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The Role of Transport in Rural Development: A Case Study of Plateau State Nigeria

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ABSTRACT

Although transportation is one of the basic means of measuring development, in a country, in most developing countries, rural transportation is inadequate. The study discusses the importance of the role of transportation in development with respect to rural settlement areas in rural areas of Plateau State in Nigeria. The approach was based on field observation and the interpretation of data collected to inform the role transportation plays in the transportation of agricultural produce. Roads conditions were assessed through respondents and how they ranked the conditions of roads in selected rural settlement areas in Plateau State. This was preceded by analysing sets of data from a desktop survey to put the study in context. The transportation problems faced by rural dwellers in Plateau State impacts negatively on their quality of life i.e. high cost, inadequate maintenance of roads. In spite of these challenges rural dwellers cannot do without transporting their produce to market centers. However, the challenges the challenge are the costs, the road conditions and inadequate provision for transportation of agricultural produce from rural areas to market centers.

Introduction

Many authors argue that increasing rural productivity is a function of increases in transportation facility input. That in order to achieve rural productivity; there is a need to boost the role of transportation as an instrument of rural development. In this paper, the role of transportation in rural development is analysed with specific reference to Nigeria, a developing country in West Africa. This analysis was aimed at highlighting the relationship between mobility and rural development in general. Since the provision of adequate transport facilities is vital for the promotion of local tourism, social gatherings, health care delivery services, food production and journey to work in rural areas, the examples cited in this article underlines the importance of transportation in the development of rural areas.

Methodology

The method of data collection was through field observation, key informant interviews and findings from respondents mainly in rural settlement areas in Plateau State of Nigeria. The choice of rural settlements in the same state and close to each other was to ensure originality, consistency and a manageable area of geographical coverage. Questionnaires were administered to a total of 258 respondents' mainly rural farmers from nine rural settlements, from Mangu and Local Governments in Pankshin Senatorial District of Plateau State in Nigeria. All the nine settlements are located along a National or Provincial road. The study adopts an integrated approach in which as first there was a desktop study to unpack the logic of rural settlements and transportation. This was followed by rural road transportation discussion which was undertaken in the context of roads conditions, farm produce transportation modes used in selected rural areas. In addition to this the rural dwellers who were mainly rural farmers were requested to indicate the road condition in their areas and the cost of transportation thereof. The data collected were analysed and percentages were derived, trend and graphics drawn to illustrate the impact of transportation in the nine sampled rural settlements areas in Plateau State Nigeria.

Related Literature on the Role of Transport in Rural Development

Commenting on the role transportation plays in rural development, it was indicated that under-development in many rural areas is related to circumstances resulting from inaccessibility and lack of mobility [1] and [2]. This implies that the level to which a rural area is accessible to internal and external service delivery is a major determinant in the development of its resources. Although this assertion seems convincing, it was argued that although mobility is important in facilitating rural development, it must go hand in hand with the development of the resources of the area [3] and [4]. These assumptions suggest that there are three possible links between mobility and rural development. The second is that investment in transport is a prerequisite to the level of which a rural area is opened or closed to internal and external production input and output. The third is that too much or too little transportation can impede rural economic empowerment [5] and [6].

In the first instancethe importance of the relationship between transportation and rural development particularly in Nigeria and the Republic of Benin respectively has been emphasised [7] and [8]. They expressed the view that studies on the level of car ownership in the two countries on residents In semi-urban areas, show that the higher the ownership the greater the volume of traffic and connections between urban and rural markets. They further stated that daily economic activities grew by 20% from 1995 to 1999 due to the opening up of rural areas through road construction linking rural and urban centres.

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This implies that in order to utilize more profitably the resources of any rural area, transport facilities should be adequately provided.

