

Government Spending on Road Infrastructure and Its Impact on the Growth of Nigerian Economy

¹Nworji I. D., ²Oluwalaiye O. B

¹Dept. of Accounting, Babcock University, Ogun State, Nigeria

²Dept. of Economics, Banking and Finance, Babcock University, Ogun State, Nigeria

Abstract

The study examined the impact of government spending on road infrastructure development on economic growth in Nigeria for the period 1980-2009. The study employed multiple regression analysis model specified on the basis of hypothesised functional relationship between government spending on infrastructure development and economic growth. Indicators used for government spending are values for defence, transport/communication, and inflation rate as the explanatory variables, while gross domestic product constituted the explained variable. The model for the study was estimated using the Ordinary Least Square (OLS) technique, and further evaluation was carried out using the coefficient of determination to explain the variations between the dependent and independent variables. The outcomes showed that transport and communication, including defence, individually exerted statistically significant impact on the growth of the economy; however, inflation exerted positively but statistically in the period reviewed. However, the variables jointly exerted statistically significant impact on the growth of the economy. Additionally, the model exhibited a very high explanatory power. Based on the findings the study recommended that better co-ordination in the terms of private participation in funding and maintenance of road infrastructure could further enhance the growth of the economy.

Keywords

Nigerian Economy, Growth, Road Infrastructure, Government Spending

I. Introduction

The issue of government intervention in resource allocation arose due to the failure of market mechanism to effectively and efficiently perform this function. The public sector operates in a mixed system, that is, the interaction between the public and private sector in an economy. The government from the very inception was not to be involved in the day to day running of the economy as propounded in the doctrine of *laissez-faire* by Adam Smith, but to provide an enabling environment for the economy to operate, while maintaining law and order and protecting the nation from external aggression. The market mechanism could to a greater extent cater for the allocation of private goods based on exchange and having rival but certainly not reliable for public goods. Public goods according to Wikipedia encyclopaedia is a non-rivalry and non-excludable. Non-rivalry implies consumption of good by one individual does not reduce its availability for by consumption by others; while non-excludability means, no person can be effectively excluded from using the good. In reality, it might be difficult to absolutely come across non-rivalled and non-excludable good, however, economists reason that some goods such as defence, health, roads and others approximate the concept closely enough for analysis to be economically useful. Government performs two major functions:

Protection of life and property and provision of certain goods considered to involve huge financing such that the private enterprises could find difficult to produce. Protection function

consists of the creation of rule of law and enforcement of property rights. This is necessary to reduce risks of criminality, protect life and property and the nation from external attack. In the provision of public goods such items as defence, water, power, education, roads, health readily come to mind. In the academia, some scholars are of the view that increased government expenditure on socio-economic and physical infrastructure such as on health and education would raise the productivity of labour with the attendant effect on expansion of national output.

By the same reasoning, expenditure on goods like roads, power or communication will enhance reduction in the production costs, stimulate private sector investment and profit margin of firms, create increased employment and wealth; thereby improving the growth in the economy. Other scholars countered this position on the premise that increased government expenditure would lead to increased taxation for revenue drive and impact negatively income distribution.

A significant factor essential to human activities and probably a solution to economic development of a nation bother on efficient mode of transportation. This may be regarded as an important engine capable of driving the economy because it covers all areas involved in human activities. Transport has extensive coverage on the road, in the air and on the sea and through the rail system. Transportation is an economic function that serves along with other productive functions in the production of goods and services in the economy. A well developed transportation sector requires substantial expenditure. In this study, focus is on the expenditure on the road networks in Nigeria.

The limitation on expenditure on roads is because it is the most important subset of the transport sub sector that touches a greater proportion of the population in transportation of economic goods and services. A good road network is very essential in its ability to support the growth and development of other sectors in the economy such as agriculture, commerce and industry. In sub Saharan Africa, (Heggie, 1994) stated that road transport dominates other modes of transport as it carries over ninety percent of passengers and provides the only form of access to most rural communities. In Nigeria, roads play significant role in her social and economic life development and are seen as the centre of connectivity of all other mode of transport with an approximate total network of about 193,200kms. Nigerian road sector carries more passengers domestically, and the transport sector contributes about 2.4% to real Gross Domestic Product (GDP) with road transport accounting for about 86% of the transport sector output. Road network represents the arteries of the Nigerian economy through which the country's economic activities flow to local, state and national levels. The World Bank report on infrastructural development carried out by the African Infrastructure Country Diagnostic (Cecilia et al), 2008, provided an overview of the status of public expenditure, investment needs and sector performance as some infrastructure sectors that included, energy, information and communication techniques, irrigation, transport, water and sanitation covering twenty four nations including Nigeria. The report states that "any plan for scaling up infrastructure in Africa

