



Impact of Tax Revenue and Infrastructural Development on Economic Growth in Nigeria

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JEMT/2023/v29i31079

Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/95868>

Original Research Article

Received: 19/11/2022

Accepted: 24/01/2023

Published: 06/02/2023

ABSTRACT

This study seeks to establish the impact of tax revenue and infrastructural development (through investment) on economic growth in Nigeria. It is expected that tax revenue should serve as an incentive for infrastructural development to strive and yield economic growth. The data used in the study was obtained majorly from World Development Indicator (WDI) Database 2022. Tax revenue was proxied as the actual total tax revenue collected from VAT, and CIT, and PPT. This formed the independent variables as well as Gross Capital formation (GCF) to represent infrastructural development. While the dependent variable is RGDP. The ARDL model was employed after variables were stationary at both levels and at first difference. The study found a significant long-run relationship among the variables. Specifically, PPT was found to be a strong contributor to economic growth in Nigeria. VAT was only positively significant at 15% accounting for economic growth. GCF and CIT were not significant in the study. The research employs a quantitative method of data analysis. These findings connote that GCF, VAT and CIT are yet to fully be additive components in the Nigerian economy. Government economic policy and financing henceforth should reflect good economic policy direction that will open up these components for economic growth in the country.

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Keywords: *Central Bank of Nigeria (CBN); Federal Inland Revenue Service; (FIRS) Gross Fixed Capital Formation (GFCF).*

1. INTRODUCTION

A government that is working to promote economic development relies on taxes to operate. The provision of social security, comforts, safety, and justice for all are only a few of the duties that the government must carry out, therefore it only seems sense that the people would contribute to the common good.

Different people define tax differently. Tax, as described by the Oxford Advanced Learner's Dictionary of 2006, is money that you must pay to the government in order for it to fund public services. According to Abdulrazaq, taxes are levied by the legislature with the consent of the people for public reasons. According to Akanle, tax is a mandatory charge that the government that has jurisdiction over a subject must impose on him or his property. According to Ramanath Aiyar's Concise Law Dictionary (2009), tax is not compensation for services provided but rather a legally enforceable compelled extraction of funds for public purposes by public authorities.

Tax is a mandatory charge placed by a territory's public authority (government), whether federal, state, or local, on earnings accruing to people and businesses from the creation, sale, and use of goods and services. is the sale of taxable property for the benefit of everyone. In Nigeria, taxes are a product of laws that are occasionally passed by acts of the National Assembly [1-3]. Taxes paid are a transfer of resources from the government to various economic agents in order to accomplish economic and social goals rather than a direct exchange of commodities or services (Ewoma, 2012). Nigeria, one of the nations in the world, aspires to have one of the largest economies in the world, which is clearly the driving force behind all past and present governments' efforts to focus on infrastructure improvement and economic expansion. Taxation, investment, and other macroeconomic variables and policies have a significant impact on the rate of economic growth in any country [4-6]. Each country strives to expand its revenue base in order to advance its infrastructure development [7].

As a microeconomic and fiscal tool, taxes move resources from the private to the public sectors in order to achieve economic and social objectives. The Nigerian government uses taxes as a tool to monitor, access, and manage the informal

economy, which dominates most wealthy nations worldwide [8-10]. Wambaiand & Hanga [11] due in large part to the financial crisis being brought on by Internally Generated Revenue, all levels of government in Nigeria are no longer effective in carrying out their respective statutory requirements and responsibilities (IGR). The financial position is so bad due to the hyper-inflation as depicted by the statistical agencies; this has affected the provisions of essential social services to the people.

The use of taxation as a tool of social engineering to promote overall and/or sectoral economic growth was promoted by Okafor [12] and Sanni (2007). The impact of taxes on both the person and the government may be favorable or unfavorable. The majority of the money required for development in Nigeria comes from oil, hence tax revenue has historically made up a very modest part of total government income. Over the years, the revenue from the export of crude oil has made up around 80% of all government revenue, with the remaining 20% coming from other sources [13].

The Nigerian government should adopt tax policies that would encourage investment and tax income, both of which must be sufficient to meet the rising infrastructural needs and aspirations of its populace [14,15]. A low tax rate, in the form of various incentives, can stimulate investment and production, which will promote economic growth and the development of infrastructure. A high tax rate can raise the cost of production and lower the motivation to invest in an economy. Taxes have an impact on how much money households decide to spend, save, and earn. Worker substitution is allowed between high-taxed and comparatively low-taxed activities [16]. High tax rates might cause employees to work fewer hours and participate in less productive economic activities, which can have negative economic.

The study's goal is to determine how tax income and investment affect economic growth in Nigeria, with a focus on the effects of the GCF, Value Added Tax (VAT), Company Income Tax (CIT), and Petroleum Profit Tax (PPT) on that growth.

The government's primary sources of income are taxes. Finding out how tax revenue affects

Nigeria's infrastructure development is necessary because it can be used to achieve economic growth, maintain economic equilibrium by fending off depression, inflation, or deflation, achieve equity in income and wealth distribution, address issues of poverty, and promote socioeconomic development. The research findings would be significant to national policy makers as they developed policies intended to improve things in the economy.

The scope of the study covered the assessment of non-tax and tax revenue on infrastructural development in Nigeria over a period of twenty five years (1996-2021). The trend of petroleum profit tax, company income tax, and value added tax were examined for the period to determine their correlation with infrastructural development in Nigeria. The focus would be based on the data obtained at the Federal Inland Revenue Service (FIRS).

Under this study, we examined the federal taxes collected by the government and its contribution to infrastructural development in the Nigerian economy.

This study shall contribute to the existing literature on how tax revenue can be a catalyst to economic growth and infrastructural development. This study would therefore be one of very few studies that, investigated the significant difference between the effects of oil and non-oil tax revenue on economic growth in Nigeria. It will therefore add to the body of knowledge in academic literature.

2. LITERATURE REVIEW

2.1 Conceptual Review

"Tax is an instrument employed by generating public funds on behalf of the government" [17] & [18]. "It's a mandated payment that the government imposes on the income, wealth, or profits of certain people, groups of people, or corporate organizations. It entails applying a tax rate to a tax base" Ofoegbu et al 2016 [17] & Piana 2003.