In the second instance it was stated that as a pre-condition for the development of backward rural areas, investment in transport facilities should be encouraged [9]. The author argued that such investments are justified by the rural economic base theory that the inhabitants of rural areas should be able to move their goods and services within and outside their communities with ease. This is related to the fact that local economic activities may not offer enough effective demand and supply to make rural areas in Africa reap the benefits that might occur as a results of successful globalization without adequate transport system. Hence, linking people in rural areas of production with consumption areas will play an important role in raising the level of economic performance and consequently encourage current efforts in economic globalization. It was in this respect it was argued that the development of an area is related to the ease to which its resources can be physically reached by local and outside markets [10]. This assumption goes to buttress the point made that adequate mobility may very well alter spatial accessibility and rural empowerment of the people if it is well planned [11].

In the third place, negative effects of rural development may arise as a result of excess or inadequate mobility. On this issue, it was noted that although it is much easier to commute in urban areas there is frequent transport offer than in rural areas this sometimes generates unbearable traffic congestion to commuters [12]. On the problem of impracticable roads in rural areas it was noted that it was more common to see heavy traffic and roadside businesses on intercity roads than in rural areas where the roads are poorly maintained [13]. These observations show that adequate transport supply can lead to growth in small businesses when there is frequent transport and decline in areas where transport facilities are rare and adequately provided.

Transport Situation in Selected Rural Areas of Plateau State Nigeria

Other authors made the following assumptions on the characteristics of rural transportation in Nigeria [14] and [15]:

- That the volume of traffic in rural areas is very low,
- Journey distances are short and fares are either too low or too high,
- Traffic generations are widely dispersed spatially,
- Products in rural areas are bulky and easily perishable and need to be evacuated to market centers immediately after harvest,
- The smaller the frequency of transport connects between the city and the hinterland, the higher the prices of commodities, and
- Variability in the demand and supply of rural transportation is dependent on road quality, fuel shortages and transportation fares.

In the study conducted in the areas i.e. three rural, three semi-urban and two urban areas, traffic volumes becomes smaller as distance increases between urban and rural areas. This assertion was tested as shown in table 1 in selected rural and urban areas in Plateau State Nigeria.

Table 1. Goods Traffic Volumes in Selected Rural and Urban main streets in Plateau State Nigeria 2014

Name of Location	Type of Settlement	Status of Location	State	Average Traffic Volume/Hr (6am-7pm) on market days
Panyam	Rural	Council District	Plateau State	76
Kombun	Rural	Council District	Plateau State	39
Barkin Ladi	Semi-urban	Local govt. Hqtrs	Plateau State	89
Jos	Urban	State Capital	Plateau State	450
Pankshin	Semi-urban	Local govt. Hqtrs	Plateau State	80
Sheridam	Semi-urban	Local govt. Hqtrs	Plateau State	92
Mangu	Urban	Local govt. Hqtrs	Plateau State	121
Bokkos	Semi-urban	Local govt. Hqtrs	Plateau State	78
Total	8	8	1	1025

Source: Authors fieldwork March 2014

From table 1 we can see that traffic volumes in rural areas are very small as compared to those in semi urban and urban centers. Figures in thetable show that total goods traffic volume in rural areas:-Panyam and Kombun was 11.2% of the total of both rural and urban traffic volumes. However, in semi-urban areas, the total goods traffic volume on market days was 33.07% of the total. In other words, as the settlement becomes more urbanised, the higher the percentage of goods traffic volumes recorded. The volume in an urban areas like Jos with a population size of 900 000 inhabitants based on the 2006 census had 43.9% of the total [16].

Those who engage in commercial activity in the rural areas can be referred to as petty traders because their individual production is small and their limited income and consumption is too small to permit frequent mobility. Generally they commute less frequently than those in urban centers. This is related to the absence of a cheap and adequate transportation system. Walking on foot remains the most reliable and single most important means of contact in remote rural areas.

