The Management and Adequacy of Road Infrastructure Expenditure for Economic Growth in Nigeria

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Abstract

Transportation is a critical factor in the economic growth and development of any nation. Inadequate transportation limits a nation's ability to utilize its natural resources, distribute foods and other finished goods, integrate the manufacturing and agriculture sectors and supply education, medical, and other infrastructural facilities. There is a need ,therefore, to manage, maintain, and improve the existing transportation system and build new infrastructures for national wealth. It is on this bedrock that the present study assessed the management and adequacy of road infrastructure expenditure and economic growth in Nigeria considering the time period from 1980 to 2009.Descriptive analysis was used such as index growth rate based on simple averages on percentage growth on nominal and real values by deflating the nominal value to investigate the secondary data collected from the Central Bank of Nigeria. Findings revealed that expenditure on road construction and maintenance in Nigeria was not adequate when compared with other countries like USA, UK, France, Demark, Germany, India, etc. Nigeria's government should, as a matter of prime importance, increase expenditure on road infrastructure and ensure that such expenditure is properly managed and supervised, and to generate additional revenue, the Government should encourage private initiatives in road funding.

Keywords: **management, adequacy, road infrastructure, expenditure, economic growth, transportation system**
JEL Classification: H54

One of the key factors that play a pivotal role in a region's economic growth is the presence of a reliable and efficient transportation system. This is mainly due to the fact that a well-developed transportation system provides adequate access to the region, which in turn is a necessary condition for the efficient operation of manufacturing, retail, labour, and housing markets (Mustapha, 2011). Transportation is a critical factor in the economic growth and development. It is a wealth creating industry on its own. Adequate transportation increases a nation's ability to utilize its natural resources, distributes foods and other finished goods, integrates the manufacturing and agriculture sectors, and supplies education, medical, and other infrastructural facilities. There is a need ,therefore, to maintain and improve the existing transportation and build new infrastructures for national wealth. The gross domestic product (GDP), is a measure to gauge a nation's wealth, which is an indicator or measure of the rate of economic growth.

Road transport is the dominant mode of transport in sub-saharan Africa (SSA), carrying close to 90 percent of the region's passenger and freight transport, and providing the only access to rural communities where over 70 percent of the Africans live. Despite their importance, most of the region's nearly 2 million km of roads are poorly managed and badly maintained. By 1990, nearly a third of the $150 billion invested in roads had been eroded through the lack of maintenance (Heggie, 1994 cited in Douglas & Eugenia, 2011). Heggie (1994) further explained that to restore only those roads that were economically justified and prevented further deterioration will require annual expenditure of at least $1.5 billion over the next ten years, or more than double the requirements of regular maintenance.

Road infrastructure in Nigeria is more of a public enterprise. It is still not clear whether it has witnessed the government's complete and dynamic intervention and active participation. As provided for in the Constitution, the different tiers of the government have independent responsibilities for the planning, financing, and maintenance of their roads. According to CBN (2003), the Federal Government is responsible for seventeen percent (17%), the State Government sixteen percent (16%), and the local Government sixty-seven percent (67%) of the planning, financing, and maintenance of the stock of roads. At the federal level, the Ministry of Works is responsible for the construction

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of new roads and the major upgradation of existing roads. The Federal Roads Maintenance Agency (FERMA) created in 2002 has the mandate for the routine maintenance of Federal roads. The Rural Development Department of the Federal Ministry of Agriculture and Rural Development is responsible for rural roads (CBN, 2003). In Nigeria, over the years, elements of uncertainty have beclouded this sector both in nature and level of expenditure; hence, the major objective of the present study is to examine the nature and level of government expenditure on road infrastructure in Nigeria.

Review of Literature

The significance of infrastructure in the process of economic growth have long been established. Infrastructure has been seen as the basic requirement for business survival. Sani (2001) cited in Suleman (2013) observed that indices of microeconomic infrastructural facilities are inadequate, and the operation of the functional ones has not been efficient. This indeed has dire consequences on economic growth. Infrastructure encompasses physical and social infrastructure. Physical infrastructure is the totality of all basic physical facilities upon which all other economic activities in the system significantly depend (Suleman, 2013). Hirschman (1958) cited in Gold (2011), opined that infrastructures are those services without which primary, secondary, and tertiary production activities cannot function. They include education, public health to transportation, communication, power, and supply. Infrastructure, therefore, can be seen as both a final good providing services directly to consumers and intermediate input that enters into the production function of other sectors and raises productivity of the factors employed.

It has been noted that infrastructural capacity grows step by step with economic output. For example, a one per cent increase in the stock of infrastructure is associated with one percent increase in gross domestic product (GDP) (World Bank, 1994 cited in Mobolaji & Wale, 2012). Canning and Pedroni (2004) (cited in Mobolaji & Wale, 2012) investigated the long-run consequences of infrastructure provision on per capita income in a panel of countries over the period from 1950-1992. The results provide clear evidence that in the vast majority of cases, infrastructure (telephone, electricity generating capacity, and paved roads) does induce long run growth effects. In developed economies - Japan and United States of America - for example, Ogbuozobe (1997) (cited in Mobolaji & Wale, 2012) observed that telecommunications, electricity, and water are used in the production process of nearly every sector, and transport is an input for every commodity.

