

RURAL ROAD INFRASTRUCTURE: IMPLICATIONS ON THE MARKETING OF AGRICULTURAL PRODUCTS IN ISI-UZO LOCAL GOVERNMENT AREA OF ENUGU STATE, NIGERIA.

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Abstract

The study focused on the implications of rural road infrastructure on the marketing of agricultural products in Isi-Uzo Local Government Area of Enugu State, Nigeria. Multistage sampling technique was used to get a sample of 150 respondents comprising of 75 farmers and 75 agricultural marketers that were randomly selected from the five major communities in the study area. Five objectives were analyzed in the study. It was discovered that women were more involved in farming and agricultural marketing in the study area than the men. Majority of the respondents were in their economic active age bracket of 31 – 50 years. 5 different marketing channels are used in the marketing of agricultural products produced in the area. The present nature of road infrastructure in the study area affects the marketing of agricultural products which consequently affect agricultural development in the study area. Problems identified include irregularity of vehicles, high transport cost and poor/bad road condition. It was recommended that government and local community based organizations should provide adequate rural road network, invest maximally into rural-urban transportation and that farmers and food marketers should come together to form cooperative societies. It will help to make their voice to be heard and help strengthen the marketing of their farm products.

Keywords: Rural-road infrastructure, Marketing, Marketing channel, Transportation, Agricultural-products.

Introduction

In most developed and developing countries of the world, the quest to achieve food security is of high priority in their policy statement, Nigeria inclusive. In Nigeria, most of the food consumed in the urban areas and the raw materials used by industries are primarily produced by the rural dwellers. This indicates the fact that the place of good roads and efficient transportation system cannot be overemphasized especially when it comes to the delivery of agricultural products. However, the poor conditions of rural roads have continued to hamper the delivery of food and other agricultural products in Nigeria.

The role of rural roads infrastructure to the overall development of the rural area is obvious. This is evident in the fact that it stimulates agricultural development and growth. Abur, Ademoyewa and

Damikor (2015) stated that infrastructure imparts welfare in three basic areas. Firstly, it determines the utility that is derivable from the available and budgeted income. Secondly, its availability affects production and the capacity to earn income, and thirdly, it affects households and national stock, wealth and development. Furthermore, Aburetal Quoting Idachaba (1994) opined that the availability of infrastructure affects the time allocation of people (both the poor and the rich).

In Nigeria, a number of programmes and policies towards the development of rural infrastructure have been in the past. These programmes include:

1. National Rural Basic Need Programme (NRBNP).

2. Directorate of Food, Road and Rural Infrastructure (DFRRI).
3. River Basin Development Authority (RBDA).
4. Nigerian Building and Road Research Institute (NBRRI).
5. Rural Water Supply and Sanitation Programme (RWSSP).
6. Fadama Project.

All these programmes were established primarily with the aim to improve rural welfare, development and productive capacity of rural farmers through the provision of farm assets and rural infrastructures (Aburetal, 2015).

The rural area can be defined in various ways. Iwena (2015) defined a rural area as a geographical settlement with few and socially homogeneous people and located outside towns and cities and having a population of less than 5,000 people. According to BBC (2020), a rural area refers to areas in the country which are less densely populated. FAO (2018), asserts that three dimensions are usually used in identifying rural areas, these include, sparse settlement, land cover and use and remoteness from urban areas. One major feature of a rural area is their involvement in agricultural activities such as food and animal production, fishery and forestry. The availability of produced food and industrial raw materials is highly dependent upon effective transportation and rural accessibility.

Obviously, in Enugu State, just like in the country generally, the ultimate aim of the agricultural sector is to achieve self-sufficiency in food production, boost foreign exchange and increase the standard of living of the rural people. However, agricultural marketing in the state is highly constrained by poor road network. This has adversely affected accessibility and mobility and has succeeded in making the rural farmers to continue living in a vicious cycle of poverty. Buttressing this, Ume, Nnadozie and Kadurumba (2018), citing World Bank (1990) asserts that 88.5 million Nigerian citizens still live in an estimated 97,000 rural communities with a characteristic life of poverty, misery, morbidity and underdevelopment.