In the rural areas in question, distances travelled on foot are relatively short. The field survey revealed that in Panyam and Kombun district councils the total average distance travelled by a sample of 400 residents was less than 4km per day to neighbouring communities. Except for journey to farms which were relatively far (8kms) on the average from dwellings, all other journeys to farms were generally very short i.e. between 0 to 3kms on the average.

i. Trip Characteristics in the study areas

Generally speaking, rural to urban trips showed that remote or inner rural dwellers make two or three journeys before getting to urban areas. There was the initial walk from the house to the village moto-parks. A second journey was made from the village moto-parks to the nearest major route of the nearest urban area. The third journey was when the commercial vehicle took the commuters to the nearest urban area. The study revealed that the three stages of journeys to the nearest urban center were typical of villages located less than 30kms from the state capital. Journeys above 30kms were

less frequent than intra-rural journey. Long journeys to urban centers were made to sell farm produce like onions, yam, maize, groundnuts, cassava and potatoes etc. Such journeys were also made to purchase rare goods like fertilizers, building materials, clothes, radio, groceries etc. The villagers sometimes travel long distances to the urban centers for services like the repairs of radio cassettes, motor-cycles, Lorries and grinding machines. In the study areas, it was discovered that the denser the road patterns the higher the traffic volume on major roads connecting the rural community to the major city. Table 2 shows the percentage of goods transported to the nearest market in nine rural settlements in Plateau state Nigeria.

Transport cost of farmers produce to markets

The cost of transporting agricultural produce from farmsteads to markets within a radius of 30 kilometres in rural areas in Plateau State is shown in table 2.

Table 2. Agricultural producetransported from farmssettlements to markets

Settlements in plateau sate Nigeria	Tons of agricultural produce transported by various modes of transportation					
	Motorcycle	Pick-up vans	Lorrie	Bicycle	Animal Carrier	Head Porterage
Kombun	10	20	50	10	1	8
Kerang	12	24	46	9	0	9
Panyam	22	26	48	2	0	2
Niyes	24	18	52	2	0	4
Kogul	20	19	58	1	0	3
Pushil	18	26	42	6	2	7
Bwonpe	16	32	50	1	0	1
Mangu	26	30	42	1	0	1
Gindiri	19	28	46	2	2	3
Totals in tons/%	186 (20.26 %)	223 (24.29%)	434 (47.27 %)	32 (3.48 %)	5 (0.54 %)	38 (4.13 %)

Source: Authors field data 2014

Table 2 shows that Lorries were the most frequently used means of transportation with 47.27% followed by pick-up vans with 24.29% and motorcycles accounting for 20.26%. The least were animal and head porterage. However, transportation from farms to residential areas for domestic uses is done mostly on bicycles animals and head porterage.

The cost of transportation of agricultural produce from rural farm areas impacts on the income of local farmers. Although the cost varies depending on the weight and type of agricultural produce and distance travelled accounting for the bulk of transportation costs. In study areas, the average distance travelled to sell agricultural produce was about 30 kilometres on the average. The figures at the bottom of the table are the total tonnage transported and in the brackets are the percentage equivalents per mode of transport.

ii. Travel patterns in rural sampled areas

In the study areas, it is the density of dwellings that determines the traffic volumes particularly in villages with less than 10persons per square kilometre. For example, the average distance separating farmsteads in Panyam district was one kilometre however; demand for transport in the area fluctuates depending on the day and the occasion. Generally journeys from town to villages and vice-visa starts very early in the morning, andreturn journeys were usually in the evenings. Village to village journeys of less than 30kms on foot could start at any period of the day. High temperatures i.e. between 25-degree Celsius and 35-degree Celsius conditioned this travel behaviour in the afternoons. Early morning and late afternoon, journeys enables the traveller to spend more time in his destination and returns when the temperature might have dropped to 25-degree Celsius in the evenings.

The pick periods were between 5:30 and 10:30am in the mornings and from 3:30pm to 7pm. Low traffic volumes were recorded between 10:30am and 3:30pm. There was over utilization of vehicular capacity during the morning and afternoon periods in the area.

Cyclic market days and occasional social activities influenced periodic variations in the volumes of traffic in rural communities. Farmers in the study areas and traders in nearby urban centers travelled to different markets on successive days from Mondays to Saturdays to sell and purchase goods. Sometimes village festivals, village meetings, marriages, medical services, Christian and Islamic ceremonies draw large traffic volumes just like on market days. This explains why traffic volumes vary depending on the village communities'level of activities during the days of the week i.e. whether it was a ceremonial day, a market day or a non-market day. Traffic volumes from village market centers were usually very high on market days and days slated for social activities like yearly traditional music festivals. Low passenger turnouts on certain market days sometimes result in having one passenger to five seats in a commercial vehicle. Consequently, when commercial vehicle passenger seats were not fully booked the vehicles can move and passengers were delayed for many hours. On non-market days particularly on minor rural roads, transport supply were as low as three vehicles per hour and sometimes one vehicle per day on very remote rural roads, which were mainly gravel roads.

iii. Seasonal variation in transport demand in the rural areas of Nigeria.

