

THE EFFECTS OF ROAD TRANSPORT CHARACTERISTICS ON THE MARKETING OF AGRICULTURAL PRODUCE IN NSUKKA LGA, ENUGU STATE, SOUTHEASTERN NIGERIA

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ABSTRACT

The objective of this paper is to analyse the characteristics of road transport and its effect on marketing of agricultural produce in Nsukka L.G.A, South Eastern Nigeria. To achieve this objective, data were collected from documentary materials, questionnaire, in-depth interview and field observation. The variables considered were nature and conditions of roads, means of transportation used, distance travelled. Data were analysed using frequency distribution, percentages and Simple Regression. Field observations revealed that majority of roads are in deplorable state, characterised by potholes, gullies, rough surfaces and are mainly seasonal and poorly accessible during the rainy season. Percentage analysis performed on nature of roads travelled by farmers on their journey to farm movement revealed that 85.3% of farmers travel on untarred roads while only 14.7% move on tarred roads. Also we discovered that the most preferred means of transportation for farmers head potorage. Finally, the regression analysis performed on transport cost and distance and nature of roads travelled by farmers indicated a strong and positive relationship between both variables. The regression gave an R² of 0.571 implying that 57% of the variation in the dependent variables (transport cost) was explained by the independent variables (nature of road surfaces and distances). The overall effect of this, is increase in transport cost which has adverse effect on rural livelihood, farmers wellbeing and quality of life. Appropriate recommendations based on the findings of the study were made. These include road concession of rural roads development to private companies for proper maintainance of rural roads.

Keywords: transportation, marketing, road, food, transport cost, Nsukka

INTRODUCTION

Transportation is a vital aspect of the production process whether gathering of raw material, factor of production mobility and distribution of the final product to consumers. It involves the movement of goods, people and services from the point of production to the selling point. Transportation is in fact a key to spatial organization of a society and therefore plays an important role to political, economic, social development and organization [1, 2]. Transport is also significant to the society in promoting national unity and social economic integration, generating sense of togetherness, and mutual understanding in a diversified society. The importance of transport is further evident in the fact that the world's biggest cities are found in foci of transport routes - rail, water, road and air [3].

Transportation especially road transport plays a significant role in directing mobility and accessibility of places. Road transport provides access to social amenities, public facilities and socio-economic activities [2, 4]. It provides the diffusion of new technology and techniques, increase production, reduce marketing cost, increase spatial interaction and increase link access to education and health facilities. It also increases mobility and reduce isolation [5].

The role of road transport is indeed very crucial as it is a phase in production process which is not complete until the commodity is in the hands of final consumers. Availability of road transport facilities is a crucial management factor that stimulates economic growth through increased accessibility, its efficiency and effectiveness [6]. Also it affects the basic function of production, distribution, marketing and consumption in many ways. Road Transportation also influences the cost of commodity consumed and the purchasing power of the consumers [7]. This is because the nature of roads in which goods and services passes will determine the time, quality of goods on reaching the consumers. Meanwhile, if these products reach the final consumers in record time and in good quality it will attract more money for the producers and vice versa.

In Nigeria, Enugu State and Nsukka LGA in particular, one particular economic activity where transport plays an important role is the

production and distribution of agricultural products. According to [8] transportation and agriculture have always co-existed because the value of any agricultural products can be realized only when commodities are transported to the buyer in good condition. Most of these goods rely on road transport which has been described to be in deplorable state and grossly inadequate. In fact as at 1996, survey reports showed that majority of Nigeria populace still had no access to road while 90% of the rural roads which was estimated at between 130,000 and 160,600Km nationwide were in poor condition [9]. In a study by [10], which looked at the problems associated with agricultural produce marketing, rated transport as the second problem of marketing of milled rice in Taraba State after the problem of inadequate credit facilities.

The implication is that the poor state of roads slows down the development of supply system, farmers travel and food distribution. It is against this background that we want to look at the transport characteristics and its effect on marketing of agricultural produce in Nsukka L.G.A. The result which will compliment the previous studies done in the other parts of the country and will bring out the peculiar features and problems of road transport in the study area on micro-level bases.