Road infrastructure has been found to be a significant factor of economic growth and development. In their World Bank study, Queiroz and Gautam (1992) **(**cited in Familoni, 2006) employed an empirical approach to explore the association between road infrastructure and economic development. Different regression analyses were carried out using GNP/Capita as a dependent variable and selected indicators of magnitude and condition of road networks as an independent variable. Independent variables used in the analyses included: **(i)** spatial road density (i.e., road length per land area) of paved and unpaved roads classified in good, fair, or poor condition; and **(ii)** road density or per-capita length (km/million population) of paved and unpaved roads in good, fair, or poor condition. Using 1989 data, their findings revealed that there was a clear contrast between road infrastructure and income in low and middle-income economies in Africa; while the difference in average per capita GNP between the two countries groups is 220 percent, the density of paved road in good condition varies by about 370 percent from one group to the other.

Adequacy of this vital infrastructure is an important determinant of the success of a nation's effort in diversifying its production base, expanding trade, and linking together resources and markets into an integrated economy. It is also necessary for connecting villages with towns, market centres, and in bringing together remote and developing regions closer to one another. Transport, therefore, forms a key input for production processes and adequate provision of road infrastructure, and services help in increasing productivity and lowering production costs.

Methodology

The data for the study were mainly secondary and time-series in nature. They were obtained from the publications of the Central Bank of Nigeria (CBN), National Bureau of Statistics, Nigeria (various issues) and the World Bank. Descriptive analysis was used such as index growth rate based on simple averages on percentage growth on nominal and real values by deflating the nominal value. The time period for the study is from 1980 to 2009 - i.e., a period of twenty nine years.

Table 1 : Road Expenditure (Nominal and Real Values)

Years	GDP at current market prices in (N) million	Road Cap Exp. In (N) million	Road Recur. Exp. In (N) million	Road Total Exp. (nominal) In (N) Million	% Nominal Growth	Deflator	Road Total Exp. (Real) In (N) Million	% Real Growth
1980	49,632.30	6,995.75	278.2	7,273.95	10.00	1.57	4,633.08	10.00
1981	47,619.70	3,764.00*	217.8	6,217.95	-14.52	1.83	3,397.78	-26.66
1982	49,069.30	6300.00	183.4	6,683.40	7.49	1.87	3,574.01	5.18
1983	53,107.40	3,000.00*	200.4	7,200.40	7.74	2.18	3,302.93	-7.54
1984	59,622.50	2,000.0*	193.2	7393.20	2.68	2.55	2,899.29	-12.22
1985	67,908.60	4,457.90	329.8	7,787.70	5.34	2.64	2,949.88	1.75
1986	69,147.00	301.00	259.1	560.10	-92.81	2.60	2,15.42	-93.58
1987	105,222.80	209.00	433.0	642.00	14.62	3.90	1,64.61	-23.58
1988	139,085.30	91.00	449.6	540.60	-15.79	4.78	113.09	-31.30
1989	216,797.50	230.00	342.1	572.10	5.83	6.84	83.64	-26.04
1990	267,550.00	492.00	412.6	904.60	58.12	7.33	123.41	47.54
1991	312,139.90	800.20	1,066.3	1,866.50	106.33	8.81	211.86	71.67
1992	532,613.80	1,550.09	1,272.5	2,822.59	51.22	16.20	174.23	-17.76
1993	683,869.80	1,412.94	1,438.8	2,851.74	1.03	24.70	115.45	-33.74
1994	899,863.20	2,244.00	494.7	2,738.70	-3.96	31.50	86.94	-24.69
1995	1,933,211.60	3,895.40	984.4	4,879.80	78.18	49.20	99.18	14.09
1996	2,702,719.10	5,000.70	1,477.2	6,477.90	32.75	69.30	93.47	-5.75
1997	2,801,972.60	10,573.20	577.1	11,150.30	72.13	68.20	163.49	74.89
1998	2,708,430.90	26,598.70	5,773.3	32,372.00	190.32	64.50	501.89	206.99
1999	3,194,015.00	5,000.00	8793.2	13,793.20	-57.39	72.40	190.51	-62.0
2000	4,582,127.30	7,006.40	3808.6	10,815.00	-21.59	100.00	108.15	-43.2
2001	4,725,086.00	21,440.00	7202.4	28,642.40	164.84	111.00	258.03	138.59
2002	6,912,381.30	35,949.80	9,276.0	45,225.80	57.90	146.00	309.76	20.05
2003	8,487,031.60	17,459.10	16,944.5	34,403.60	-23.93	162.00	212.36	-31.44
2004	11,411,066.90	40,671.20	14,897.6	55,568.80	61.52	195.00	284.96	34.18
2005	14,572,239.10	89,057.30	17,915.4	106,972.7	92.50	234.00	457.14	60.42
2006	18,564,594.70	72,493.30	20,175.5	92,668.80	-13.37	280.00	330.96	-27.60
2007	20,657,317.70	108,900.0	25,878.6	134,778.6	45.44	293.00	459.99	38.98
2008	24,296,329.30	97,713.37	26,003.9	123,717.2	-8.21	335.53	368.68	-19.86
2009	24,712,669.90	146,929.7	26,401.04	173,330.7	4.01	Na	Na	Na