Seasonal variations in transport demand in rural areas of Nigeria are dependent on the economic activity during the season. Nigeria`s freight and passenger demand is higher during the dry season from November to February. In the northern states the dry season is the period when farm produce are harvested and sold. During this season, there is bulk purchase of farm produce like maize, yam, beans and millet. They are transported to store houses or market centers. In the western and eastern states of Nigeria, the dry season is also the period for the harvest of palm oil, plantain, pineapple, cassava, yam and cocoa. These farm produce were often transported to their collection centers for onward movement to urban markets. Traffic volumes during the dry season were usually very high particularly during the end of year holidays. During this period traffic volumes can be ten times higher than during the rainy season from June to September. The peak period for transport demand from November to January corresponds with mobility demand to transport harvested farm produceand the end of year festive periods. More importantly very high traffic volumes correspond with Christmas and New Year holidays when most villages travel to urban centers to purchase Christmas gifts. This is the period when civil servants and other workers residing in urban areas travel to their respective villages for the Christmas and New Year holidays. This is also the period when traffic volumes and transport fares in Nigeria were usually higher than in other periods.

iv. Road conditions in selected remote rural areas of Plateau State

In the rural areas of Plateau State the study on mobility situations show that the most important determinant in the volume of traffic is the quality and density of the routes.

A sample of 20 inner-rural villages in Plateau State shows that the roads linking them were predominantly bush paths. Their widths ranged from 0.3 to 1meter. On these roads, there were often no bridges. The few that exist were made of wooden tree trunks across the stream and they often get washed away after heavy rainfall with floods.

With the aid of a series of topographical sheets of 1:50 000 and on the spot checks, the analysis of a sample of 20 villages along major roads linking large communities was undertaken to establish their quality. About 38km out of a total of 500km of the major roads that pass through the villages were tarred. Furthermore, 27km out of 38km of the tarred roads were tarred because they were either national or regional trunk roads. It was discovered that it was only villages that were fortunate to have federal or state roads passing through them were tarred.

v. The density of rural roads

The densities of roads vary according to the density of settlements. The denser the rural settlement pattern the greater the road network systems. For example in Plateau State, communities with the densest road network were in Panyam, Pankshin, and Wase, Shendam and BarkinLadi local government areas. Their relatively higher density was due to their location within with a fertile land for crop production. The density of roads in villages located far away from state and local government headquarters was lower than those closer to them. Furthermore the greater the intensity of agricultural activities in the area, the higher the road density inthe rural communities.

Compared to the forest regions of south-eastern and western Nigeria, where the land is more marshy and wet particularly on the costal and riverine parts of the country, road densities are generally low. Transportation in the riverine areas is mainly in traditionally made wooden or petrol boats. In petroleum mining areas of the southeast, rural roads are constructed to mining sites and maintained as long as the mining activities were going on.

Generally speaking, villages whose farmsteads were located far away from major roads were obliged to transport their farm produce on bicycles, head or shoulders to the nearest major road. From the nearest major road they can catch a public commercial vehicle to the market. Lorries fondly called “nine-eleven”, buses and trucks plying the major roads. These vehicles avoid impracticable roads and accept to ply them on condition that passenger’s fares were higher than normal fares, on good roads.

i. Head porterage of agricultural produce

Head porterage is the most common in the study areas and the most cooperative means of rural solidarity, to provide assistance to closely sited families or clans. In these areas goods were moved over short distances by women, children and members of the extended family to desired locations for a small fee or none at all. This was because when it was the turn of other households or others will in turn assist. During the harvest season middle aged women and children make their services available to traders who may wish to use their services to transport farm produce to storage centers or markets where the roads were impracticable.Carrying goods on the head was commonly used to move farm produce like yam, maize andpotatoes to nearby markets. The absence of good vehicular roads in the inner rural area made head porterage to be more viable than other modes of transportation because the roads may be seasonal, gravel or impracticable.