MATERIAL AND METHOD

The survey reported in this paper was carried out in Nsukka L.G.A, Enugu State in South Eastern Nigeria which lies between latitude 6°30' and 7°60' N and between longitude 6°54' and 7°54' East. It has a land mass of 40.50km² and made up of 19 communities see fig 1.

The climate of the area is grouped under the humid tropical best known as the tropical wet dry (Aw) climate of the Koppen classification. The rainy season starts in April and ends in November and average monthly rainfall ranges from 250mm to 380mm in October with mean annual total of 1500mm. Nsukka has a total population of 220,411 [12]. The People of Nsukka are predominantly farmers with only a few engaged in trading activities, craft making, transporters etc. There are 8 major markets in the area where agricultural goods are sold namely: Ogige daily market situated at

the heart of Nsukka urban, Afo Opi, Aho- Okwai situated at Eha-Alumona, Nkwo Eha-ndiagu, Orié Okpuje, Nkwo Lejja, Eke Ede-Oballa and Afo-Edem. The major crops of the people of the area are cassava, cocoyam, yellow pepper, cowpea(akidi), groundnuts varieties of vegetables etc.

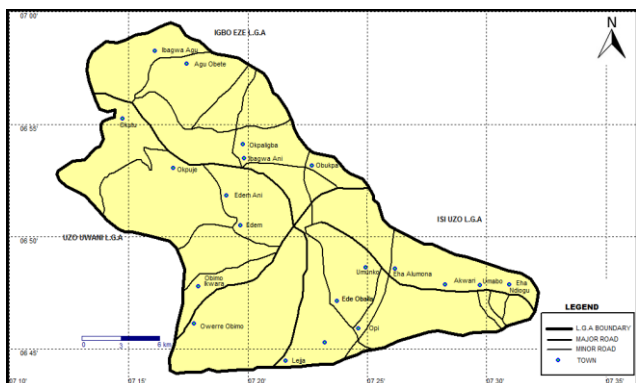


Figure 1: Map of Nsukka L.G.A.^[11]

The data and information used for adequate analysis of this study were acquired from both primary and secondary sources. Two different sets of questionnaires, one each for farmers and farm merchants were designed for the purpose of information collection. Information sought included means of transportation, nature of roads, types of journeys. Apart from the questionnaires, maps of the study area and road network were obtained from the LGA headquarters. In this study, 10 out of the 19 communities that comprise Nsukka L.G.A were purposively selected as our sample frame. The 10 communities are Ibagwa-Ani, Alor-uno, Ibagwa-Agu, Owerre Obimo, Opi, Eha-Alumona, Okutu, Okpaligba, Okpuje, and Eha-Ndiogu (see fig 2).

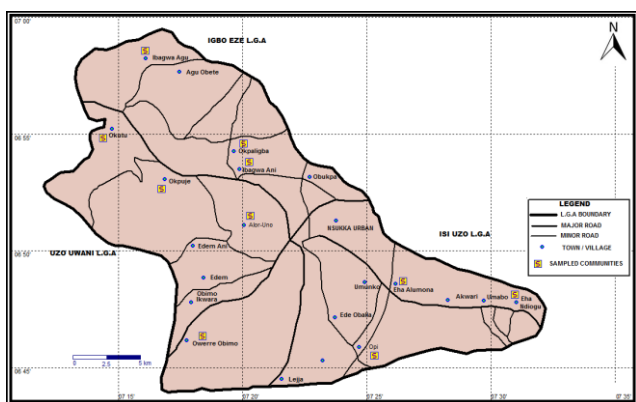


Fig 2: Map of Nsukka L.G.A. showing sampled communities^[11]