must rest on a thorough evaluation of how fiscal resources are allocated and financed because the public sector retains the lion's share of infrastructure financing with private participation remaining limited". Provision of physical infrastructure particularly road is vital to economic growth of nations itching to take advantages of global connections. However, the issue of government expenditure is an important arm of public financing. Expenditures will be illusion without the source of revenue to the government. Revenue generation through taxing system constitutes the most important source of earnings by government. Adequate cooperation from all the sectors in the economy in terms of taxes will enhance government's desire to expand on every facet of the economy. Roads and other infrastructure therefore are very essential to rural and urban welfare of residents of any nation and a pivotal key critical for the acceleration of the economy. The rest of this chapter will treat the statement of the problem, research questions, objectives the study intends to achieve and the statement of intention to be tested.

The socio-economic well-being of citizens of any country will functionally depend on the capacity of government to provide the essential infrastructures capable of achieving this and the citizens' willingness to fully support the government by fulfilling their own obligations. The issue of provision of infrastructure by government touches on availability of huge revenue and expenditures. Road is an integral of infrastructure and adequate and functional network of roads and transport services in Nigeria, where road mode predominates the movement of people and goods from place to place, could assist growth of business and economic activities and subsequently improve living conditions of the people. According to Central Bank of Nigeria report (CBN,2003), road network remains the dominant mode of transportation in Nigeria accounting for more than 80% of the tonnage of goods conveyed to and from the sea ports in comparison to other modes such as rail which transverse few parts, and inland waterway which is restricted to the coastal areas. The dismal performance of the rail transport mode which over the years has almost become moribund despite huge expenditure made hampered its expansion and development. The total length of roads in Nigeria has been estimated to be about 193,200km with the Federal government controlling about 34,000km. The importance of infrastructure in developing countries, particularly roads could be captured by the extent of economic activities that are likely to spring up, such as increment in agricultural output among the peasant farmers due to possibility of patronage from people who link with the urban dwellers. In the view of (Allen, 2003), roads provide virtually connectivity of countless origin and destination. Most of the roads linking places and regions were constructed more than three decades without rehabilitation, and the neglect and inadequate maintenance have made them become very deplorable, a situation the Central Bank of Nigeria in its report CBN (2003) described as having major cracks (longitudinal and transverse), depressions, broken down bridges and numerous potholes which made road transport slow and unsafe. The current estimated paved roads in Nigeria that are in very poor state for the Federal, state and local governments are 51%, 58.3% and 61.0% respectively.

Serious problems that have bedevilled the Nigerian roads despite the colossus funds already sunk into construction, expansion, rehabilitation in the last three decades stem from faulty designs, inadequate drainage system and poor maintenance culture. On this problem, the United Nations Economic Commission for Africa (UNECA) and the World Bank launched the Road Maintenance Initiative (RMI) in 1988 (Heggie,1995) to identify causes of poor

road maintenance policies and develop agenda for reforming them. The actual economic and social costs of the poor state of the Nigerian roads are not currently established, but in the expression of the Central Bank of Nigeria (CBN, 2003), that the weak road infrastructure has great consequences such as expensive and arduous task of moving products and services from the rural background in the economy to urban areas, which often result in loss of man-hours and high cost of goods and services. This type of loss has been put conservatively at N133.8 billion due to bad roads and vehicular operating cost.

Funding of road construction, expansion, rehabilitation and maintenance has been the responsibility of government and quasi-government establishments in Nigeria, economic realities indicate insufficiency of the public sector alone in meeting the financial requirements of ameliorating the present situation of the roads alone. The financial intervention of the Petroleum Task Force (PTF) during the military era merely served as a stop-gap in the process contributing marginally. In the opinion of Okonjo-Iwuela (2007), Nigeria would require a minimum of US\$5billion yearly and for the next 10years to maintain and expand all types of infrastructure. This huge requirement to finance infrastructure would need private partnership to handle in order to, at least reduce the alarming rate of road accidents in Nigeria, and stimulate the economy through increased productivity arising from increased funding and improving the maintenance culture of roads.