ii. Bicycle use in the rural areasof Plateau State

Since the 1940`s the bicycle became very popular in Nigeria particularly on non-motorable bush paths and it replaced the horse as a formidable means of transportation. Until 1986, the bicycle was very important as a means of transportation in the rural areas of Plateau State. One out of every two households in the rural areas of the plateau owns a bicycle and mostly used to transport farm produce. Between 1960 and 1985 the bicycle used to be a symbol of wealth in most villages in plateau state. Bicycle repairers could give out their bicycles on time-hire basis to users. During the oil boom period from 1973 to 1980, motor-cycle almost replaced the function of the bicycle in the rural areas. After the oil boom periods, many rural dwellers resorted to the use of the bicycle, which is more affordable and easier to maintain in rural areas.

iii. Motorcycle as means of transporting farm produce

In the 1970`s the motorcycle became very popular for rural and urban mobility because many low-income people could afford to buy them. At the beginning of 1980 the Nigerian economy took a down turn and their prices went up and many rural dwellers could no longer afford to buy them. Today those who can afford to buy them use them as motorcycle taxis popularly known as `Okada` named after a popular local airline in Nigeria. Their relatively higher speed over the bicycle and low price as compared to the car gives the motorcycle an added advantage as one of the principal means of passenger transport. The motorcycle can move in all nooks and corners of neighbourhoods most especially in areas where a car cannot go due to bad road conditions [17]. At the beginning of the 1990s, many state and local governments encouraged those who unofficially used the motorcycle as taxis to register them with the state licensing office. According to a federal road safety report, accident rates among motorcycle users between 1985 and 1990 increased by 30% over 1980 to 1985 figures. In 2000 six out of every ten-registered motorcycle taxis in the study areas have had a non-fatal accident once or twice. The increase in the accident rate among motorcycles was related to the large number engaged in commercial passenger traffic. The motorcycle however became one of the major means of transporting farm produce to the markets in rural areas.

iv. The car in the rural areas of Plateau State

Although the car is still the single most means of transportation in rural areas of Plateau State, their number has been on the decease. In 1994, Federal Office of Statistics records showed that the ratio of cars per person in the rural areas was decreasing annually by an average of 1% since 1990 due to the low income level of the rural population [18]. This was traced to the economic problems of the country as whole. According to the United Nations ranking, in 2000, Nigeria was the 13^{th} poorest nation in the world. The local currency the Naira which used to exchange with the US dollar at 1.5 for one Naira exchanged at 194 Naira to one dollar in 2015. Couple with this problem was the poor rate of remuneration for salary workers. Although salaries have increased since 1985, it cannot be compared to the high yearly inflation in the country and as a result of this only a few salary workers can buy imported second hand or used cars popularly known as

'tukumbos cars'. In view of high cost of transportation most car owners in the rural areas use their cars to sometimes transport farm produce but it was not the major practice in the state.

Despite the high cost of "tukombo" and new cars in the country, the car remains the single most important means of transporting passengers. Some rich farmers own pick-up vans and Lorries, which are used for commercial purposes in the rural areas.

Lorries and pick-up vans in the rural areas are rented out to a willing client-driver per trip per day or the owner of the vehicle may use it to pick up passengers and goods on an agreed amount. The practice of renting the vehicle is the retail aspect of services rendered with the vehicle. In the rural areas of Plateau State passengers with goods usually wait on major roadsides until a commercial vehicle comes to pick them up. The passengers and goods were picked up only if thecost of fuel and a good profit margin were guaranteed. Terminal delays in moto-parks where commercial vehicles often wait for passengers for long hours sometimes contribute to delays in starting journeys on rural roads. The long hours of waiting for commercial vehicles obliged farmers to device other methods of transporting their farm produce to the market. They would arrange for a lorry or pick-up van to go their village to pick them and their goods in the early morning hours of market days. The success of such arrangements was dependent on the quality of roads and transport fares and passengers willing to pay a willing driver. The study however, revealed that transportation fares in the study areas vary according to the quality of roads and distance travelled. For example on good surface or bituminous roads, transporters charged 20% less than those charged on poorly maintained roads because more trips could be made in a day. Very few commercial vehicles ply poorly maintained roads to avoid damage to vehicles. Most of the poorly maintained roads were in the remote rural areas where little or no attention is given for upgrading and rehabilitation.