Source: Raw data were obtained from Central Bank of Nigeria, Statistical and Annual Report and Statement of Accounts (Various issues) & World Bank Country Economist, retrieved from ieg.worldbankgroup.org

* Estimated by the Researchers.Others are Researchers' computation

Road Exp. : Real values were obtained by deflating the nominal value by the GDP implicit deflator (2000 = 100). The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.

Average % Growth (Nominal) : Civilian Regime (1980 - 1985) = 3.12 ; Military Regime (1986 - 1999) = 30.54 ; Civilian Regime (2000 - 2009) = 36.80

Pre SAP (1980 - 1985) = 3.12 ; SAP (1986 - 1990) = -6.01 ; Post - SAP (1991 - 2009) = 43.67 ; Average % Growth (Real) Civilian Regime (1980 - 1985) = -4.92 ; Military (1986 - 1999) = 6.91 ; Civilian Regime (2000 - 2009) = 19.39

Pre SAP (1980 - 1985) = -4.92 ; SAP (1986 - 1990) = -25.39 ; Post SAP (1991 - 2009) = 21.88

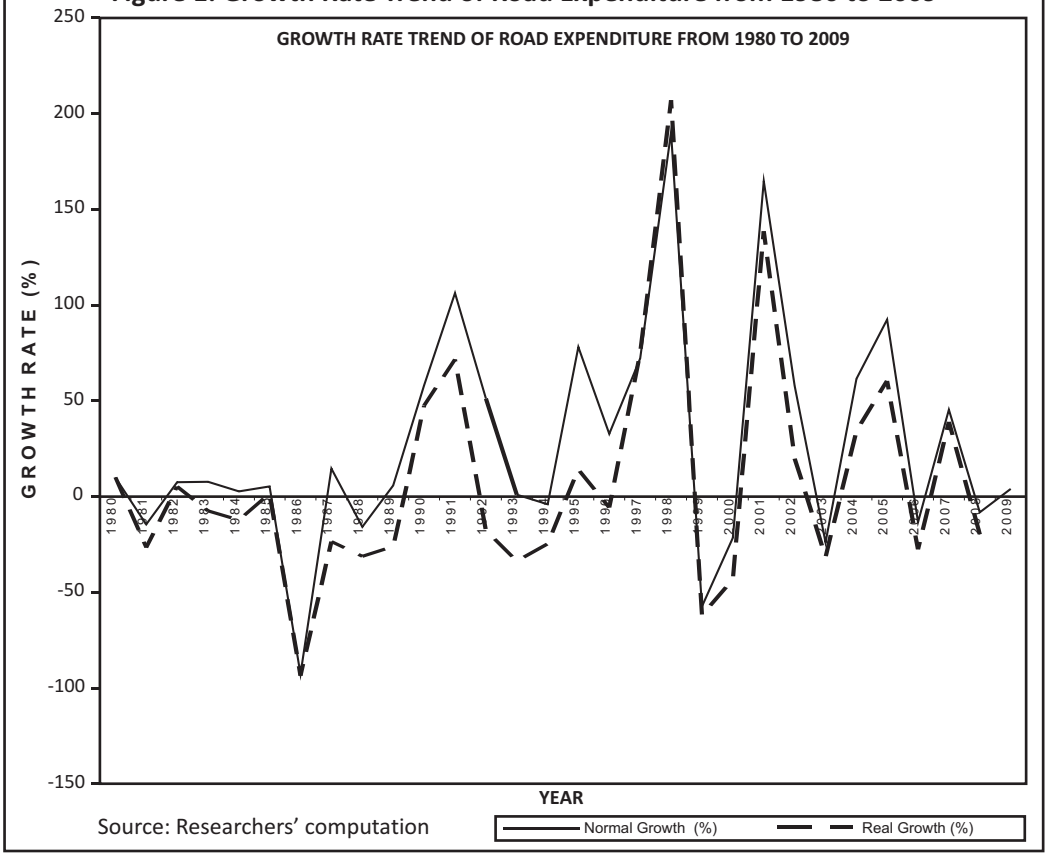
❖ **The Descriptive Analysis of the Nature and Level of Road Expenditure in Nigeria :** Data on Federal Government expenditure on roads, their respective percentage growth, and other indices in Nigeria are presented in the Table 1. Specifically, the federal government spent a total of N7,273.95 million on roads in 1980. By 1986, the total road expenditure increased to N7,787.70 million. It declined to N 904.60 million and N6,477.90 million in 1990 and 1996 respectively.