The essence of good roads in Nigeria is to facilitate improvement in the economic and business activities and translate these to making living more meaningful to the citizens, because excellent roads will cause considerable reduction in the cost of production and save time of movement of goods and persons from place to place.

The present state of Nigerian roads provides additions to the rate of poverty particularly, among the peasants who as farmers, artisan and other petty traders inhabit mostly the neglected rural areas of the country. The persistence road decay in the nation, has continued to impact the economy negatively in all facets, requiring urgent remedy by all stake holders as the government, despite the perceived huge financial resources at its disposal could not handle the problem alone. Arising from the deplorable conditions of roads and other infrastructures in Nigeria which continued to ravage the economy and minimizing the welfare of the people are the following questions which this study will attempt to answer:

1. What are the rationales behind the persistent apathy of successive governments (Federal, State, and Local) in Nigeria from addressing the issues of deplorable roads despite their avowed interest in lifting the life-style of the majority of the citizens?
2. To what extent would the improvement of these roads, either through construction, expansion, rehabilitation, or proper maintenance affect the development of the economy particularly the real sector and consequently, the well being of the people?
3. Could there be other factors besides funding that play some roles in the unpleasant state of these roads and the steps to adopt to redress the situation?

The study analyzes the deplorable situation of Nigerian roads, the insensitivity of leadership at all tiers of governments which has gradually been crippling the economy despite the colossus funds sunk into infrastructure development in the last three decades. The study equally examines the constraints against successive governments among which are poor maintenance culture, monitoring and supervision, poor design and corruption of officials of government, the objectives of this study are, to evaluate

the extent government investment in road development has impacted growth on the Nigerian economy; identify alternatives to government spending and the benefits accruable to the nation from good road development.

The paper is divided into five sections. Following this introduction is section II, that reviews the related literature, while section III, discusses methodology employed in the study. Section IV, deals with the analysis and discussion and lastly section V, concludes and proffers relevant recommendations.

II. Review of Related Literature and Theoretical Framework

Economic theory as put forward by the 20th century revolutionary economist John Maynard Keynes advocated strong support for government spending to create jobs and to allow utilization of unutilized capital at a time of economic downturn when employment of capital and labour was high. It is not surprising therefore, that scholars have engaged in research exercise overtime, attempting to investigate the long term possible relationship between public expenditure on infrastructural development and the growth rate of the economy.

In a study conducted by Kweka and Morrissey (1999), in Tanzania on government spending and economic growth, it was established that public investment on physical infrastructure and human capital contributed positively to economic growth. In related studies on Saudi Arabia by, Al-Yousify (2000), and Abdullah (2000), independent of one another, it was discovered that government expenditure contributed to economic growth. Similar outcome was arrived at in India in the study by Ranjan and Sharma (2008).

This position did not receive the approval of others who argued that on the contrary, an increase in government expenditure rather than promoting economic growth actually slows down the performance of the economy. In this category are Laudau (1986), Barrow (1991), Engen and Skinner (1992), and Folsters and Henrenkson (2001). This argument is built on the point that attempt to increase spending by government will induce increases in taxation and borrowing, which in turn would reduce income, aggregate demand and discourages hard work, innovation, and creativity. Equally, higher profit tax will create higher costs of production which could negatively affect investment expenditure and the earnings of firms. Where government finances infrastructure development with borrowed funds from the banking sector, it will crowd-out the private sector, thereby reducing private investment in the economy. In era of political activities, politicians in order to earn undeserved popularity to hold on to power, sometimes increase expenditure and investment in unproductive ventures or in items that could better be officially handled by private sector, thus misallocating resources that could impede growth rather than improving it. The Nigerian government expenditure pattern on infrastructure has not escaped the attention of scholars, because literature is replete with various contributions on the subject to facilitate comparison on the impact of such spending on the growth of the economy. Oyinlola (1993), in an empirical study on the relationship between defence expenditure and economic development concluded that a positive relationship exists. Fajingbesi and Odusola (1999) empirically determined the relationship between government expenditure and economic growth in Nigeria where the outcome showed real government capital exerting significant positive influence on real output, while the real government recurrent expenditure showed minimal influence on growth.