In Plateau State the average cost for transporting maize, groundnuts and yam in a commercial vehicle was estimated at about 25 dollars per ton/km 2015. The Nigerian Union of Road Transport Workers (NURTW) effectively maintained uniform passenger fares in the rural areas. For example passenger fares ranged from0.5 to1.3 US dollars per kilometre depending vehicle comfort. Increases in road haulage and passenger fares were always related to poor road condition or during petroleum product shortages.

During the rainy season most of the narrow laterite roads in the rural areas rendered impracticable due to heavy rainfall. Farmers often disposed of their goods at give-away prices to avoid wastes one of such produce was potatoes. Our study showed that one third of the volume of potatoes, tomatoes and onions perished on the farms in the rural areas of the Plateau State because of excess produce and sometimes lack of vehicles to transport them to market centers, The small number of transport operators on rural roads and the high costs of vehicle maintenance were responsible for the large quantity of farm products that perished on the farms. Similarly, the irregularity of seasonal demand in road transport in rural areas often led to under-utilization of moto vehicles capacity. For example during the harvest seasons, farmers were always eager to send their goods to the market thus increasing demand for commercial vehicles.

Transport Constraints to Rural Development in Plateau State

Adequate transportation is indispensable in improving and modernizing rural development projects. Head porterage, which is the principal mode of transportation in rural areas of Plateau State for short distances, is limited in quality and capacity. First, the volume and quantity of goods transported at a given time was small. For example a lorry truck had the capacity to transport about, 2.5tons of goods at a time. For the same volume of goods, 25 people would be needed to transport the same tonnage assuming that each of them was strong enough to move 100kg at a time. Horses and mules are sometimes used to transport goods in some parts of Northern Nigeria, but their use in the study area was very small and the journey was often very slow and un-economical when large volumes of goods were transported. Head and animal means of transportation are however very useful in places where the roads are impracticable for commercial vehicles. The study revealed that inadequate access roads in rural areas slowed down commercial activities and health care delivery programs. This was related to good transportation service fares increases. The elasticity of demand and supply in the area was dependent of the season and availability of goods and passengers. On the role of transport service in rural development, it was indicated that the construction of a railway line through the north-east France boosted local economic activities along the rural routes and it brought down transportation cost by 20% [18].

According to a report in the study locations, rural communities with adequate road conditions increased goods and passenger transportation between rural and urban areas by 50% over areas with inadequate conditions refer to [13]. This means that the economic problems of rural farmers in the rural areas rise above subsistence level because persistent poor transportation facilities was in part responsible for transportation problems encountered by rural commuters . In Barkin Ladi Local Government in Plateau State, transportation facilities were relatively adequate, for the evacuation of farm produce and the promotion of agricultural extension services. This was because adequate transport facilities could not effectively facilitate geographical specialization in farming activities as well as enhance the establishment of farm produce industries. When the federal government introduced the Directorate for Food and Roads and Rural Infrastructure (DFRRI) in 1986, the idea was to promote rural economic development. Since the inception of DFRRI, the emphasis has been on road construction in rural areas. DFRRI was aimed at providing local farmers with goods roads and transport services to improve food production. This means that emphasis on road development through DFRRI would have helped rural farmers and local traders in rural areas replenish their stock and make goods and services available to their clientele at a reasonable cost and with little inconveniences but the road conditions have not improved significantly during the field investigation for this study in 2014.

i. Constrains to product distribution activities in Plateau State

A sample of 200 respondents interviewed in the rural communities of Panyam andBarkinLadi, it was discovered that they rated good road transportation more important to them than electricity and pipe-borne water supplies. They related this to instances where adequate transportation was instrumental in helping them sell their farm produce before they perish. According to them theycan make extra income

from farm produce which could have perished if the road conditions were not better than what they used to be in 1986. They further reasoned that their preference for transport facilities over pipe borne water was because they can boil rain or stream water for drinking and use lanterns with kerosene to light their homes at night.

