesis of no co-integration at a 5% significance level for the human development index (HDI) model. It can therefore be concluded from the ARDL bounds test that there is a long-run relationship among the variables. Thus, this study illustrates that the ratio of total tax revenue to GDP, total government expenditure, inequality, and government expenditure on infrastructure and education have a long-run relationship with Nigeria's human development index (HDI). Following the establishment of a long-run co-integration relationship among the variables, the long-run and short-run dynamic parameters for the variables were obtained.

Table 4 Estimated ARDL Long Run Coefficients. Dependent Variable: HDI (3, 3, 3, 3, 2, 3, 2)

Variables	Coefficient	Std. Error	t-Statistic	P-Value
TTRGDPR	-1.208899	0.691088	-1.749270	0.1142
LOG(TGE)	-0.048185	0.033942	-1.419646	0.1894
INE	-0.047054	0.021188	-2.220743	0.0535
LOG(GEIF)	0.080255	0.045802	1.752192	0.1137
LOG(GEDU)	0.009187	0.011409	0.805230	0.4414

Source: Author's Computation (2024)

The estimated ARDL long-run coefficients reveal that the ratio of total tax revenue to GDP and total government expenditure has a negative relationship with the human development index. This does not conform to the apriori expectation. That is, the result is not consistent with theoretical expectations in economics. What this suggests is that, in the long run, an increase in the ratio of total tax revenue to GDP and a percentage increase in total government expenditure will reduce the human development index by 1.208899 and 0.048185% respectively. At the same time, the ratio of total tax revenue to GDP and total government expenditure does not have a significant relationship with the human development index.

In addition, government expenditure on infrastructure and education has a positive relationship with the human development index. These outcomes conform to the apriori expectations. That is, the result is consistent with theoretical expectations in economics. What this suggests is that, in the long run, a percentage increase in government expenditure on infrastructure and government expenditure on education will increase the human development index by 0.005110%, 0.080255% and 0.009187% respectively. However, government expenditure on infrastructure and education does not have a significant relationship with the human development index in the long run. As expected in the long run, inequality has a significant negative relationship with the human development index in Nigeria. That is, the result is consistent with theoretical expectations in economics.

Table 5 Error Correction Representation for the Selected ARDL Model ARDL (3, 3, 3, 3, 2, 3, 2)

Regressors	Coefficients	t-Statistic	P-Value
D(TTRGDPR)	-0.130388	-3.496862	0.0068
DLOG(TGE)	0.043538	7.832564	0.0000
D(INE)	0.020525	10.74691	0.0000
DLOG(GEIF)	-0.008968	-4.862337	0.0009
DLOG(GEDU)	0.010077	5.204523	0.0006
ECM (-1)	-0.351642	9.626922	0.0000
R-squared = 0.9907 Adjusted R-squared = 0.9802	Akaike info criterion = -7.774	Schwarz criterion = -6.9300	Durbin-Watson stat = 1.9084

Source: Author's Computation (2024)

The above-tabulated result of the dynamic model suggests that the model is of good fit, as the power of the predictors, captured as the R^2 accounted for about 99 percent of variations in the model. In other words, an estimated R^2 result of 0.990728 disclosed that 99 percent of the vicissitudes in the human development index (inclusive growth) were due to changes in the ratio of total tax revenue to GDP, total government expenditure, inequality, government expenditure on infrastructure and government expenditure on education. Hence, the explanatory influence of the regressors included in the model is 99 percent. In terms of the autocorrelation problem, the estimated Durbin Watson's (DW) value of 1.908442 suggests that autocorrelation is not a problem for the model. The coefficient of the Error Correction Term appears with the right sign (i.e., negative) and is statistically significant. This shows that disequilibria in the human development index (HDI) in the previous year were corrected for in the current year. It, therefore, follows that the ECM could rightly correct any deviations from the short-run to long-run equilibrium relationship between HDI and the explanatory variables.

The coefficient of the ratio of total tax revenue to GDP appears with the wrong sign (i.e., negative). This means that there is a negative relationship between the ratio of total tax revenue to GDP and the human development index (HDI). This does not conform to the apriori expectation. That is, the result is not consistent with theoretical expectations in economics. This means that increases in the ratio of total tax revenue to GDP will decrease the human development index by 0.130388. However, the absolute value of the t-statistic for the slope coefficient is statistically significant. Thus, the study accepts that there is a significant relationship between the ratio of total tax revenue to GDP and the human development index in Nigeria. The significant relationship between the ratio of total tax revenue to GDP and the human development index reflects the potency of the variable (i.e., the ratio of total tax revenue to GDP) as an important conduct in transmitting fiscal policy impulses to the aggregate economy thereby improving the quality of life of inhabitants of Nigeria as measured by the HDI during the period of study.

In addition, the coefficients of total government expenditure appear with the right sign (i.e., positive). This means that total government expenditure has a positive relationship with human development index (HDI). This outcome conforms to the apriori expectation. That is, the result (the positive sign) is consistent with theoretical expectations in economics. This means that a percentage increase in total government expenditure will increase the human development index by 0.043538%. At the same time, the absolute value of the t-statistic for the slope coefficient is statistically significant. Thus, the study accepts that there is a significant relationship between total government expenditure and the human development index in Nigeria. What this suggests is that total government expenditure has helped in improving the quality of life of the inhabitants of Nigeria as measured by the HDI during the period of study. Strictly speaking, this result implies that total government expenditure in economic services, transfers, administration, and social and community services has helped in improving the quality of life of inhabitants of Nigeria as measured by the HDI during the period of study.