According to Okafor [12] and Brautigam [19], a well-crafted tax structure can assist governments in developing nations in setting expenditure priorities, establishing reliable institutions, and enhancing democratic accountability. A tax's primary function is to enable the public sector to

finance its operations in order to advance the economic and social objectives of a nation. It may also be done to ensure social justice through the redistribution of wealth [20,21]. taxation is consequently an economic tool.

According to Macek [22] and Musgrave and Musgrave [23], it is challenging to utilize taxes as a tool of fiscal policy to promote economic development in emerging nations due to the declining level of tax revenue generated in these nations.

2.2 Federal Government Collectible Taxes in Nigeria

Buba (2007) highlights the need for significant investments in sectors like infrastructure, energy, and power in order to strengthen the private sector, which is the primary driver of national development, growth, and wealth creation. This level of investment can only come from the government. Investments in fields like education, health, and other ones that can create jobs are also necessary if we want to raise the standard of living for the poorer members of society. If only it can effectively gather enough money, the government will be able to complete these projects. Policy guidance, in the opinion of Olawunmi and Ayinla (2007), represents the goal of economic policy. Tax income and public spending are the primary tools for fiscal policy.

2.3 Petroleum Profits Tax

The taxation of petroleum profit entails the assessment of income derived from petroleum operations. It is a fee that the oil industry's upstream operations must pay Odusola [13]. The enactment of many laws governing the taxes of profits from petroleum operations is due to the significance of petroleum to the Nigerian economy. According to Buba (2007), the Petroleum Profits Tax Act of 1990, which governs Nigeria, mandates that all businesses involved in the extraction and transportation of petroleum must pay tax. According to Adegbe (2011), a petroleum company's taxable income, which includes the proceeds from the sale of oil and other related products used by the business, is subject to tax at a rate of 85%. However, during the first five years of operation, this rate is reduced to 65.75%, and in cases where oil companies operate under production-sharing agreements, they are subject to a tax rate of 50%.

2.4 Companies Income Tax

"Company's income tax Act, 1990 is the current enabling law that governs the collection of taxes on profits made by companies operating in Nigeria excluding companies engaged in Petroleum exploration activities. This tax must be paid at a rate of 30% for each year that any company's profits are assessed" (Adereti 2011). Nigeria first enacted company income tax (CIT) in 1961. The current name of this statute, which has undergone numerous amendments, is the Company Income Tax Act 1990. (CITA). This tax is managed by the Federal Inland Revenue Services (FIRS) of the Federal Board of Inland Revenue.

2.5 Value Added Tax

The value added that arises from each exchange is taxed with a VAT. It is an indirect tax that is paid by a party other than the one that actually pays the tax. Through the passage of the VAT Act No. 102 of 1993, the value-added tax (VAT) was first implemented in Nigeria in January 1994.

Many nations around the world have adopted VAT, a consumption tax that is relatively simple to administer and difficult to evade (Federal Inland Revenue Service, 1993). The 1993 Value Added Tax Act governs the collection of taxes owed on "vatable" products and services. In 2011 (Adereti). It was implemented to take the place of the previous sales tax. It is a consumption tax that is paid by the ultimate consumer and is assessed at every level of the consumption chain. "A taxable person must charge and collect VAT at a fixed rate of 5% of all invoiced amounts for taxable products and services after registering with the Federal Board of Inland Revenue" (Ariyo, 1998). The tariff has been increased from 5% to 7.5% as of today.

2.6 Infrastructural Development

Infrastructure is typically thought of as those fundamental and necessary services that must exist before development can take place. According to Waziri, Ali, and Nuru (2014), infrastructure can also be used to refer to the physical structures needed for civilization to function. Infrastructure refers to the fundamental physical and institutional components that make up a society, such as its industries, buildings, roads, bridges, health services, government, and so forth (Oyedele 2012). Transportation (road,

rail, ocean, air, pipeline), telecommunication, and power are examples of infrastructure components or elements (Ajakaiye, 2002).

According to Aigbokhan (1999), infrastructure refers to activities that are considered "social overhead capital" and have two key characteristics: economies of scale in production and spillover effects from users to non-users. It is business, or the goods, services, and conveniences needed for an economy to run (Sullivan and Sheffrin 2003). The definition of the term "technical structures" is "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or improve societal living conditions" and it typically refers to the technical infrastructures that support a society, such as roads, water supply, sewers, electric national grids, telecommunications, and so forth (Fulmer 2009). When viewed holistically, infrastructure development can be equated with consistent increases in per capita income. According to Todaro and Smith (2011), the presence of physical, social, and economic infrastructures can support and expedite the development of infrastructural systems. The absence of essential infrastructure and services will make development all but impossible (Migap 2014).

2.7 Petroleum Profit Tax and Infrastructural Development in Nigeria

All business firms registered in Nigeria must pay between 50% and 85% of petroleum profit tax on their profits, as well as those of those whose revenue is derived from oil and gas operations in Nigeria (Dike, 2014). The Petroleum Profit Tax Act of 2007 as amended governs the petroleum profit tax. 2009 saw petroleum profit tax rates of 85% on exports and 65.75% on domestic sales of oil and gas (Ogbonna & Appah 2012). Nigeria, the most populous country in Africa, is thought to generate the majority of its GDP (gross domestic product) through the petroleum industry [24]. The contribution of the petroleum sector to the Nigerian economy can be evaluated in terms of its proportion of the country's revenue.

The petroleum industry is credited with making significant contributions to government income and foreign exchange reserves (Onyemaechi 2012). It has been established that the PPT makes up the largest portion of Nigeria's tax revenue, thus it is probably safe to assume that it also plays a significant role in the country's development of infrastructure. Azaiki and Shagari

(2007) note that nations with an adequate supply of petroleum can rely on this resource to support their economic growth. Additionally, they highlight the potential gains from better economic growth and job creation, increased tax revenues to help fight poverty, technology transfer, infrastructure development, and the promotion of linked businesses.