Employing a disaggregated approach on government expenditure

whose component include capital, recurrent, administrative, economic, social, and community services, Akpan (2005) concluded that a state of insignificant association between most parts of government expenditure and economic growth. Similar studies on the effects of public expenditure on infrastructure and economic growth across the world showed in most cases positive relationship as in the study of USA and Japan by Shioji (2001) which indicated that infrastructure capital has positive effect on long-run output in both countries and in Netherland where Sturm (1998), had the same result as obtained in USA and Japan. Ghali (1998) study of Tunisia indicated positive relationship between public investment and growth. However, Al-Faris (2002) in his work on Public Expenditure and Economic Growth concluded that an insignificant relationship exists between government consumption expenditure and the rate of economic growth. Barro and Sala-i-Martin (1995) considered expenditure as either productive or unproductive; where productive expenditure has direct impact on the rate of economic growth, while unproductive expenditure has indirect or no effect on the growth rate of the economy. Israel (1991), in a study carried out to analyze the economic rate of return of World Bank financial project from 1968-84 showed transportation investment particularly on roads to be very productive. Thus, an efficient road network could reduce the time and cost of movement of goods within a country and equally facilitates connection among the different parts of the country which enhances interaction. Anyanwu, Adebusuyi, and Kukah (2003) in their article on maintenance of Highway in Nigeria observed that the growth of economic activities in Nigeria depended on the level of improvement on the roads. Aigbokhan (1999), in his study on infrastructure opined that, infrastructure variables have positive correlation with private investment and economic growth, and that promoting investment led-growth requires adequate funding on infrastructure to create new capacities and equally maintaining the existing ones. Expenditure on roads enhances distribution of goods and services through national and international markets and good transport linkages reduce transport costs, while promoting industrial development. Familoni, citing Aigbokhan (1999), in a paper "Evaluating Investment on Basic Infrastructure in Nigeria" gives examples of infrastructure as public utilities such as power, telecommunications, piped water supply, sanitation and sewage, solid waste collection and disposal and piped gas as well as public works which include roads, major dams and canals for irrigation and other transport projects like urban and inter urban railways etc. To Aigbokhan public infrastructure does three things: It provides services that are part of the consumption bundle of residents. Large-scale expenditures for public works increase aggregate demand and provide short-run stimulus to the economy and it serves as an input into private sector production, thus augmenting output and productivity.

The provision of economic infrastructure can expand the productive capacity of the economy by increasing the quantity and quality of such infrastructure. Improvements in maintenance would enhance the quality of existing infrastructure giving rise to a vent of surplus.

Roads and transportation are very essential to every member of the society for meaningful living. Transport is very critical to economic growth; hence a direct relationship exists between a country's economic prosperity and kilometres of paved roads (Owen, 1964, Queiros and Gautam, 1992). However, many developing countries lack adequate transport facilities. An empirical study conducted by the World Bank (1992) covering ninety eight (98) countries using the time series data from 1950 showed a consistent and

significant relationship between economic growth in terms of per capita gross national product and road infrastructure, per capita length of paved road network.

Bush (1991), asserted that inter- state highway system propelled development in the USA for a generation which unites the states economically, politically, and socially. Thus economic infrastructure such as road provides the foundation where upon a solid structure of growth and development can be erected, but a weak and fragile foundation might not provide for a super structure to build on. On the situation of road network in Nigeria Delaney (2008), says "Identifying the extent of decay in Nigeria's infrastructure is not a difficult task; from transport to health, from energy to utilities, decades of malaise and underinvestment have taken over their toll on the nation's infrastructure" This state of decay was captured in 1999 at the inception of the democratic dispensation after long era of military aberration in governance in Nigeria, when the then President Obasanjo said, "Transport is the lifeline of the economy and social interaction. An inefficient transport system implies stagnation in all sectors. Our priorities in this sector will be the design and implementing a new policy on road maintenance" The setting up of the Federal Roads Maintenance Agency (FERMA) was perhaps the fall-out from the President's observation and as the new policy direction of restoring dignity on Nigerian roads, despite the earlier intervention of the Petroleum Trust Fund (PTF) on some road rehabilitation. These government agencies have not been able to impact positively in putting the roads in good condition, rather rapid deterioration is being witnessed all over the country.