These communities were selected based on the reconnaissance survey which revealed that the selected communities represent the agricultural areas of Nsukka LGA. Fifteen (15) copies of questionnaire were distributed to 15 farmers in each of the selected communities using purposive sampling method. Respondents were also purposively selected for questionnaire administration to ensure that they were full time farmers. Again, the questionnaire was administered during field visits by giving them to the respondents to fill and retrieved immediately. Furthermore, the 50 questionnaire for the farm merchants were randomly distributed to five (5) farm merchants in each of the 10 communities. The individual farmers were selected through direct contact while farm merchants were selected from the markets. Thus, a total of 200 copies of questionnaire made up of 150 farmers and 50 farm merchants were sampled in this study. Points of information collection were Nsukka urban market, village markets and homes of farmers. Apart from the questionnaire, additional items of information were gathered through personal communication and in-depth interview. Personal observations were also made while

secondary data such as map of the study area and distance from Nsukka to each of the visited communities were gotten from the Nsukka L.G.A headquarter. The data collected from farmers and farm merchants includes nature of roads and means of transportation. Nature of roads were measured by tarred and untarred. Tarred means that the roads are asphalt covered all weather roads and in good condition while untarred road depicts roads that are in bad condition. In analysing the data, we employed the use of percentages, frequency distribution and regression. Percentages and frequency distribution were used to measure nature of roads and means of transportation used by farmers and farm merchants. Regression was used in measuring the effect of distance and nature of roads on transport cost of agricultural products. Thus the variables used in the regression are distance and nature of roads. The distance between Nsukka urban to each rural community sampled were measured in Kilometers while nature of roads were measured by assigning the number 1 to tarred roads and 0 to untarred road. The relationship between transport cost, nature of roads and distances were analysed using simple regression model. $Y = d_0 + d_1x_1 + \dots + d_2x_2$ (1).

Where Y is transport cost (Dependent variable) b_0 is the constant that scales the equation d_1, \dots, d_2

d_1 - distance travelled (KM)

d_2 = nature of roads (dummy variables)

Data were presented in tables for clear understanding.

RESULTS AND DISCUSSION

The results of the survey are summarized in Tables 1-6

Nature of roads and type of farmers' travel

Types of farmers' travel were found to be two namely journey from home to farm and journey from home to market. Table 1 show that 85.3% of farmers make their journey from home - farm movement on untarred roads while 14.7% of their journey to farm is done on tarred road. In the same vein majority of farmers make their journey to market movement on untarred road but with slight difference in the percentages which is 74% for untarred and 26% for tarred. This is because most of the farms in the rural areas are located in bushes far from motor able roads and are mainly linked with footpaths and tracks.

Table 1 Nature of roads and type of farmers' travel

Nature of roads	Types of Farmer's travel			
	Home-farm		Home-market	
	frequency	%	Frequency	%
Tarred	22	14.7	39	26
Untarred	128	85.3	111	74
Total	150	100	150	100

Source: Field work, 2012

Furthermore, from table 1, it could be deduced that percentage of farmers that use untarred road reduced by 11.3% in comparison to the journey from home to farm and journey from home to market. This shows that nature of roads on the journey to market route is better than the route from home to farm. The implication of the above findings show that majority of roads used by farmers in the travels are in bad conditions. Field observation also showed that the roads are characterised with unpaved surfaces, narrow width, circuitous alignment, bushy, filled with pothole, water logged, dirty and in a deplorable state. Moreover, the quality of roads, made the roads to be seasonal that is nearly impassable during rainy season and passable during the dry season. The seasonal nature of the roads was also observed to be a by- product of poor drainage, flooding activities and inadequate maintenance of roads. The quality of roads thus affects:

Quality/ freshness of farm produced and reduction in cost of farm product

Also the quality of life and well being of farmers' were also affected. This arises from the fact that farmers' spend their little income on buying drugs and treating themselves for sprains, pains, headaches and overall body ache due to long hour of trekking with load and poor quality of roads

Loss of man/hour time as the journey to farm and market takes long time to be made.

Nature of roads and type of farm merchants' journey

Table 2 indicates that farm merchants makes only one type of journey (journey to local market) every four Igbo market days. The table show that 72% of the journey to market is made on tarred roads while 28% are made on untarred roads.

Table 2 Nature of roads used by farm merchants

Nature of farm merchants journey to local roads	Type of farmers travel	
	Frequency	Percentages
Tarred	36	72
Untarred	14	28
Total	50	100

Source: Field work, 2012

In comparing both journeys made by both farmers and farm merchants it can be deduced that farmers' travel are on more deplorable roads than farm merchants. This is because most of the farmers are living in rural areas devoid of good roads but only earth roads and footpaths which are not motorable while farm merchants come from urban market to various local/ community market and therefore travel on good roads.