Apart from the importance given to road development in the improvement of the quality of life by rural dwellers, they also saw it as an important factor in promoting social interaction. The importance of transportation in rural development areas cannot be over emphasized in the 21st century when economic globalization was likely to dictate trends in business transactions. By implication rural areas with adequate transport and communication facilities are likely to be isolated from main stream of national and international exchange of ideas and economic opportunities [19]. By implication large quantities of agricultural produce will have less economic value if they cannot be transported to areas of demand. If rail transportation had developed beyond what the British left after the independence of the country in 1960 many rural areas would have benefited. For example in 1980 the Nigerian Railway Corporation (NRC) had 219 locomotives and transported 111 million tons of goods per year but by 1995, less than 19 locomotives were in good condition and only 0.1 million tons of goods were transported by rail. As a result of inadequate railway services in Nigeria, farm products destined for the southern parts of the country were transported almost totally by road. In view of poor road maintenance culture in Nigeria, road haulage capacity performance has reduced. Since gains in the application of fertilizers and other pest control substances are imported as farm inputs a good transport system is also required to distribute them in rural areas. If road and rail transportation were adequately provided, manufactured goods fromport cities i.e. Lagos, Port Harcourt, Aba etc. can easily be transported to northern towns like Jos, Kaduna, Kano, Maiduguri, Sokoto etc., without much delay.The solutionto ensure farm produce and passenger transportation is by ensuring that train services are provided in Nigeria. This will however, depend on the country`s leadership ability to attract investment in fast rail for freight, and passenger movements from city to city and from rural to economic centres of the country.

Apart from the usual form of transport in moving goods and passengers, other transport operations were related to clearing digging, drilling, weeding, planting and harvesting fields. Only adequate transportation system can enhance mechanized farming and the movement of agricultural commodities from rural areas for export outside their borders of Plateau State. Furthermore, with a good transport system rural areas should be able to import and consume manufactured products from urban and foreign countries. In remote rural areas of Plateau State the smooth movement of commodities was hampered due to inadequate road transport operations. In 2014, a Central Bank of Nigeria`s report on commodity sales in Nigeria showed that 30% of farm products i.e. tomatoes, onions, banana, palm wine and potatoes perished in remote rural areas as a result of inadequate transport facilities to move then quickly to their respective markets [20]. If there must be increased specialization in rural productivity, daily markets in rural areas of Plateau State should be opened up and transport distribution facilities improved. This suggestion is related to our discovery that in the study areas the viability of the markets was dependent on the ease at which goods were transported in and out at a minimal cost.

Table 3. shows the perception of rural dwellers particularly local farmers on road conditions in rural areas of Plateau State in 2014.

Key to ranking of perceptions in table 3				
1	2	3	4	5
Very low / egligible	Week/little impact	Moderate/not critical	High/ positive	High/very positive

ii. Constrains to economic opportunity in the rural areas

In the study areas, restrictions on the scope of rural markets to widen up were due to very poor distribution facilities. In a study conducted by Hennie Swanepoel in 1997, it was indicated that rural areas deprived of economic opportunities were those with very poor transport functions [21]. This statement confirms our findings on the role of transport functions on increased economic opportunities and services in the study areas. For example in the rural areas of Plateau State, the study revealed that high transport fares discouraged demand for goods and services and eroded the meagre earning of the rural dwellers. In order to boost the exploitation of agriculture, mining and local tourism in Plateau State, land in the rural areas must be able to absorb transportation cost as a reasonable rate.