As seen in the Table1, an appreciable nominal growth of 106 percent was recorded in 1991 at N1, 866.50 million relative to the 58.12 percent spent on roads in 1990. By 1998 and 2001, an unprecedented 190.32 percent and 164.84 percent nominal growth accounting for N32, 372.00 million and N28, 642.40 million respectively were observed. However, the year 1999 saw nominal growth of the road expenditure falling to N13, 793.20 million, representing a negative growth of 57.39 percent. The period from 1996 – 1998 showed an appreciable growth rate.

When the total road expenditure in Nigeria in real and nominal terms was considered, it was found that real percentage growth lagged behind their nominal counterparts. For example, in 1980, the total nominal road expenditure was N7, 273.95 million. This rose to N134, 778.60 million in 2007, and N146, 929.71 in 2009. However, if changes in the current market prices are taken into account, by deflating the nominal value by the GDP implicit deflator using the year 2000 constant market prices, this amount reduced to a mere N459.99 million in 2007, and N368.68million in 2008. Of the thirty years of our analysis (1980 – 2009), sixteen years indicated negative growth rates of 73.46 percent in terms of real values. This implies that expenditure on road infrastructure has been declining over the years. The inference one could draw from this analysis is that road expenditure was adversely affected by current market prices. This is a pointer to the influence of inflation.

The analysis of expenditure on road infrastructure under different government regimes was also considered, and it was found that the period from 1980 – 1985 was dominated by civilian regime - the second republic - and the average growth in road expenditure was 3.12 percent, while the percentage growth of real value of road expenditure was - 4.92 percent. The period from 1986 – 1999 was an era of predominantly military regimes, and the average growth rate

Figure 1: Growth Rate Trend of Road Expenditure from 1980 to 2009



Source: Researchers' computation

increased awesomely to 30.54 percent. The period from 2000 – 2009 was dominantly of civilian regime, and the nominal value of road expenditure witnessed an average percentage growth of 36.80. Of the fourteen years when Nigeria was predominantly under military regime, the average growth in road expenditure in real value was 6.91 percent, and this appreciated to 19.39 percent during the period from 2000 – 2009, that was dominated by civilian regimes. What we can infer from this analysis is that there has not been an appreciable and significant expenditure on roads in Nigeria by the various governments. However, it can be inferred that expenditure on roads in Nigeria had been more substantial during the civilian regime than during the military regime with reference to the time period considered for the present study. The graphical analysis is presented in the Figure 1.

Examining expenditure on road infrastructure under the structural adjustment program (SAP), the average nominal growth rate of road expenditure over the period from 1980 – 1985 (pre – SAP period) was 3.12 percent. From 1986 –

Table 2 : GDP, Govt. Capital Expenditure, Total Road Expenditure, Road Cap. Expenditure and others