2.8 Company Income Tax and Infrastructural Development in Nigeria

Dike (2014) asserts that CIT is a company tax. All registered corporate enterprises may claim it at a rate of 30% on their profits, with the exception of those engaged in petroleum operations. In a closed economy, corporate taxation is quite simple, but it becomes more challenging when businesses operate in multiple nations (Zucman, 2014). Company income tax is one of the major taxes collected by the federal government and provides funding for the development of various important industries in Nigeria, despite not being the greatest contributor to tax revenue in Nigeria. By paying taxes, businesses are able to take advantage of some crucial government services including the improvement of road networks, reliable and effective telecommunication, energy, and water supply.

2.9 Value Added Tax and Infrastructural Development in Nigeria

A consumption tax is value added tax (VAT). The final consumer of the good or service is responsible for paying it at each level of the consumption chain (Onwuchekwa, & Aruwa, 2014). Value added tax can be thought of as the additional value that a producer adds to his raw material purchases using labor before selling the processed goods or services (Okoli, & Afolayan, 2015). African nations like Benin Republic, Cote d'Ivoire, Kenya, Madagascar, Mauritius, Senegal, Togo, and Nigeria have experience using VAT. It has been noted that VAT in these nations has significantly increased government revenue (Ajakaiye, 2000; Shalizi & Squire, 1988; Adereti, Sanni & Adesina, 2011). VAT was implemented in Nigeria in 1993, although full implementation didn't start until 1994. (Onwuchekwa & Aruwa, 2014). Despite numerous amendments to the Act, the government can only collect 5% of the value of goods and services, which is the lowest amount (Abiola, 2014). However, on February

1st, 2020, it was raised to 7.5%. According to Onoh (2013), Value Added Tax (VAT) is the best type of taxation and has helped.

3. THEORETICAL REVIEW

The following theories of taxation were discussed in this study.

3.1 Socio Political Theory of Taxation

According to Ogbonna and Appah [24], this justification supports the imposition of taxes to fund government operations and to provide a basis for dividing the tax burden among society's constituents. They argued in favor of a tax system that is not intended to benefit individuals but rather to treat the problems that plague society as a whole. Since people are essential components of the larger society, which is made up of individuals but is more than the sum of its individual members, the tax system should be focused on promoting the wellbeing of the community as a whole (Chigbu, Akujuobi and Appah, 2012).

3.2 Expectancy Theory

According to Ayuba [20] and Bhartia [25], the tax system is set up in such a way that every tax proposal must pass the practicality test in order to be given to the tax authorities for consideration. It makes a solid case that the state's economic and social goals are unimportant because there is no point in having taxes that cannot be imposed or properly collected.

3.3 Benefits-received Theory

This presupposes an exchange or contractual relationship between the state and the tax-payers; the state provides particular goods and services, and the cost of those goods and services is contributed in the proportion of the benefits received; as a result, the benefits received present the basis for dispersing the tax burden in a particular way. This approach ignores the possibility of using tax policy to stimulate or stabilize the economy. According to Chigbu et al. (2012), the benefits-received theory and the cost of service theory are quite comparable. The approach places a larger emphasis on the semi-commercial interactions between the state and its population. According to Chigbu et al. (2012), the inference was that

citizens were not entitled to any state benefits and that if they did, they would be responsible for covering the associated costs. Unlike the benefits-received theory, which assumes a balanced budget, this theory carefully recovers the costs of services.

3.4 Ability to Pay Theory

The progressive tax method, which claims that taxes should be assessed in accordance with a tax-capacity payer's to pay, should be the basis for all taxes placed on taxpayers, according to this philosophy of taxation. Higher earners must pay more taxes under this system of taxation than do those with lesser incomes. The fundamental concept of this theory is that, in order to uphold the principles of equality and justice, the tax burden should be distributed among society's members according to each person's individual capacity to pay. The idea of equity and justice was developed by Adam Smith. He implicitly supports the idea that the amount of tax due should be equal. The amount of tax due varies with income. Only when the tax system is based on the tax payer's ability to pay the amount assessed as a tax due can equity and justice be presumed.

3.5 The Sacrifice Theory

The Makinya (2000) sacrifice hypothesis seeks to quantify the burden that an individual bears due to the payment of taxes and the amount of money that is left over for self-support. This theory holds that paying taxes is a sacrifice one makes in order to sustain the government.

4. THEORETICAL FRAMEWORK

The Ability-to-Pay Theory was used as the study's theoretical framework. The theory's fundamental tenet is that all members of the public and society should bear the tax burden in accordance with fairness, justice, and equity. This implies that the tax burden should be distributed based on relative merit and financial capacity. In his book "The Wealth of the Nations," Adam Smith argued that the proportion of earned income should be used to determine how much tax is paid or owed. Only when the tax system is based on the tax payer's ability to comfortably pay the amount of tax collected as tax responsibility can equity and justice be effectively implemented.

5. EMPIRICAL REVIEW

Numerous studies using a variety of methods and viewpoints have examined the effects of tax income on economic growth in Nigeria and other parts of the world. However, the findings of the investigations have demonstrated that tax income significantly correlates with economic variables.

Using secondary time series panel data that covered the years 2005 to 2014, Lyndon & Paymaster [26] investigated the effects of companies' income tax and value-added tax on economic growth (measured by gross domestic product) in Nigeria. Both the corporation income tax and the value-added tax have a favorable effect on economic growth, according to the analysis' findings.

In a similar manner, Macek [22] looked into how tax income affected economic growth in OECD nations using time series secondary data from 2000 to 2011. In order to accurately capture the linearity link between the study's variables, he used a mathematical multiple regression model.

Using information for the years 1995 to 2010, Stoilova & Patonov (2012) also looked at how taxation affected economic growth in 27 nations within the European Union. They found that compared to indirect taxes, direct tax collections had a more significant impact on economic growth in EU members. Ogbonna and Appah [24] used data from the Central Bank of Nigeria's (CBN) Statistical Bulletin for the years 1994 to 2009 to examine how tax reforms affected economic development in Nigeria.

They discovered that factors related to tax reform, including the petroleum profit tax, corporate income tax, value-added tax, education tax, personal income tax, and excise and customs taxes, had a considerable impact on Nigeria's economic growth. They came to the conclusion that tax reforms increased tax revenue.

In a related study, Umoru and Anyiwe (2013) used the co-integration technique and an error correction model to evaluate the data and look for a relationship between the New National Tax Policy and economic growth in Nigeria. According to the findings of their investigation, Nigeria's economic growth was significantly positively correlated with direct tax revenue but negatively correlated with indirect tax revenue.