Most of these roads constructed more than three decades have become very deplorable due to neglect and lack of proper maintenance. The Central Bank of Nigeria in its report (CBN, 2003), observed that, most of the Nigerian roads have not been rehabilitated once since they were constructed such that, major cracks (longitudinal and transverse), depressions, broken down bridges and numerous potholes make road transport slow and unsafe. Currently, it is estimated that about 51%, 58.3%, and 61.0% respectively of Federal paved roads made up of the (Trunks A and F), State paved roads classified as (Trunk B), and Local Government

Wasike (2000), observed that a major problem culminating in the poor state of the Nigerian roads is that construction standard has always been very low and ineffective coordination. Eboh et al (2005) expressed similar opinion that most roads in Nigeria were not constructed with the standard specification, and without the necessary furniture like drainages provided, which led to the degradations of the road networks caused by the blockages of turnouts, thereby leading to ingredients of water to the sub-grade of the soil.

The 2006/7 Global Competitiveness Report cites infrastructure as one of the twelve pillars which are fundamental to a country's ability to compete, but in this report, Nigeria ranked 95th in the world overall, behind countries such as Botswana and Namibia. In terms of road infrastructure considered as the second pillar, Nigeria ranked 114 out of 131 countries in the world (Delaney, 2008). The funding of road building has from inception of Nigerian nationhood been the prime responsibilities of the various governments and quasi-governments, but the realities in Nigeria today is that, infrastructure investments are lumpy with large up-front costs, long term streams and tend to be in fixed location hence are not usually attractive to investors. Despite this fact, the public sector must still create good environment that could allow private participation in funding and maintaining roads

and other infrastructures. An acknowledged fact in literature about infrastructure development in Nigeria is poor maintenance. The various development plans have always emphasised the importance of infrastructure particularly, functional road network in Nigeria where it accounts for over 90% of urban and rural mode of movement of goods and people. The planners of the National Economic Empowerment Development Strategy (NEEDS) 2004, the home grown development planners were mindful of the deplorable state of infrastructure in the country, when they wrote thus:

Infrastructure needs cut across all sectors and is central to economic development. The state of infrastructure in the country is far from meeting the expectations of the average investor in the Nigerian economy. In the light of this recognition the strategy to adopt is to complete ongoing construction of 3000km network of roads and embark on any road construction if and when fund-specific assistance or finance is available to facilitate economic growth and development across the geo-political zones of the nation, Additionally, road maintenance agency should be set up to undertake rehabilitation and maintenance.

As the economy develops, more goods need to be transported, more people will travel, more products produced: all these can only be possible with a transport network equipped to handle the large volume of goods that a country of about 140 million people needs. Nigeria's transport sector contributes less than 3% to the real GDP, with road transport accounting for over 83% of sector output. The number of vehicles on the road has increased by more than 30% since the beginning of this millennium, struggling to transverse a mere 193,200 kilometres of roadways, of which 15% is paved. The annual cost of the poor road networks has been estimated to be N80 billion by OECD. Still on neglect and poor maintenance of roads by all tiers of government, the views of Adesanya (1999) captures the consequence that "when maintenance is deferred, two things happen thus: the costs of operating vehicles in the short-run will likely increase; while in the long-run the rehabilitation of paved roads every 10-20 years will be more than three times as expensive for the government, in terms of cash as carrying out road maintenance on regular basis"

This position is backed by World Bank (2000), that in the event that a road is not maintained, every dollar saved on road maintenance increases vehicle operating cost by US\$2 to US\$3. The implication is that, by cutting back on maintenance, the cost of road transport and the net cost to the economy is being inadvertently increased. The long neglect and maintenance of roads in Nigeria has caused the collapse of integrated transport system and contributed to the continued deterioration of the road network. The devastating effect of deferred maintenance on commodity flow, cost of goods and services, and the associated socio-economic costs might be very colossal. If the issue of playing politics with the lives of the people could be set aside, and corrupt practices minimized, allowing for transparency in government then the poor maintenance culture might be put in the past and expenditure by governments on the roads would become visible

III. Methodology

This study employs investigative and empirical methods to analyze the relationship between government spending on road infrastructure and economic growth in Nigeria in the last three decades. The causal link between government expenditure and economic growth derives from the Keynesian concept of growth resulting from increased expenditure. The model employed has some semblance to Oyinlola (1993) whose work was on defence

expenditure and economic growth. However, the variables used differ. GDP is used as proxy for economic growth and as the explained variable, while the explanatory variables are expenditure on defence (DEF), Transport and Communication (TECX), used as proxy for road and inflation.