Means of Transportation by farmers and Farm Merchants

This section deals on the method of movement of produce by both farmers and farm merchant. The various method identified includes head potorage, wheelbarrow, motorcycle, bicycle, trucks, pick up, buses and car.

Means of transporting products by farmers

Table 3 shows that 52% of farmers use head potorage as a means of transportation while none of the farmers uses any types of vehicles such as pick up, cars, buses etc in their journey to farm movement. Also 28% uses wheelbarrow and 4.7% uses motorcycle and 15.3% uses bicycle to farms. On the other hand, journey to market shows that 56% uses wheelbarrow, 23.3% uses head potorage, 5.3% motorcycle, 12% bicycle and 3.3% uses vehicle such as pick up, buses, cars etc .

Table 3: Means of transportation of farmers

Means of transportation	Type of farmers travel			
	Home-farm	%	Home-market	%
Head potorage	78	52	35	23.3
Wheelbarrow	42	28	84	56
Motorcycle	7	4.7	8	5.3
Bicycle	23	15.3	18	12
Vehicle(pick up,buses)	0	0	5	3.3
Total	150	100	150	100

Source: Fieldwork, 2012

Table 3; therefore, show that majority of farmers use head potorage in their journey to farm than in the journey to market. This conforms to the study by [13,14] which discovered that head potorage is still the most used means of transporting agricultural produce. This is mainly because of the nature of roads which makes it difficult for other means of transportation to be used. The use of wheelbarrow was significant in both journey to farm and market. This is an indication of the significant of wheelbarrow as a method of transportation in both journeys made by farmers. The farmers use wheelbarrow more in the journey to market because of better quality road on the route to market. Also wheelbarrow are cheap to

obtain by farmers, well balanced, easy to maintain, used to carry larger quantity of goods, used to display and sell farm products in the market. Again the use of bicycles appeared to be insignificant compared to wheelbarrow and head potorage in both journeys. This is because bicycle is more expensive, had to maintain, difficult to ride on rough roads and terrain and carries small quantity of produce. Vehicles such as pickup, buses, cars appear to be the least means of transporting farm products in both journeys. The insignificant use of buses, cars, pickups stems from the fact that roads are generally poor and seasonally accessible. This result is in variance to the findings of [15] whose study on transportation of grain in Bosso LGA of Niger State, Nigeria discovered that majority (81%) of grain farmers in the area transport their product by using motor vehicle such as lorry, bus.

Means of Transportation by farm merchants

Table 4 shows that 94% of farm merchants uses different types of vehicles in the transportation of farm products while 6 % uses motorcycles. Also none of the farm merchants sampled uses head potorage, wheelbarrow and bicycle as means of transportation.

Table 4: Means of transportation by Farm Merchants

Means of transportation	Type of farmers travel	
	Journey to market	Percentages
Head potorage	-	-
Wheelbarrow	-	-
Motorcycle	3	6
Bicycle	-	-
Vehicle(pick up, buses)	47	94
Total	50	100

Source: Fieldwork, 2012

Nature of road, distance and transport cost of agricultural products

The data obtained for the study were subjected to statistical analysis to ascertain the effect of nature of roads and distance on transport cost. The result obtained using simple regression analysis are shown in table 5 and 6

Table5: Model summary of the regression analysis

R	R Square	Adjusted R Square	Standard error
0.756	0.571	0.486	32.052

From the data obtained from the questionnaire, the R-square value as shown in table 5 is 57.1% which implies that transport cost is affected by nature of road and distant between origin and destination. Also 42.9% does not affect transport cost and farmers' income, which accounts for independent variables X (nature of roads and distant).

Table 6, shows the relationship of each of the parameter and transport cost. The significant or insignificant of the relationship is judged at 0.05 level of significant.