They came to the conclusion that Nigeria's tax strategy on indirect taxation was unjustified and that the nation should instead improve its direct taxation structures.

Ihenyen and Mieseigha [27] used information from the Central Bank of Nigeria for the years 1980 to 2013 to examine taxation as a financial tool for economic growth. They used the method of Ordinary Least Squares (OLS). The findings showed that value-added tax and corporate income tax had a favorable impact on the gross domestic product. They came to the conclusion that taxation is a tool for economic expansion in Nigeria.

Chude & Chude (2015) also looked into how company income tax affected the success of breweries in Nigeria. Their research showed a relationship between taxation and profitability that was positive.

Ofoegbu et al. [17] used annual time series data for the years 2005 to 2014 to conduct an empirical examination of the effects of tax income on Nigeria's economic progress.

They found that tax revenue and economic growth had a substantial causal link. A picture of the relationship between tax revenue and economic development in Nigeria can be painted using the findings of measuring the influence of tax revenue on economic development using HDI compared to measuring the relationship with GDP.

In 2016, Cornelius, Ogar, and Oka looked at how tax revenue affected the Nigerian economy.

With GDP as the dependent variable and CIT, PPT, and NOR as the independent variables, the study covered the years 1986 to 2010. Their research found a strong correlation between the growth of the Nigerian economy and the tax on petroleum profits. Additionally, it demonstrated a strong correlation between non-oil earnings and the expansion of the Nigerian economy. They discovered no connection between corporate income tax and the expansion of the Nigerian economy.

Okafor [12] examined tax revenue production and Nigeria's economic growth from 1981 to 2007. The null form of the hypothesis argues that there is no meaningful correlation between federal tax income collected and Nigeria's GDP.

Regression analysis revealed a strong and significant link.

Abata [28] used a descriptive survey methodology and a straightforward random sample technique to examine the effect of tax income on the Nigerian economy. His research showed that tax revenue has a big impact on how the federal government budget is implemented and how much money is made in Nigeria.

In a related study, Otu & Theophilus [29] used time series data for the years 1970 to 2011 to analyze the impacts of tax revenue on economic growth in Nigeria. According to their findings, local investment, the labor force, and foreign direct investment all significantly and favorably affect economic growth in Nigeria.

Ogbonna & Appah [24] looked into how Nigeria's tax management and revenue affected the country's economic expansion. Relevant regression analysis was used to examine the survey data as well as secondary data. According to their findings, there is a substantial correlation between the following: personal income tax revenue (PITR) and per capita income; corporate income tax revenue and Nigeria's GDP; VAT revenue and PCI; and petroleum profit tax revenue and Nigeria's GDP.

Between 1986 and 2012, Ihendinihu et al. [30] looked at long-run equilibrium correlations between tax income and economic growth in Nigeria. According to their findings, overall tax income significantly influences economic growth, accounting for around 73.4% of the entire fluctuation in RGDP. It was found that CIT, EDT, and OTR significantly influenced economic growth and maintained long-run equilibrium relationships with RGDP.

Muriithi [31] investigated the link between tax income and Kenya's economic expansion. According to his European Journal of Accounting, Auditing and Finance Research study, income taxes and economic growth are directly related. He added that a VAT rise has a favorable impact on the pace of economic growth.

Additionally, for the years 1980–2013, Ude & Agodi [32] looked into the time series effects of non-oil revenue variables on economic growth in Nigeria. They found that the non-oil revenue variables examined—agricultural and industrial

revenue as well as interest rates—had a considerable impact on Nigeria's economic expansion.

According to Medee & Nenbee (2011), who used vector auto-regression and error correction mechanisms to conduct an econometric analysis of the effects of fiscal policy variables on Nigeria's economic growth from 1970 to 2009, tax revenue has a positive impact on the country's economic growth in both the short and long terms.

Gacanja [33] conducted an empirical case study on tax collections and economic growth in Kenya. His findings demonstrated a favorable correlation between economic expansion and tax receipts.

Akinwale (2010) looked into Nigeria's inadequate infrastructure. The examination of the data, which was taken from an archived source, revealed that the issue of inadequate infrastructure still exists in Nigeria despite the country's efforts to improve it. According to Akinwale, the issue is not a lack of funding but rather carelessness and corruption.

According to CBC (2013), Africa's integration and growth potentials have been severely hampered by an immense infrastructural deficit. Without sugarcoating it, they argue that growth and development, as well as the realization of goals and visions for development, can only be addressed if the issue of a deficient infrastructure is resolved. According to them, effective taxation is a strategy that can be used to accomplish this. According to Adefila and Bulus (2014), the level of infrastructure development in Nigeria's Plateau State varies spatially. A structured questionnaire with a survey study design was delivered to 1,020 randomly selected Nigerian residents as part of the methodology used. The study used the analytical method of standardized score (Z-score). The outcome revealed significant differences between local governments in the overall levels of infrastructure development in the research area as well as an uneven distribution of infrastructure development in space. Basically, there was uneven infrastructure development throughout the state, which may have been caused by the way local governments used funds.

Value Added Tax (VAT) is believed by Okoli & Afolayan (2015) to provide a significant financial contribution to Nigeria. The data collected

between 1994 and 2012 were analyzed using the Error Correction Model (ECM). According to the study, VAT is the second major long-term source of all nationally collected revenue.

Appraisal of Contributions of the Different Sources of Local Government Revenue to the Economic Development of Nigeria was the study's title by Ejiogor & Ekwe (2016). (1993-2013). Findings show that the federal government's strict efforts to strategically connect and increase the internally generated revenue sources will be negatively impacted by the widespread collapse in crude oil prices.

According to Abdul-Rahamoh, Taiwo, and Adejare (2013), the petroleum profit tax (PPT) had a negative impact on the Nigerian economy. The investigation spanned forty years (1970 - 2010). The researchers tested precise declarations of their aims using regression analysis with multiple regression and SPSS version 17. According to the study, taxes significantly affect Gross Domestic Product (GDP). According to the analysis, the Nigerian economy was significantly impacted by the tax on petroleum profits.