Years	GDP at Current market prices in (N) million	Total Capital Exp. in (N) million	Total Road Exp. in (N) Million	Road Cap Exp. In (N) million	Road Cap Exp. % of GDP	Road Cap Exp. % of Tot Cap. Exp.	Road Cap. Exp. % of Tot. Road Exp.	Road Cap Exp. % growth	Road Rec. Exp. In (N) million	Road Rec. Exp. % of Tot-al Road Exp.
1980	49,632.30	10,163.40	7,273.95	6,995.75	14.1	68.8	96.2	-	278.2	-
1981	47,619.70	6,567.00	6,217.95	3,764.00*	7.9	5.7	96.5	-14.2	217.8	3.5
1982	49,069.30	6,417.20	6,683.40	6300.00	13.2	90.3	97.3	8.3	183.4	2.7
1983	53,107.40	4,885.70	7,200.40	3,000.00*	13.5	61.4	97.2	7.7	200.4	2.8
1984	59,622.50	4,100.10	7393.20	2,000.0*	12.1	48.7	97.4	2.9	193.2	2.6
1985	67,908.60	5,464.70	7,787.70	4,457.90	11.0	81.6	95.8	3.6	329.8	4.2
1986	69,147.00	8,526.80	560.10	301.00	0.41	0.3	53.7	-96	259.1	46.3
1987	105,222.80	6,372.50	642.00	209.00	0.19	3.2	32.6	-30.6	433.0	67.4
1988	139,085.30	8,340.10	540.60	91.00	0.07	1.2	16.8	-56.5	449.6	83.2
1989	216,797.50	15,034.10	572.10	230.00	0.11	1.5	40.2	152.7	342.1	59.8
1990	267,550.00	24,048.60	904.60	492.00	0.18	2.0	54.4	114	412.6	43.6
1991	312,139.90	28,340.90	1,866.50	800.20	0.25	2.8	42.9	62.6	1,066.3	57.1
1992	532,613.80	36,763.30	2,822.59	1,550.09	0.29	4.2	54.9	93.7	1,272.5	45.1
1993	683,869.80	54,501.80	2,851.74	1,412.94	0.41	2.5	49.5	-9.7	1,438.8	50.5
1994	899,863.20	70,918.30	2,738.70	2,244.00	0.25	3.2	81.9	58.8	494.7	18.1
1995	1,933,211.6	121,138.3	4,879.80	3,895.40	0.20	0.3	81.1	73.6	984.4	18.9
1996	2,702,719.1	212,926,3	6,477.90	5,000.70	0.18	2.3	77.2	28.4	1,477.2	22.8
1997	2,801,972.6	269,651.7	11,150.30	10,573.20	0.38	3.9	94.8	111.5	577.1	5.2
1998	2,708,430.9	309,015.0	32,372.00	26,598.70	0.98	8.6	82.2	151.6	5,773.3	17.8
1999	3,194,015.0	498,027.6	13,793.20	5,000.00	0.0	1.0	36.2	-81.2	8793.2	63.8
2000	4,582,127.3	239,450.9	10,815.00	7,006.40	0.0	2.9	64.8	40.1	3808.6	35.2
2001	4,725,086.0	438,496.5	28,642.40	21,440.00	0.45	4.9	74.9	206	7202.4	25.1
2002	6,912,381.3	321,378.1	45,225.80	35,949.80	0.52	11.1	79.5	67.7	9,276.0	9.25
2003	8,487,031.6	241,688.3	34,403.60	17,459.10	0.20	7.2	50.7	-51.3	16,944	49.3
2004	11,411,066.90	351,300.00	55,568.80	40,671.20	0.36	11.5	73.1	133	14,897.6	26.9
2005	14,572,239.10	519,500.00	106,972.70	89,057.30	6.11	17.1	83.2	112	17,915.4	16.8
2006	18,564,594.70	552,385.80	92,668.80	72,493.30	0.39	13.1	78.2	-18.5	20,175.5	21.8
2007	20,657,317.70	759,323.00	134,778.60	108,900.00	0.53	14.0	80.8	50.2	25,878.6	19.2
2008	24,296,329.30	960,900.0	123,717.27	97,713.37	0.40	10.1	78.9	-10.3	26,003.9	21.1
2009	24,712,669.90	1,152,796.6	173,330.74	146,929.71	0.59	12.7	84.8	5.07	26,401.0	15.2

Source: GDP, Government capital Expenditure, Capital and Recurrent Road Expenditure from CBN Publications, Various issues.
*Estimated. Other figures were computed by the researchers

1990 (the SAP period), the average nominal growth rate of expenditure on road infrastructure was -6.01 percent. In the post – SAP period (1991 – 2009), the nominal road expenditure growth rate increased to 43.67 percent. This means that growth in road expenditure was substantial in the post – SAP period, than in the pre-SAP and SAP period. In exact terms, the real growth rate of road expenditure was - 4.92 percent in the pre – SAP period. It declined to -25.39 percent during the SAP period, and managed to record 21.88 percent growth during the post – SAP period. Another inference drawn from this analysis is that the structural adjustment programme (SAP) hampered road financing and development of roads in Nigeria.

Table 3: Total Government Expenditure and Expenditure on Agriculture, Education, Health, and Road Sectors for the selected years

Years	Total Govt. Expenditure N' million	Agriculture Exp. as a percentage of Total Govt. Expenditure	Education Exp. as a percentage of Total Govt. Expenditure	Health Exp. as a percentage of Total Govt. Expenditure	Road Exp. as a percentage of Total Govt. Expenditure
1981	6,567.00	11.80	6.71	1.95	5.00
1983	4,885.70	17.41	5.09	1.99	61.3
1985	5,464.70	15.12	2.77	3.93	81.6
1987	6,372.50	7.38	2.92	1.46	3.2
1989	9,297.10	10.55	2.38	1.35	1.5
1991	28340.90	4.21	2.20	1.05	2.8
1993	54,501.80	9.78	8.40	1.89	2.5
1995	121,138.3	10.52	7.42	2.87	0.3
1997	269,651.7	5.40	3.29	1.92	3.9
1999	498,027.6	5.04	6.21	5.39	1.0
2001	438,496.5	13.19	4.52	4.58	4.9
2003	241,688.6	3.52	6.07	2.66	7.2
2005	519,500.00	11.30	3.88	3.06	17.1

Source: CBN Statistical Bulletin, Various issues.

Column 6 was computed by the researchers.

Looking at the road capital expenditure as a percentage of GDP in Table 2, the element of uncertainty as to whether the Nigerian government was committed to road development is obvious. In 1980, road capital expenditure as a percentage of GDP was 14.1 percent. In 1988, it was as low as 0.07 percent. In 1991, the share of road expenditure in the GDP was N800.20 million, representing 0.25 percent. In 1993, it appreciated to 0.41 percent and again declined to 0.25 percent in 1994. In the same vein, the share of road capital expenditure in the total government capital expenditure in 1988 was 1.2 percent, 0.3 percent in 1995, and 1.0 percent in 1999, but the same appreciated to 11.1 percent in 2002, 17.1 percent in 2005, and again declined to 14.0 percent and 12.7 percent in 2007 and 2009 respectively. It is an indication that the Government was not too committed to the cause of infrastructure development in terms of road construction and maintenance during the election years.