The coefficient of inequality appears with the wrong sign (i.e., positive). This means that there is a positive relationship between inequality and the human development index (HDI). This does not conform to the apriori expectation. That is, the result is not consistent with theoretical expectations in economics. This means that an increase in the inequality index will increase the human development index by 0.020525. However, the absolute value of the t-statistic for the slope coefficient is statistically significant. Thus, the study accepts that there is a significant relationship between inequality and the human development index in Nigeria.

The coefficients of government expenditure on infrastructure appear with the wrong sign (i.e., negative). This means that government expenditure on infrastructure has a negative relationship with human development index (HDI). This outcome does not conform to the apriori expectation. That is, the result (the negative sign) is not consistent with theoretical expectations in economics. This means that a percentage increase in government expenditure on infrastructure will decrease the human development index by 0.008968%. However, the absolute value of the t-statistic for the slope coefficient is statistically significant. Thus, the study accepts that there is a significant relationship between government expenditure on infrastructure and the human development index in Nigeria. What this suggests is that government expenditure on infrastructure has helped in improving the quality of life of the inhabitants of Nigeria as measured by the HDI during the period of study. Strictly speaking, this result implies that government expenditure on infrastructure in building assets of a lasting character, like construction of canals, dams, water storage, roads and railway lines, public buildings of various kinds, ports, etc. can help in improving the quality of life of inhabitants of Nigeria as measured by the HDI during the period of study.

Moreover, the coefficient of government spending on education is positively related to the human development index. This means that a percentage increase in government spending on education will increase human development in Nigeria by 0.010077%. This is consistent with theoretical expectations in economics. At the same time, the absolute value of the t-statistic for the slope coefficient is significant at the conventional level (i.e., 5%). Thus, the study upholds

that government spending on education has a significant relationship with the human development index in Nigeria during the period of study. This means that funds budgeted for projects in the educational sector including the building of classrooms, laboratories, purchase of teaching and learning aids including computers, etc. have helped in improving the quality of life of inhabitants of Nigeria as measured by the HDI during the period of study.

4.2. Post-Estimation Diagnostic Tests Results

Diagnostic tests were conducted in this study to verify whether or not the estimated model is reliable for policy prediction or recommendation purposes. This study specifically employed the Wald test for the coefficient of restriction, Breusch-Godfrey (B-G) Lagrange Multiplier (LM) test for serial correlation, Autoregressive Conditional Heteroskedasticity (Breusch-Pagan-Godfrey), and normality test for the diagnostics or post-estimation analyses. The various test results are hereby reported below:

4.3. Wald Test

The Wald test is applied to confirm if the coefficients of the causal variables in each of the ECM models are jointly significant. The F-statistic in Table 6 was utilized to ascertain this.

Table 6 Wald Test Result

Wald Test:			
Equation: Untitled			
Test Statistic	Value	Df	Probability
F-statistic	4874.347	(7, 9)	0.0000
Chi-square	34120.43	7	0.0000

Source: Author's Computation (2024)

The result in Table 6 shows that the F-statistic is approximately 4874 and the probability value of 0.0000 is less than 0.05 at the conventional 5 percent level. Therefore, all the independent variables used in the model are jointly important in explaining inclusive growth (human development index) in Nigeria during the period of study.

5. Conclusion

This study investigated the effect of fiscal policy on inclusive growth in Nigeria from 1985-2022 and the regression result revealed that in the long run, government expenditure on infrastructure, government expenditure on education have a positive and insignificant relationship with inclusive growth (human development index) in Nigeria. Also, total government expenditure and the ratio of total tax revenue to GDP have a negative and insignificant relationship with inclusive growth (human development index) in Nigeria. Interestingly, inequality has a negative and significant relationship with inclusive growth (human development index) in Nigeria. In the short run, the ratio of total tax revenue to GDP and government expenditure on infrastructure has a negative and significant relationship with inclusive growth (human development index) in Nigeria. At the same time, government expenditure on education, total government expenditure and inequality have a positive and significant relationship with inclusive growth (human development index) in Nigeria. From the above findings, fiscal policy in Nigeria has a meaningful (significant) effect in achieving broad-based inclusive growth during the period of study.

Therefore, the study concluded that fiscal policy via the ratio of total tax revenue to GDP, total government expenditure, government expenditure on infrastructure and government expenditure on education remains crucial in the process of achieving inclusive growth in Nigeria. Thus, fiscal policy will be effective in achieving inclusive growth in Nigeria if well managed.

Recommendations

Based on the findings of the study, the following recommendations were made:

- **Infrastructural Development and Maintenance**: The government should prioritize infrastructural development and maintenance. This involves not only increasing investment in infrastructure projects but also

ensuring efficient utilization of resources and effective maintenance strategies to maximize the benefits derived from such investments.

- **Optimized Government Expenditure Allocation**: There is a need to be prudent in fiscal management to ensure that government expenditure is directed towards priority sectors that have the potential to stimulate economic growth and improve the quality of life for Nigerians. This includes investments in critical infrastructure such as roads, energy, and healthcare facilities.
- **Increased Investment in Education**: The government should allocate more funds towards improving educational infrastructure, enhancing the quality of education, and expanding access to education, particularly at the primary and secondary levels.
- **Policy Coordination and Implementation**: There is a need for effective coordination and implementation of fiscal policies across various government ministries, departments, and agencies. This includes streamlining budgetary processes, enhancing transparency and accountability in fiscal management, and strengthening monitoring and evaluation mechanisms to ensure that fiscal policies are aligned with inclusive growth objectives and effectively implemented on the ground.
- **Reduction of Income Inequality**: There is a need for targeted policies aimed at reducing income disparities across various socio-economic groups in Nigeria. Measures such as progressive taxation, social welfare programmes, and initiatives to promote equal access to education and employment opportunities can help alleviate income inequality and foster more inclusive growth.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict between the authors regarding the study. All authors have participated, reviewed and approved the publication of the study.

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