In their study of the impact of the petroleum profit tax, interest rate, and money supply on the Nigerian economy from 1970 to 2010, Olatunji & Adegbite (2014) used multiple regression to examine the interrelationships between the variables. The analysis showed that the short-term effects of interest rates and petroleum profit taxes on economic development were both favorable. According to the study, petroleum has a beneficial impact on income.

Using the ordinary least square regression method, Eyisi, Oleka, and Bassey (2015) investigated the impact of taxation on macroeconomic performance in Nigeria from 2002 to 2011. The findings demonstrated that tax revenue for the government had a positive and considerable impact on Nigeria's real GDP. The amount of tax income received by the government has a negative, considerable impact on Nigeria's unemployment rate.

Ezu and Okoh (2016) evaluated how tax income in Nigeria affected a number of macroeconomic variables (2000-2015). The total tax revenue from personal income tax, corporate income tax, and consumption tax had a detrimental but minor impact on inflation, according to the study, which used secondary data. The money supply, interest

rate, and exchange rate all had a favorable impact on inflation.

The relative impacts of government capital and operating expenses on Nigeria's economy from 1980 to 2011 were uncovered by Oziengbe (2013). The empirical analysis starts with a multiple linear regression analysis of the impact of total government spending on gross domestic product (GDP). According to the variance decomposition results, innovations in RECEXP account for a larger share of the GDP forecast error variation than innovations in CAPEXP do across all eras.

Tax receipts and government spending were analyzed by Nwofor & Gordon in 2013. They learned how Nigeria's expenditures are impacted by tax revenue. The collecting of secondary data and application of the Pearson moments collation coefficient to test the hypotheses. The study found that the amount of spending by the government can have a negative impact on total tax income, particularly when that spending is primarily ongoing.

On the impact of tax income on specific macroeconomic indicators in Nigeria, Ezu & Okoh (2016) wrote (2000-2015). The results showed that property tax, consumption tax, and overall tax income all had a small but beneficial impact on GDP. The GDP is positively and significantly impacted by company income taxes. The impact of personal income tax on GDP is negligible. The GDP is not significantly impacted by total tax collections. The combined tax revenue from consumption tax, company tax, and personal income tax had a small but unfavorable impact on inflation. Inflation is influenced favorably by the money supply, interest rate, and exchange rate.

6. GAPS IN LITERATURE

Many of the empirical studies reviewed dealt largely on effect of tax revenue on economic growth, very few studies reviewed the impact of tax revenue on infrastructural development. None of the studies included Custom and Excise Duties in the types of tax revenue that were reviewed.

7. METHODOLOGY

The theoretical guide into this study is the ability to pay theory. This theory of taxation upholds that, taxes imposed on tax-payers should be

based on the progressive tax approach which maintains that taxes should be levied according to a tax-payer's ability to pay. This system of taxation requires that higher earning persons pay taxes higher than those with lower income. The basic tenet of this theory is that, the burden of taxation should be shared by the members of the society on the principle of equity and justice and that this principle necessitates that tax burden is apportioned according to their relative ability to pay. Adam Smith is the brain behind the principle of equity and justice. He advocates that, the amount of tax payable should be equal, this by implication. Tax payable is in proportion to earned income. Equity and justice is assumed only when the tax system is based on the ability of the tax payer to pay the amount levied as tax liability.

The population of the study is Nigeria economic data of tax revenue, gross capital formation and economic output. Since inception (1960).

The population sample for tax revenue, gross capital formation and economic output from 1996 to 2021. Tax revenue, gross capital formation and economic output this study is data of this study is the sample size. The Central Bank of Nigeria (CBN) and WDI 2022 are the source of collecting these secondary data. Hence the researcher deemed it fit to draw from the pool of resources of these organizations and believes that any information which comes from these is expected to be effective in achieving the objectives of this study [34].

7.1 Model Specification

In order to examine the impact of tax revenue and investment on economic growth in Nigeria, a multiple linear model is built. The model shows the impact of petroleum profit tax, company income tax, customs and gross capital formation on real economic growth. The purpose of this study is to examine the impact of tax and investment on economic growth in Nigeria.

To achieve this, two variables were identified in the study; these are independent and dependent variables. The independent variables are the Tax revenue generated in Nigeria in the following dimensions as surrogates: Companies Income Tax (CIT), Petroleum Profit Tax (PPT), Cross Capital Formation (GCF), and Value Added Tax (VAT). The dependent variable on the other hand is Real GDP.

Gross fixed capital formation refers to the net increase in physical assets (Investment minus disposals) within the measurement period. GCF is a term used to describe the net capital accumulation during an accounting period for a particular country. The term refers to the capital stocks such as equipment, tools, transportation assets, electricity etc. This variable GCF will be used to capture infrastructural development in this study. This is represented in the following function:

$$RGDP=f(PPT, GCF, CIT, VAT)$$

From the above function, the following model is derived

$$RGDP =\alpha+ \beta_1PPT_t+ \beta_2CIT_t+ \beta_3VAT_t + \beta_4GCF + \varepsilon$$

Where:

GCF: Gross capital formation

PPT: Petroleum Profit Tax

CIT: Company Income Tax

RGDP: Real GDP

VAT: Value Added Tax

α is constant

$\beta_1, \beta_2, \beta_3, \beta_4$ are the coefficient of the parameter estimate

ε is the error term.

7.2 Model Evaluation

The Autoregressive Distributed Lag model (ARDL) models is employed to obtain numerical values of the model coefficient. The value of the F-bounds Test cointegration helped us determine the short run and long run more plausible estimates to interpret.

$$Y_t = \varphi_0 + \sum_{i=1}^p \sigma_i Y_{t-i} + \sum_{i=0}^q \beta_i X_{t-i} + \varepsilon_{it}$$

Where Y is the vector of dependent variables while X is the vector of independent variables with different lag length.

7.3 A priori Expectation

It is expected that the tax revenue generated would have positive impact on economic growth in Nigeria. It would be expected that petroleum profit tax would have a positive significant effect on economic growth in Nigeria. It would be expected that company income tax would have a positive relationship with economic growth in Nigeria. It would be expected that Value Added Tax would have a positive relationship with economic growth in Nigeria. It would be expected that GCF would have a positive relationship with economic growth in Nigeria. Also, it is expected that there is long run relationship in the model. Thus, in summary, it would be expected that

$$\beta_1 > 0.$$

8. RESULTS PRESENTATION

The unit root result in Table 1 shows that CIT, and VAT are stationary at levels while GCF, RGDP and PPT are stationary at first difference. This calls for the use of ARDL model to establish the best coefficients and short-run as well as long-run relationship between the dependent and independent variables in the model.