A significant observation from the Table 2 is that in 1999 and 2003 election years, the road capital expenditure growth rate was -81.2 percent and -51.3 percent respectively. In these years, road expenditures were worse off. In 2007, another election year, the growth rate of road expenditure appreciated by 50.2 percent, but in 2006, a year before the election, road expenditure was -18.5 percent. When the relationship between recurrent and capital road expenditure was considered (as revealed in the Table 2), road capital expenditure in 1980 was 96.2 percent, while road recurrent expenditure as a percentage of total was 3.8 percent. However, in 1988, there was a drastic reduction in road capital expenditure to the tune of 16.8 percent, while road recurrent expenditure -its counterpart - increased to 83.2 percent. In 1993, there was almost a tie between the two, after which in 1994, a significant difference of 81.9 percent against 18.1 percent in favour of road capital expenditure was recorded. In 1999, while road expenditure as a percentage of total expenditure was 36.2 percent, road recurrent expenditure - its complement - was 63.8 percent. In

Table 4 : Transport Indicators for Selected Countries

City	Country	Private motorist in %	Train/tram in %	Bus/minibus in %	Bicycle/foot/ other in %	Travel time (min)	Road expenditure per10000 (US$)
Accra	Ghana	11	0	47	42	45	Na
Bangalore	India	15	0	46	39	18	5
Bhiwandi	India	13	0	8	79	15	2
Cardiff	UK	57	1	12	30	Na	140
Chennai	India	9	4	38	50	22	4
Copenhagen	Demark	25	13	14	48	22	125
Duisburg	Germany	66	12	9	13	Na	84
Freiberg	Germany	46	0	26	28	Na	36
Gulbarga	India	21	0	8	70	11	1
Hertfordshire	UK	72	3	4	21	27	60
Ibadan	Nigeria	22	0	40	38	40	0
Lagos	Nigeria	24	1	53	22	85	0
Lahore	Pakistan	30	1	16	54	25	2
Mumbai	India	6	60	19	14	33	1
New York	USA	33	39	13	16	37	123
Seychelles	Seychelles	Na	Na	Na	Na	Na	47
Strasbourg	France	48	7	Na	45	15	52
Varanasi	India	16	0	21	63	22	1

Source: UNCHS, 1998. Global Urban Indicators Database, United Nations Centre for Human Settlements (UN-HABITAT)

Table 5 : State of Paved and Unpaved Roads in Nigeria

Paved Roads		**Good**	**Fair**	**Poor**
Federal Roads	26,500	50%	20%	30%
State Roads	10,400	30%	30%	40%
Local Govt. Roads		5%	20%	75%
Unpaved Roads				
Federal Roads	7,841	6.0%	56.6%	37.4%
State Roads	20,100	7.0%	49.5%	43.5%
Local Govt. Roads		4.2%	38.4%	57.4%
Urban Roads	21,900			
Main Rural Roads	72,800			
Village Access Roads	35,900			

Source: Road Vision, 2000, Steering Committee Information Brochure "Transport in Nigeria in 2020"

2003, another election year, road recurrent expenditure as a percentage of total was 49.3 percent, while road capital expenditure as a percentage of total was 50.7 percent. This is still a pointer to the inference drawn already that the government acted strangely in these years of election with road expenditure, and even more strangely to the extent that road recurrent expenditure was higher than road capital expenditure in some of the years!

When road expenditure was compared with expenditure in other sectors (as presented in the Table 3), it was revealed that the percentage share of agriculture in Government capital expenditure in 1981 was 11.8 percent, education - 6.71 percent, health - 1.95 percent, while road expenditure was 5 percent. The share of expenditure on agriculture as a percentage of total government expenditure in 1985 was 15.5 percent, 10.55 percent in 1989, 10.52 percent in 1995, 5.04 percent in 1999, and 11.30 percent in 2005. Education's share was 2.77 percent in 1985, 2.38 percent in 1989, 7.42 percent in 1995, 6.21 percent in 1999, and 3.88 percent in 2005.