The various expenditure items are defined as payments for transactions within a year.

Although this study is similar to many that had been carried out, it is distinct in the area of disaggregation, particularly the recurrent expenditure which is split into individual sector of defence expenditure and transport and communication expenditure for the period under study.

This shows consistency in the use of data for each time period in line with the classification from data source which essentially is from the statistical bulletin of the Central Bank of Nigeria (CBN). The variables used in the model are those considered capable of shedding light to the link between expenditure by government on road infrastructure and economic growth. Multiple regression analysis based on Ordinary Least Square (OLS) technique shall be employed econometrically to analyze the parameter estimates derived from the use of Econometric-view (E-view). The OLS model estimation techniques equally yield other relevant statistics that further enhance analysis and evaluation in addition to numerical value of model parameters. The estimated model shall be discussed in line with a priori expectations for clarity on the nature of the relationship between the dependent and independent variables. The estimates are further evaluated for statistical significance of accepting or rejecting the research hypothesis. The basis of evaluation shall be the t-stat and F-stat respectively. The explanatory power or test of goodness of fit of the estimated model shall be based on the coefficient of multiple determinations.

IV. Model Specification

Data for analysis are those considered as relevant indicators of economic growth and the effect of government spending on critical factors in the system. Such variables are gross domestic product, defence expenditure, transport and communication expenditure and inflation, and all were extracted from the Central Bank on Nigeria (CBN) statistical bulletin for thirty years 1980-2009. Theoretically, the model says that growth rate of the economy depends on the disaggregated expenditure of defence, transport and communication and inflationary rate during the period considered in gross domestic product.

Thus the model is expressed as:

$$GDP = f(DEX, TRCE, INF)$$

Where GDP, is the gross domestic product, DEX represents the defence expenditure, TRCE, is expenditure on transport and communication by the federal government and INF is inflation rate.

The above general model in its econometric format becomes:

$$GDP = \alpha_1 + \alpha_2 DEX + \alpha_3 TRCE + \alpha_4 INF + \mu$$

Where $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ are parameters of the intercept, and slopes of DEX, TRCE, and INF respectively, while μ represents other variables that could have lent further explanation to the explained variables but are not included in the model.

All things being equal, a priori intercept and the slope of the coefficients are expected to have positive signs. The numerical values of the parameters are estimated by the use of ordinary least square techniques based on econometric (e-view) computation. To determine the relevant hypothesis, estimates are evaluated for statistical significance based on the relevant statistics of regression

output. The explanatory power of the model as a measure of goodness of fit is decided.

V. Regression Result

The computation of the model parameter is based on the data shown in Table 1, above from where the under listed estimates and other relevant Statistics are shown below:

$$GDP = -609269.8 + 154.8972DEX + 164.1065TRCE + 9952.077INF$$

$$SE \quad (1277549) \quad (25.61621) \quad (39.61557)$$

$$(31539.19)$$

$$T\text{-Stat.} \quad (-0.476905) \quad (6.046840) \quad (4.142476)$$

$$(0.315546)$$

$$\text{Prob}(T\text{-Stat.}) \quad (0.6374) \quad (0.0000)** \quad (0.0003)**$$

$$(0.7549)$$

$$\text{Prob}(F\text{-Stat.}) = 43.63648$$

$$R^2 = 0.834299 \quad \text{Adjusted- } R^2 = 0.815180$$

$$\text{Durbin Watson Statistic} = 0.602348$$

** Significant at 5%

Source: E-Views regression output

VI. Discussion

The estimates of the model parameters show consistency with the theoretical expectations for variables α_2 to α_4 but α_1 has a negative sign of -0.6092698 and this is contradictory to the a priori expectation thus not making a meaningful economic sense as it might not be obtainable in real life situation. The estimated value of the partial regression coefficients DEX, TRCE and INF, that is, (α_2, α_3 , and α_4) are positive. This implies that each correlates positively with economic growth (GDP). By implication, for every unit increase in TRCE, GDP increases by 164.1065%. Likewise, every unit increase in DEX and INF will induce an increase of 154.8972% and 9952.077% respectively in economic growth (GDP). At 0.05 level of significance, the coefficients of DEX and TRCE are individually statistically significant, but the coefficient of INF is not. This suggests that DEX and TRCE are each an important determinant of growth, hence we accept the alternative hypothesis in terms of expenditure on defence, road/transport and communication. This outcome is in tandem with the result of studies carried out by Oyinlola (1993) and Nurudeen, (2010). At 0.05 level of significance, the overall impact of the explanatory variables on the explained variable is statistically significant implying that expenditure on road/transport development indicators are jointly important determinants of economic growth. The implication is that expenditure made by government on road/transport will accelerate economic growth in Nigeria. The coefficient of multiple determination ($R^2 = 0.834299$) shows that the model exhibited high level of explanatory power, hence a good fit. That is, within the context of the model, about 83.43% of total variations in growth rate in the economy is explained by expenditures on defence, road/transport on communication and the rate of inflation. Only 16.57% unexplained variations can be traced to other factors not included in the model. The Adjusted $R^2 = 0.815180$ also shows high level of explanatory power after adjusted for degree of freedom.

VII. Conclusion and Recommendation

This study focused on the impact government expenditure on road infrastructure would have on economic growth of Nigeria. The work depended on the publication of Central Bank of Nigeria for necessary data needed to aid computation through the application of Econometric-Views. The output derived was used to test the hypothesis which confirmed that government expenditure on road

infrastructure would expedite the growth of the economy. It is essential to state that, the huge fund sunk into the construction, rehabilitation, and maintenance of roads in Nigeria in the last three decades is badly reciprocated by the poor and deplorable current state of these roads. Road remains the major tool of facilitating the mode of moving goods and people across the country to accelerate economic and business activities. The poor conditions of the Nigerian roads have created grave danger to lives and properties resulting from several accidents. Maintenance and supervision of these roads coupled with sharp practices of corruption by government agents and lack of transparency are part of what created the present state of these roads. Arising from the conclusion are the following recommendations:

Several Nigerian roads were constructed without proper design and where, they existed, construction works were not followed to specification, hence sub-standard materials were used culminating in delivery of poor work could not withstand the stress of use and soon became worn out. To avoid this, it is suggested that all road designs, construction and rehabilitation work should be handled by competent engineers who must give guarantee on the roads for a specified period.

In the past lip service was paid to maintenance, monitoring and supervision. To prolong the life span of these roads there must be maintenance, whether routine periodic emergency or special repairs at all times. A situation of neglecting roads for too long period would aggravate the cost of repairs and maintenance. Constant subjection to transparent check and repairs will save costs and allow for more road expansion in the country.

It is very obvious that government's ability to finance and maintain these roads is becoming a very serious albatross calling for help for its release. It is being suggested that time has come for the government to allow for private participation in the construction, rehabilitation, and maintenance of roads. In this regards, they must co-opt those interested into the financing and maintenance department to jointly plan the processes of delivering qualitative and sustainable roads to invigorate the economic activities

An important area requiring serious attention is the enforcement of axle-load limits or restrictions and the damage being caused by heavy goods vehicle to major highways in Nigeria. There is no doubt that several heavy vehicles carry loads beyond their permitted limits particularly those from the Northern parts of the country. If the enforcement of axle-load limit is enforced there will be reduction of financial commitment in terms of expansion, rehabilitation and general maintenance.