Based on the above short-run estimates using Autoregressive Distributed Lag (ARDL), gross capital formation has a t-statistics of -0.34297 with a negative coefficient of -3.72E-13 and a P-value of 0.7364 which is greater than 5% level of significance. This indicates that gross capital formation is not significant in relating with the dependent variable RGDP in Nigeria in the short-run. Value added tax was not significant at 5% level in the model.

Table 1. Unit root result

S/n	Variable	Level	First diff	Remark
1	cit	-3.984770(-3.644963)		I(0)
2	ppt		-5.015304(-2.981038)	I(1)
3	rgdp		-3.487769(-2.981038)	I(1)
4	vat	4.950345(-3.012363)		I(0)
5	GCF		-4.327843(-2.981038)	I(1)

Source: E-view 10, 2022

##()

Where ## is test statistics

() is 5% critical value

Table 2. Short run effect of GCF and tax revenues impact on growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
RGDP(-1)	0.460556	0.079551	5.789453	0
VAT	-0.00033	0.069089	-0.00478	0.9963
VAT(-1)	-0.03704	0.185814	-0.19936	0.8447
VAT(-2)	-0.1607	0.101334	-1.5858	0.1336
PPT	0.054757	0.004939	11.08572	0
PPT(-1)	0.003504	0.005573	0.628676	0.539
PPT(-2)	0.046354	0.006039	7.675536	0
GCF	-3.72E-13	1.08E-12	-0.34297	0.7364
GCF(-1)	2.25E-12	1.03E-12	2.182191	0.0454
CIT	0.111442	0.045933	2.426201	0.0283
C	-9.76355	21.44206	-0.45535	0.6554
R-squared	0.997648	Mean dependent var		280.2
Adjusted R-squared	0.996081	S.D. dependent var		170.4677
S.E. of regression	10.67216	Akaike info criterion		7.869262
Sum squared resid	1708.426	Schwarz criterion		8.401534
Log likelihood	-91.3004	Hannan-Quinn criter.		8.022537
F-statistic	636.3507	Durbin-Watson stat		2.263448
Prob(F-statistic)	0			

Source: E-view 10, 2022

Table 3. F Bount test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic k	29.35955 4	10%	2.2	3.09
		5%	2.56	3.49
		2.50%	2.88	3.87
		1%	3.29	4.37
Actual Sample Size 26		10%	2.46	3.46
		5%	2.947	4.088
		1%	4.093	5.532
			Finite Sample: n=30	

Source: E-view 10, 2022

Table 4. Longrun effect of GCF and tax revenues impact on economic growth

Variable	Coefficient	Std. error	t-Statistic	Prob.*
RGDP(-1)	0.825389	0.097661	8.451579	0
VAT	0.172437	0.114094	1.511364	0.1502
VAT(-1)	-0.28028	0.221459	-1.26559	0.2238
PPT	0.057033	0.008162	6.987921	0
GCF	4.96E-13	1.35E-12	0.367527	0.718
CIT	0.020935	0.070954	0.29505	0.7717
RESID01	0.801336	0.515711	1.553847	0.1398
RESID01(-1)	-1.68909	0.786824	-2.14672	0.0475
C	-3.79976	32.40551	-0.11726	0.9081
R-squared	0.990424	Mean dependent var		289.3648

Source: E-view 10, 2022

Moreover, Petroleum Profit Tax has a t- statistics of 11.08572 with a positive coefficient of 0.054757 and a p-value of 0 which signifies that

there is a positive relationship between the petroleum profit tax toward the growth of the economy.

Moreover, the R-squared value of 0.997648 and the Adjusted R-squared value of 0.996081 measured the fitness of the model. There is need to establish possible long-run relationship in the model.

Table 3 established that there is long-run co-integration in the model. This is because the F statistic value at 5% is greater than the lower and upper bound critical values in Table 3. This calls for an estimation of the long-run model of ARDL as presented in Table 4.

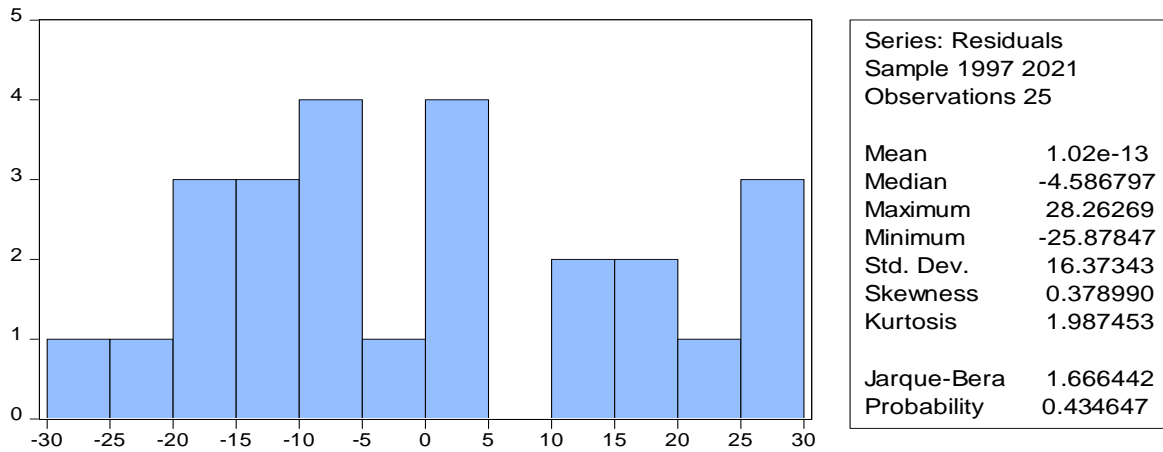
Based on the above long run results using Autoregressive Distributed Lag (ARDL), Value added tax (VAT) has a t-statistics of 1.511364 with a positive coefficient of 0.172437 and a P-value of 0.1502 which is less than 5% level of significance. This indicates that Value added tax has significant positive relationship with the dependent variable that is RGDP on Nigeria economy in the long run. Moreover, Petroleum Profit Tax having a value of t-statistic 6.987921