Table 6: Distribution of the National Roads Network in Km				
Types of Payment	**Federal**	**States**	**Local Govt.**	**Total**
Paved Trunk Roads	26,500 (13.6%)	10,400	-	36,900 (18.9%)
Unpaved Trunk Roads	7,841 (3.4%)	20,100	-	27,941
Urban Roads	-	-	21,900	21,900
Main Rural Roads	-	-	72,800	72,800
Village Access Roads	-	-	35,900	35,900
Total Kms.	**34,341**	**30,500**	**130,600**	**195,441**
Percentage	**17%**	**16%**	**67%**	**100%**

Source: Road Vision 2000 Steering Committee Information Brochure : "Transport in Nigeria in 2020"

Table 7: Road Density in Nigeria					
Years	**Estimated Population in Million**	**Total Length of Road (KM) in thousand**	**Growth rate in %**	**Road Density by Population**	**Road Density by Land Mark**
1980	68.447	3000	0.00	0.00	0.00
1981	70.388	3100	3.3	0.00	0.00
1982	72.318	3500	12.9	0.00	0.00
1983	74.272	4,700.00	34.2	0.01	0.01
1984	76.299	5,167.00	9.9	0.01	0.01
1985	78.435	7,500.00	45.2	0.01	0.01
1986	80.688	12,100.00	61.3	0.01	0.01
1987	83.043	12,500.00	3.3	0.02	0.01
1988	85.488	15,700.00	25.6	0.02	0.02
1989	87.998	18,850.00	20.0	0.02	0.02
1990	90.557	24,000.00	27.3	0.03	0.03
1991	93.161	25,000.00	4.2	0.03	0.03
1992	95.725	25,179.86	0.72	0.03	0.03
1993	98.360	27,828.59	10.5	0.03	0.03
1994	101.068	30,000.00	7.80	0.03	0.03
1995	103.85	31,837.05	6.12	0.03	0.03
1996	106.709	32,079.00	0.75	0.03	0.03
1997	109.647	32,178.00	0.31	0.03	0.03
1998	112.665	34,123.00	0.60	0.03	0.04
1999	115.766	34,150.00	0.08	0.03	0.04
2000	118.953	34,250.96	0.59	0.03	0.04
2001	122.228	34,315.05	0.22	0.03	0.04
2002	125.593	34,320.00	0.11	0.03	0.04
2003	129.050	34,340.95	0.06	0.03	0.04
2004	132.602	34,340.95	0.00	0.03	0.04
2005	136.253	34,314.25	0.001	0.03	0.04
2006	140.0004	34314.25	0.0	0.02	0.04
2007	143.854	34500	0.54	0.02	0.04
2008	147.81	Na	Na	Na	Na
2009	151.874	Na	Na	Na	Na

Source: Population and Length of road were obtained from Annual Abstract of Statistics, various issues. Other figures were computed by the Researchers.

Table 8: Comparative Analysis of Global Road Fatalities For 2007						
Country	**Population**	**GNI per capita**	**Registered Vehicles**	**Vehicles per 10000 population**	**Fatalities Number**	**Rate/10000 Vehicles**
Norway	4698097	76450	2599712	5534	233	0.896
UK	60768946	42740	34327520	5649	3298	0.961
Germany	82599471	38860	55511374	6721	4949	0.892
Ireland	4300902	48140	2444159	5683	365	1.459
South Korea	48223853	19690	18213228	3777	6166	3.385
USA	305826266	46040	251422509	8221	42642	1.696
Seychelles	86606	8960	14880	1718	16	10.753
India	1169015509	950	72718000	622	196445	27.615
Ghana	23478394	590	931642	397	6942	74.514
Nigeria	148092542	930	7680000	519	47865	62.324
Source: WHO, 2008. Global Status Report on Road Safety- Time for Action. World Health Organisation, Geneva, Switzerland.						

One very important observation that can be made regarding this analysis is the way and manner in which expenditure in agriculture and education has been systematically growing, but the expenditure on roads - the pattern has been of unsystematic growth. As seen from the Table 3, road expenditure share as a percentage of the total government expenditure in 1985 rose to 81.6 percent and fell drastically to 3.2 percent in 1987, and further fell to 1.5 percent in 1989. In 1995, road expenditure percent share of the total government capital expenditure crippled to 0.3 percent and 1 percent in 1995, and in 2005, it had gone up to 17.1 percent. From this, it is revealed that over the years, there has not been an articulated government expenditure policy on roads in Nigeria.

On a comparative basis, the expenditure on road construction and maintenance in comparison with other countries using the most populous city in Nigeria – Lagos and other cities of the world, road expenditure is extremely low in Nigeria. As revealed in the Table 4, road expenditure per 10000 (US$) in United Kingdom (UK) was 140 (considering 1998 figures). In USA, it was 123; in Demark, it was 125; in Germany, it was 84; in France, it was 52; while in Nigeria, it was zero. Researchers like Oyesiku and Odufuwa (2002), Oni (2004) and Ogunsanya (2004) concluded that the disparity in expenditure is an evidence of the poor state of roads in Nigeria (refer to Table 5). The analysis in the Table 5 reveals that out of the 26,500 km length of paved trunk roads in Nigeria, only 50 percent of the roads (13,250 km) were in good condition; 20 percent representing 5,300 km length were in fair condition; while 30 percent amounting to 7,950 km in length were in poor condition. The unpaved trunk road measuring 7,841 km in length, of this road, 6.0 percent representing 470.5 km was in good shape, 56.6 percent representing 4438.0 km was in fair condition, and the remaining 37.4 percent representing 2,932.5 km was in poor condition.