There is a direct relationship between the level of mobility and the level of economic development [22]. In the study areas, the respondent's responses reflect the contrast between areas with adequate transport facilities and those with less developed transport facilities. For example in areas with less transport facilities farmers monthly income was one quarter less than those with developed transportation facilities. Generally speaking, current transport situations in the study areas indicate that transportation is irregular and unreliable and need immediate solution to tackle the problem.

Policy recommendations for decision makers

Poor road conditions and irregular transport services in rural areas created gaps between rural areas of crop production and urban areas of consumption. To improve the situation, transportation gap between rural and urban areas should be narrowed considerably. Narrowing the gap will enhance the movement of rural crop produces from isolated farm outlets. This strategy is important because large quantities of perishable goods were lost due to poor transport facilities. Rural road construction should be extended to community roads.

Improving transport operations in rural areas will increase the value of seasonal goods and this will push up the value of agricultural commodities and rural service providers. Improving mobility particularly in remote villages of Panyam, Kombun, Odolafo and Ugbaru to mention just a few will enhance local economic empowerment.

Improvement on the current level of transport services in Nigeria should commence with a re-orientation of transport policy in Nigeria to cover rural areas. Although the Federal Government introduced the mass transit program in 1989 to improve inter and intra urban mass transit, the program was silent on its role in the rural areas. Haulage and riverine transportation have not been adequately addressed in any transport policy in Nigeria.

Table 3. Respondents perception of rural road conditions, 2014

Road Condition	Names of settlements in Plateau State								
	Panyam	**Komban**	**Kerang**	**Niyes**	**Kogul**	**Pushil**	**Bwonpe**	**Mangu**	**Gindiri**
Tarred road	5	1	4	4	3	5	4	5	5
Tarred but deteriorated roads	4	1	3	3	2	4	3	4	3
Gravel roads	3	3	2	2	1	3	2	3	3
Un-gravelled road	2	2	2	2	1	2	2	3	0
Seasonal roads	3	3	2	1	1	2	3	2	3
Dry season road	1	1	1	1	1	1	1	1	2
Impracticable roads	1	1	1	1	1	1	1	1	1
Total	19	12	15	10	10	16	16	19	17
Rank	3	1	2	1	1	2	2	3	2

Source: Authors field data 2014

The study has shown that for any transport service to be beneficial to people no matter where they reside, the supply and demand of transport should be planned to close the gap between rural areas and urban centers. Closing the gap will maximize the benefit and cost of providing transport facilities [23].

Many rural areas in Nigeria are inaccessible to any forms of vehicles yet such areas processed fertile agricultural land and potential tourist attractions. In order to reach such areas the federal state and local governments should construct and maintain rural feeder roads. In this regard, the services of the Development of Food Roads and Rural Infrastructure should be replicated at the local government and district levels to guarantee maximum coverage of road construction in remote rural areas. One way of achieving this is by increasing the annual budget for rural infrastructure at the local governments` level. The local government councils have more roads to construct than state and federal governments yet they have no adequate revenue to embark on major road construction in their areas. About 90% of their revenue comes from the central government and this depends on good will. The good will of the federal government is sometimes dependant on the promise of electoral votes [24].

Current situations showed that the tendency is for state and federal governments to leave the construction of rural feeder roads entirely in the hands of local communities through self-help programs. The state government should provide the technical know-how required because the rural communities have neither the technical expertise nor the capital to construct and maintain roads [25]. A concerted effort involving the participation of the ministries of works, agriculture and rural development should form the bedrock.

An integrated approach to rural development will provide access and mobility and maximise access to remote farms.

Conclusion

From the proceeding analysis, there is no doubt on the role road transportation has played in the development of rural areas in Nigeria. Transport is an important function as well as constraints to rural development. Experts on rural development in Nigeria argue that only a concerted approach can provide the much-needed solution to the problems of rural infrastructure. If Nigeria is to benefit from the current wave of economic globalization, the rural areas should be properly provided with adequate transportation facilities to open them up to other services. Transport development in rural areas is one of the major factors of local economic development. Transportation experts have however cautioned that the level of transport development is invariably linked to the success or failure of rural development programs in developing countries. Transportation facility can be an effective instrument for rural development if it is made to function properly.

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