with a positive coefficient of 0.057033, and a P-value of 0 which is less than 5% level of significance. This mean that Petroleum Profit Tax defines the dependent variable in a good way and that there is a positive relationship with the dependent variable that is RGDP in the long run. Gross capital formation was also analysis in the long run in which show in the results that GCF has a t-statistics of 0.367527 with a positive coefficient of 4.96E-13 and a P-value of 0.718 which is greater than 5% level of significance. That indicate that GCF is not significant and did not define the dependent variable in a good way even though there is a positive relationship in the long run. The ARDL long run residual component has the required sign and its significant with about 1.7 percent adjustment back to equilibrium. Other stability tests carried out such as; Breusch-Godfrey Serial Correlation LM Test, Normality test, Heteroskedasticity Test: Breusch-Pagan-Godfrey, and resursive residual indicate a stable model. Hence, our estimates and findings are reliable.

8.1 Correlation Analysis

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	3.121859	Prob. F(5,11)	0.0537	
Obs*R-squared	14.66527	Prob. Chi-Square(5)	0.0119	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP(-1)	0.142551	0.092899	1.534465	0.1532
VAT	0.057233	0.096096	0.595583	0.5635
VAT(-1)	-0.086844	0.195854	-0.443411	0.6661
PPT	-0.004949	0.008191	-0.604141	0.5580
GCF	-8.83E-13	1.16E-12	-0.759888	0.4633
CIT	-0.009453	0.073101	-0.129314	0.8994
RESID01	0.015278	0.419724	0.036399	0.9716
RESID01(-1)	-0.248860	0.658443	-0.377952	0.7127
C	8.208326	26.92468	0.304862	0.7662
RESID(-1)	-0.673794	0.287648	-2.342427	0.0390
RESID(-2)	-1.114615	0.290355	-3.838803	0.0028
RESID(-3)	-0.798535	0.366349	-2.179710	0.0519
RESID(-4)	-0.637366	0.347936	-1.831847	0.0942
RESID(-5)	-0.278993	0.410539	-0.679577	0.5108
R-squared	0.586611	Mean dependent var	1.02E-13	
Adjusted R-squared	0.098060	S.D. dependent var	16.37343	
S.E. of regression	15.54993	Akaike info criterion	8.625009	
Sum squared resid	2659.805	Schwarz criterion	9.307580	
Log likelihood	-93.81262	Hannan-Quinn criter.	8.814325	
F-statistic	1.200715	Durbin-Watson stat	2.385370	
Prob(F-statistic)	0.385165			

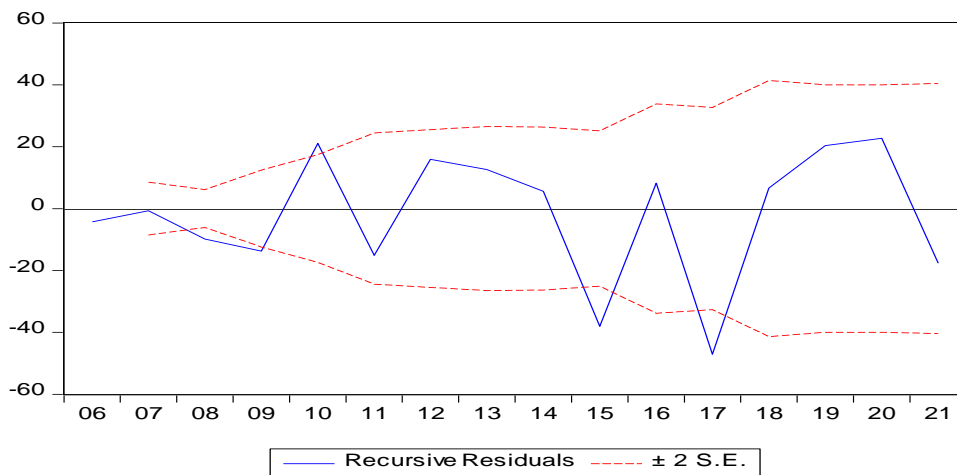
8.2 Normality Test



Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.047814	Prob. F(8,16)	0.4429
Obs*R-squared	8.594801	Prob. Chi-Square(8)	0.3776
Scaled explained SS	1.738129	Prob. Chi-Square(8)	0.9880

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	390.3207	418.4783	0.932714	0.3648
RGDP(-1)	0.609221	1.261173	0.483059	0.6356
VAT	-0.076268	1.473383	-0.051764	0.9594
VAT(-1)	-0.374713	2.859880	-0.131024	0.8974
PPT	-0.026629	0.105398	-0.252655	0.8038
GCF	-1.53E-11	1.74E-11	-0.880832	0.3914
CIT	0.633071	0.916281	0.690914	0.4995
RESID01	0.586171	6.659789	0.088017	0.9310
RESID01(-1)	6.426226	10.16089	0.632447	0.5360
R-squared	0.343792	Mean dependent var		257.3656
Adjusted R-squared	0.015688	S.D. dependent var		261.0195
S.E. of regression	258.9640	Akaike info criterion		14.22497
Sum squared resid	1072998.	Schwarz criterion		14.66376
Log likelihood	-168.8121	Hannan-Quinn criter.		14.34667
F-statistic	1.047814	Durbin-Watson stat		2.358671
Prob(F-statistic)	0.442887			



9. CONCLUSION

The finding of this study provided insight into the effect of tax administration and federal government tax generation on government revenue. It further provided an insight as to the extent to which each of the independent variables affects the dependent variable and also provided an affirmation of the extent to which the variations in the dependent variable are caused by the independent variables covered in the models. The study concludes that there is long-run relationship among tax revenue, investments and economic growth in Nigeria. Petroleum profit tax positively accounts for economic growth in Nigeria both in the short-run and long-run period. VAT was only positively significant at 15% level in the long-run. CIT and GCF were not significant in accounting for economic growth. So more need to be done to make VAT, CIT and GCF positively and significantly account for economic progress in the country.