The distribution of the national road network in Nigeria captured in the Table 6 is again an indication of the lack of commitment in the area of maintenance of the existing road infrastructure in Nigeria by the relevant agencies. As shown in the table, only 18.9 percent representing 36, 900 km of the total national road network of 195,441 km were paved trunk roads, out of which only 13.6 percent amounting to 26,500 km were federal paved trunk roads, indicating that the percentage share of the overall federal roads in Nigeria was just 17 percent.

The growth rate in length of the roads is shown in the Table 7. Significant growth rate was recorded in 1985 with percentage growth of 45.2 percent, the year 1986 recorded a growth rate of 61.3 percent, and the year 1990 recorded a growth rate of 27.3 percent. From 1996 to 2007, the growth rate had been creeping within the neighbourhood of zero. The road density in terms of population and landmark never went beyond 0.4.

The poor condition of the road pavements enhances congestion as roads designed for free flow of traffic at speeds of about 60-100km/h are subjected to travel at the speed of 10- 40km/h (Olayiwola, 2010). The resultant effect of road congestion and bad roads, especially potholes that often form pitfalls for unsuspecting drivers, has increased accidents, as depicted in the Table 8. Considering the global data for accidents for a comparative analysis for the year 2007, the fatalities in relation to the population were the highest in India with a total number of 196,445 fatalities. Nigeria is second with the figure of 47,865 fatalities. USA is at the third position with a number of 42,642 fatalities. As

evident in the table, we deduced that in the case of India and USA, congestion and the high fatalities number may not have been associated with poor roads occasioned by low road expenditure, but as a result of the number of registered vehicles in the respective countries. India, with a total number of 72,718,000 registered vehicles recorded 196,445 fatalities, while Nigeria with only 7,680,000 registered vehicles recorded as high as 47,865 fatalities, and USA with registered vehicles amounting to 251,422,509 recorded fatalities amounting to 42,642.

Findings and Recommendations

The findings of the present study are as follows:

i) Growth in road expenditure was more substantial in the civilian regime than in the military regime and that the structural adjustment programme (SAP) affected road expenditure negatively.

ii) The Nigerian Government was not committed to the management and supervision of road expenditure.

iii) Expenditure on road construction and maintenance when compared with other countries like USA, UK, France, Demark, Germany, and India was not encouraging.

iv) The poor condition of the road pavements enhanced congestion, increased road accidents resulting in high fatalities in Nigeria.

Based on the findings, the following recommendations are made :

i) Nigeria should take after nations like UK, USA, Germany, France, and Demark by increasing expenditure on road infrastructure.

ii) The Government should ensure that expenditure on road infrastructure is properly managed and supervised, not diverted in any way, so as to raise the nation's production capacity and accelerate economic growth.

iii) Private initiatives in road funding should be encouraged by the government. That is, the private sector should be encouraged by the government to fund and finance road construction and maintenance in Nigeria so as to reduce the burden on the government. This might reduce the problem of diversion of funds.

iv) Other ways of raising the needed funds from the users such as dedicated taxes in the form of toll collection or taxes specifically earmarked for roads - i.e., road-user taxes, property taxes, or grants from senior levels of the government, parking fees system, vehicle registration fee, and road use fee in line with the World Bank policies should be evolved.

v) Alternatively, the government should concentrate on legislation, regulation, and creating conducive environment and not being a mere operator. It can form partnerships with the private sector and other stakeholders in policy formulation, reforms, and implementation , and encourage private sector initiation and participation in the provision of road infrastructure using methods such as build-operate-and-transfer (BOT), build-own-operate-and-transfer (BOOT), rehabilitate-operate-and-transfer (ROT), etc. in Nigeria.

vi) The Government should religiously tackle the incessant corruption and mismanagement plaguing the relevant agencies by increasing its funding of anti-graft or anti-corruption agencies like the Economic and Financial Crime Commission (EFCC), and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalize those who divert and embezzle public funds.

Conclusion and Scope for Future Research

The most significant finding of this study is that the road sector in Nigeria is experiencing a near total lack of maintenance at all levels due to the absence of a rational planning and road investment system based on economic criteria. Nigeria's road networks are poorly maintained and are overused as alternative modes of transport are poorly developed. A lot needs to be done in terms of increasing road expenditure or form partnership with the private sector for Nigeria to realize its full potential through road infrastructure development. The road infrastructure available in the country is presently inadequate to meet the needs of a 21st century economy. However, adequate funding should be directed towards road development and maintenance. The study has certain limitations that need to be taken into

account when considering its implication. The constraints of data collection and availability of data in Nigeria limited the study to a period from 1980 – 2009. There might have been improvement in road expenditure in Nigeria in recent years (2010-2012), therefore, there is a need to critically evaluate the results and hence, the whole study is still open for future research.

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