Table 6 Results of regression of effect of distance and nature of roads on transport cost

Prediction	B	T	P
Constant		-0.788	0.449
Distance	0.811	3.475	0.006*
Nature of roads	0.142	0.608	0.556

NB: "*" implies that t ratio estimated is significant at 0.05%

Table 6 shows that distance contributes immensely to transport cost. The probability value of distance is 0.006 while the significant level is 0.05 indicating that distance affects transport cost. Furthermore, nature of roads which could either be tarred or untarred was also considered. According to the regression analysis result in table 6, the probability of nature of roads is 0.556 and the significant level is 0.05. As stated earlier, any parameter with its significant value greater than the standard statistical significant 0.05 is considered insignificant. Therefore nature of roads is not a major factor that affects cost of marketing farm produce. The result is

obtained because most farmers use means of transport that do not attract cost of transportation along the bad road in monetary terms.

CONCLUSION

Generally, production is never complete until what is produced gets to the consumer and for this purpose to be achieved, goods must be made available to the consumers to the right place, time and in good condition. This of course is the importance of road network in flow of goods and service promptly to where they are needed. This study, identified types of travel made by farmers and farm merchants, means of transportation used in marketing of agricultural produce. For the type of travel, we discovered two types of travel made by farmers namely journey to farm and journey to market while farm merchant embark only on one type of travel namely journey from home to market. We also discovered that 72% of farm merchants make their journey on tarred road while 28% use untarred roads. For the farmers, 14.7% make their journey to farm on tarred roads as against 85.3% that uses untarred roads. On the other hand, 26% makes their journey to farm on tarred road while 74% uses untarred roads. We can infer from the results that farmers travel more, on bad and deplorable roads than farm merchants. In terms of means of transportation, majority of farmers use head potorage on their journey to farm while wheelbarrow is the preferred means of taken goods to market. Lastly the regression model summary show that 57% of increase in transport cost is caused by the nature of roads and distance. Thus, the study has identified the causes of effective farmer's travel and movement of agricultural products in typical rural area in Nigeria. Prominent among the causal factors that impedes on marketing of agricultural are poor nature and conditions of roads, which in the respondents view pose a problem to effective production, transportation and marketing of product which affect sustainable rural agricultural farmers' livelihood, wellbeing and quality of life. Since poor road and inadequate maintenance have been identified as major shortcomings in farmers' travel, the incentives and enterprise to grow more food is therefore greatly reduced. As a result, farmers' profit is reduced and a lot of wastage and spoilage due to poor transportation system is experienced. The implication of the findings of this study is quite obvious as the poor nature of roads will give rise to scarcity of food stuffs especially in the urban markets. Furthermore, adequate and efficient transportation service is a corner stone of the modern marketing system and a necessary condition that affects an efficient physical distribution of products; therefore, efficient and reliable road transportation system is indispensable in effective products distribution in Nigeria and Nsukka LGA in particular.

RECOMMENDATION

As it normally said, the first step in solving any problem is the identification of the problem. Based on the identified problems and findings of the study some useful solution are made all geared towards growing more food and enhancing effective marketing of agricultural products which serves as food to the human populace and raw material for our industries. This is with the view of achieving self sufficiency in food production and distribution.

The construction of more rural feeder roads to link farmlands to the markets and where the roads are in deplorable state of despair. They should be constructed or rehabilitated. This is to enhance easy evacuation of agricultural produce.

Given that inaccessibility caused by poor state of roads reduces productivity it is highly recommended that government should make efforts to improve upon the nature of the roads by concession of rural roads to private firms that will constantly maintained the roads.

Having established the fact that transportation cost increases the price of agricultural products, it is recommended that the government with the collective will of people, establish food collecting points in the various rural areas where government can collect and transport to urban markets. It is also suggested that government should invest heavily in rural feeder roads and again

ensures adequate and proper maintenance to enable the roads to be sustainable at all seasons.

Rehabilitating of rail transport for increase in linkages and connectivity which will aid evacuation of agricultural products effectively.

Since inaccessibility of rural roads is a major problem, it is suggested that the Nsukka LGA should raise loan from Banks such as World Bank, African Development bank and other banks to rehabilitate the existing roads.

All roads should be tarred and converting to all weather road because this would enhance rural spatial integration and accessibility to goods, services and opportunities.

These recommendations if followed will help in increase in production and distribution of agricultural products to feed both the urban and rural dwellers. Increase in production will translate into feeding the populace and achieving the MDG Goal 1 of eradicating extreme poverty.

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