10. IMPLEMENTATION OF THE FINDINGS

The findings of this study can be implemented via the outlined ways;

- i. The findings that tax and investment have long-run relationship with economic progress, policymakers should focus on policies that would make good use of tax payers' money for sustainable development in Nigeria.
- ii. More need to be done in terms of policy with good economic team to monitor tax policy after been equipped with microeconomics and macroeconomic understanding of how tax affects the economy.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Cornelius MO, Ogar A, Oka FA. The impact of tax revenue on economic growth: Evidence from Nigeria. *IOSR Journal of Economics and Finance*. 2016;7(1):32-38. Central Bank of Nigeria. Annual Statistical Bulletin, Abuja: Central Bank of Nigeria; 2014.
2. David KE. The tax manual: Principles and practice of taxation in Nigeria; 2012.
3. Gabriel ED, Ezekiel AL. The nexus between tax revenue and economic growth in Nigeria. *International Journal of Applied Economics, Finance and Accounting*. 2019;4(2):45-55.
4. Ojong CM, Anthony O, Arikpo OF. The impact of tax revenue on economic growth: Evidence from Nigeria. *Journal of Economics and Finance*. 2016;7(1):32-38.
5. Prister M. Taxation for investment and development: An overview of policy challenges in Africa, Ministerial Meeting and Expert Roundtable of the NEPAD - OECD Africa Investment Initiative on November 11 - 12; 2009.
6. Jhingan ML. Money, banking, international trade and public finance. 8th Edition, Urind Publication lid, Mayur Vihar Phase 1 Delhi; 2011.
7. Saibu OM. Optimal tax rate and economic growth evidence from Nigeria and South Africa. *Euro Economical*. 2015;34:41-50.
8. Lapatinas A, Kyriakou A, Antonios Garas. Taxation and economic sophistication: Evidence from OECD countries. *PLOS One*. 2019;14 (3):1-21.
9. Ogar A, Oka FA. The impact of tax revenue on economic growth: Evidence from Nigeria. *IOSR Journal of Economics and Finance*. 2016;7(1):32-38.
10. Central Bank of Nigeria (2014):Annual Statistical Bulletin, Abuja:Central Bank of Nigeria.
11. Wambai USK, Hanga BY. Taxation and societal development in Nigeria: Tackling Kano's; 2013.
12. Okafor RG. Tax revenue generation and Nigerian economic development. *European Journal of Business and Management*. 2012;4(19).
13. Odusola A. Tax policy reforms in Nigeria. United Nations University- World Institute for Development Economics Research (UNU-WIDER) Research Paper No.2006/03; 2006.
14. Oji N. Stimulating economic growth through an emcent tax system. A paper presented at the seconul annual conference of the chartered fruitute of taration of Nigeria; 2000.
15. Padovano F, Galli E. Tax rate and economic growth in the OECD Countries (1950-1990) *Economic Inquiry*. 2001; 1(39):44-57.

16. Khumbuzile D, Khobai H. The impact of taxation on economic growth in South Africa Munich:Munich Personal RePEc Archive. 2018.
17. Ofoegbu GN, Akwu DO, Olive O. Empirical analysis of effect of tax revenue on economic development of Nigeria. *International Journal of Asian Social Science*. 2016;6(10):604-613.
18. Anyaduba JO. Partnership Taxation in Nigeria. *ICAN Student Journal*. 2004;9(2):15- 17.
19. Brautigam, D. Taxation and Governance in Africa. AEI online; 2008. Available: [Http://www.aci.org/publication/taxation-and-governance-in-africa](http://www.aci.org/publication/taxation-and-governance-in-africa).
20. Ayuba AJ. Impact of non-oil revenue on economic growth: The Nigeria perspective. *International Journal of Finance and Accounting*. 2014;3(5):303 - 309.
21. Ola CS. Income tax law and practice in Nigeria. Heinemann Educational Books; 2001.
22. Macek R. The impact of taxation on economic growth: Case study of OECD countries. *Review of Economic Perspectives*. 2014;14(4):309-328.
23. Musgrave RA, Musgrave PB. Public finance in theory and practice 8th Edn. New Delhi: Tata McGraw; 2004.
24. Ogbonna GN, Appah E. Impact of petroleum revenue and the economy of Nigeria. *Current Research Journal of Economic Theory*. 2012;4(2):11-17.
25. Bhartia HL. Public finance (14th Edition). New Delhi: Vikas Publishing House PVT; 2009.
26. Lyndon ME, Paymaster FB. The Impact of company income tax and value added tax on economic growth: Evidence from Nigeria *European Journal of Accounting, Waiting and Finance Research*. 2016;4,7:106-112.
27. Ihenyem CJ, Mieseigha EG. Taxation as an instrument of economic growth. (The Nigerian Perspective). *Information and Knowledge Management*. 2014;4(12):49-53. Abata MA. The impact of tax revenue on Nigeria Economy (A Case Study of FBIR). *Journal of Policy and Development Studies*. 2014;9(D):109-121.
28. Otu H. B & Theophilus O.A (2013). The Effects of Tax Revenue on Economic Growth in Nigeria *International Journal of Humanities and Social Science Invention ISSN(Online):2319-7722*.
29. Ihendinihu JU, Ebieri J, Amaps Ibanichuka. Assessment of the Long-Run Kenya. Unpublished MBA Project University of Nairobi; 2014. Hadjimichael FM, Kemenyyt, Lanahan L. Economic development: A definition and Model for Investment; 2014. Available: <http://www.edugovtool>
30. Ihendinihu JU, Ebieri J, Amaps Ibanichuka E. Assessment of the Long-Run; 2014.
31. Muriithi. The Relationship Between Government Revenue and Economic Growth in Kenya; 2013.
32. Ude DK, Agodi J. Investigation of the impact of non-oil revenue on economic growth in Nigeria. *International Journal of Science and Research (LISR)*. 2014;3(11):2319-7064
33. Gacanja EW. Tax revenue and economic growth: An empirical case study of Kenya. Unpublished MBA Project University of Nairobi; 2012.
34. Central Bank of Nigeria. Annual Statistical Bulletin, Abuja: Central Bank of Nigeria; 2014.
35. Cornelius MO, Ogar A, Oka FA. The impact of tax revenue on economic growth: Evidence from Nigeria. *IOSR Journal of Economics and Finance*. 2016;7(1):32-38.

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Peer-review history:
The peer review history for this paper can be accessed here:
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