References

- [1] Adesanya, A. O., "An assessment of the recent initiatives in the funding and management of Federal Roads in Nigeria", Niser Monograph series 3, Ibadan. NISER, 1999.
- [2] Abdullah, H. A., "The Relationship between Government Expenditure and Economic Growth in Saudi Arabia", *Journal of Administrative Science* 12(2) pp. 173-191, 2000.
- [3] Abu Nurudeen, Abdullahi Usman, "Government Expenditure and Economic Growth in Nigeria", 1970-2008: A Disaggregated Analysis, *Business and Economic Journal*, 2010.
- [4] Akpan, N. I., "Government Expenditure and Economic Growth in Nigeria: A Disaggregated Approach", *CBN Economic and Financial Review*, 2005.
- [5] Al-Fario, A. F., "Public Expenditure and Economic Growth in the Gulf Cooperative Council Countries", *Applied Econometrics* pp. 1187-1193, 2002.
- [6] Allen Consulting Group, "Benefit of Investing in New Zealand's Road infrastructure Sydney", 2003.
- [7] Al-Yousif, Y., "Does Government Expenditure inhibit or promote Economic Growth", Some Empirical Evidence from Saudi-Arabia. *India Economic Journal*, 2000
- [8] Anyanwu, C.M., Adebuseriyi, B.S., Kukah S.T.Y., "Highway maintenance in Nigeria", lesson from other Countries A CBN Research Department Occasional paper 27, 2003.
- [9] Barro R, "Government Spending in a Simple Model of Endogenous Growth", *Journal of Political Economy*, 98(5), 1990.
- [10] Barro, R., "Economic Growth in Cross Section of Countries", *Quarterly Journal of Economics*, 1991.
- [11] Bush, George W, "What Path Lies Ahead For The US, Highways?", No. 18. Washington D. C Washington Post, 1994.
- [12] CBN, "Highway Maintenance in Nigeria", Lessons from other Countries Research Department Occasional Paper No 27, 2003.
- [13] Cecilia Bricenno, Karlis Smits, Foster Vivien, "African Infrastructure Country Diagnostic", *Financing Public Infrastructure In Sub Sahara Africa, Patterns, Issues and Options*, 2008.
- [14] Delaney Elaine, "Frontier Infrastructure", *The Way Forward for Nigeria, Lagos, Zenith Economic Quarterly*, Vol. 3 No. 1, Zenith Bank Plc, 2008.
- [15] Eboh Eric C ed., "A Review of roads and Rail Transport Infrastructure in Nigeria", In *Promoting Non-Oil Private Sector Evidence and Recommendations*. Enugu African Institute for Applied Economics for the Better Business Initiative, 2005.
- [16] Engen, E. M. And Skinner, J., "Fiscal Policy and Economic Growth NBER Working Paper", 1992.
- [17] Fajingbesi, A. A., Odusola, A. F., "Public Expenditure and Growth", Paper presented at a training Programme on Fiscal Policy Planning Management in Nigeria Ibadan, NCEMA, 1999.
- [18] Familoni, "In Aigbokan, B. E., *Evaluating Investment on Bank Infrastructure in Nigeria*", *Proceedings of the 8th Annual Conference of the Zonal Research Unit (organised by CBN Research Department in Kaduna)*, 1999.
- [19] Folster, S.: Henrekson M, "Growth effects of Government Expenditure and Taxation in Rich Countries *European Economic Review* 45(s), 2001.
- [20] Ghali, K. H., "Public investment and Private Capital Formation in a Vector Error Correction Model of Growth", *Applied Economic*, Vol. 30, 1998.
- [21] Heggie, Ian G., "Commercializing Africa roads: Transforming the role of Public Sector", World Bank, 1994.
- [22] Heggie, Ian G., John, M., "Financing Public Transport Infrastructure", *Transport policy (Vol. 1, Regional Seminar on Transport Policy) proceedings of a Regional Seminar held in Manila Philippines*, 21-28 February, 1989.
- [23] Kweka, J.P, Morrissey, "Government Spending and Economic Growth", *Empirical Evidence From Tanzania (1965-1996) DSA Annual Conference Inc New Haven*, 1999.
- [24] Laudau, D., "Government and Economic Growth in LDC'S", *An Empirical Study; Economic Development and Cultural Journal* (35), 1986.
- [25] NEEDS, "National Development and Planning Abuja", 2004.

- [26] Okonji Iweala Ngozi, "Managing the challenges of Economic Reform in a Global Context", The case of Nigeria Global Economic Governance Programme, 2007.
- [27] Owen W., "Transportation and World Development", London Hutchinson, 1987.
- [28] Oyinlola, O., "Nigeria's National Defence and Economic Development", An Impact Analysis, Scandinavian Journal of Development alternatives, 1993.
- [29] Queiroz Ceasar, Gautan Surdid, "Road Infrastructure and Development", 1992.
- [30] Ranjan, K. D., Sharma, C., "Government Expenditure and Economic Growth, Evidence from India", The ICFAI, University Journal of Public Finance 6(3), 2008.
- [31] Shiori, E., "Public Capital and Economic Growth: A Convergence Approach", Journal of Economic Growth, vol 6, 2001.
- [32] Sturm, J. E., "Public Capital Expenditure in OECD Countries: The Causes and Impact of the Decline in Public Capital Spending", Edward Edger Publishing Ltd., 1998.
- [33] Wasike, W. S. K., "Road Infrastructure Policies in Kenya: Historical Trends and current Challenges", Kenya Institute for Public Policy Research and Analysis, 2001.