Notwithstanding, the rural sector still occupies a strategic position in Nigerian economy, this is because the rural inhabitants and farming household provide about 90% of marketed and consumed food in Nigeria and agriculture generally provide about 70% employment and work force (Ume *etal*, 2018). In the words of Olayiwola and Adeleye (2005), the rural areas serve as the base for food and fiber production, a strong source of capital formulation in a country and a major market for domestic manufacturers. Several studies on rural roads and rural transportation such as Ume *etal* (2018), Gbam (2017); Afolabietal (2016), Aburetal (2015), Uloh *etal* (2015) and kessides (1993) all asserts that road infrastructure and transportation are essential for farmer's assessment to input and output markets, stimulate rural non-farm economy, invigorate rural areas, strengthen consumers demand and amalgamate rural areas into national and international economies.

Transportation and marketing are basic functions that enhance possession and consumption in the production process. It adds place, time and form utility to agricultural products. Nwauwa (2012) opined that marketing and transportation functions help in the delivery, processing, storage, preservation, utilization and advertisement of agricultural products. In the words of Ezedinma (2007), marketing and transportation balances the producers' and consumers' need and wants through exchange transaction in the market at different locations.

Transportation which is very essential to agricultural production process is the means by which people and goods are carried from one place to another. Odedoku, Odokogo and Ogoji (2002) define transportation as a means of moving goods from their place of production to their place of consumption. An improvement in transportation system accounts largely for sustainable inter-relationship and inter-dependence between people. Transportation began by means of human patronage (trekking) followed by the use of domestic animals such as camels, donkeys, horses, cattle etc. By the discovery of science, advanced methods of transportation such as road, railway, air, waterways, pipelines etc. came into place. However, this work is limited to rural road transport/infrastructure and its implications on the marketing of agricultural products in Isi-Uzo Local Government Area of Enugu State, Nigeria.

Marketing is the performance of all business activities

involved in the flow of goods and services from the point of production until it gets into the hands of the ultimate consumer. Marketing gives signals and also ensures the availability of goods and services. Uloh *etal* (2015), submits that the structure, conduct and the performance of any efficient agricultural marketing is strongly influenced by the nature of the road and transport service available. This is because it is the only means by which agricultural/food products produced in the farm or rural area is moved to urban centres, different markets, homes and industries. This is usually accomplished by the use of different routes of distribution known as marketing channels.

Marketing channel according to Amao*etal* (2011) is the route taken by goods as they move from the producer to the ultimate consumer. As the product leaves the farm, through the farmer, it passes through several hands like the wholesaler, commission agents, and retailers before it gets to the ultimate consumer. These middlemen constitute the channels of distribution of goods. Marketing channels differ from commodities to commodities. Subba*etal* (2009) defines marketing channels as the chain of intermediaries through which the various farm commodities pass between producers and consumers. Kalita (2017) classified marketing channels into two. Firstly, is the direct pattern where the producer sells the product to the consumer directly and the second is the indirect pattern, where the product passes through different intermediaries or middlemen involved in the marketing process.

The issue of rural road infrastructure has continued to be of national importance. However, most rural roads in the country are in poor condition and this has imposed a significant challenge on the nation's economy due to increased cost of transportation and delivery of goods and services. The physical condition of most rural roads in the area of study (Isi-Uzo Local Government Area) is of great concern and market opportunities in particular are constrained by poor road network. This has adversely affected accessibility, delivery, personal mobility and has succeeded in making the farmers to continue living in a vicious cycle of poverty and illiteracy.

The thrust of this study is to analyze the implication of road infrastructure on the marketing of agricultural products in Isi-Uzo Local Government Area of Enugu State, Nigeria. Specifically, this study will:

1. Identify the socio-economic characteristics of the respondents;
2. Determine the condition of rural roads in the study area;
3. Identify the marketing channels for agricultural products under the present condition of rural roads in the study area;
4. Determine the effect of rural road infrastructure on the development of agriculture in the area; and
5. Identify the problems encountered in the marketing of agricultural products due to rural road infrastructure in the study area.

Methodology

The study is carried out in Isi-Uzo Local Government Area, which is one of the functioning seventeen Local Government Areas of Enugu State. The Local Government Area is bordering Benue State and Ebonyi State, and has an area of 896km² and an estimated population of 200,600 (NPC, 2020). The Local Government Area is made up of five major districts/communities which include: Ikem, Neke, Mbu, Umualor and Eha-Amufu which are all known for agricultural activities. The natives are mostly farmers and traders in both agricultural and non-farm products.

The population of the study comprises of all food crop farmers and markets in the Local Government Area. Fifteen farming households and fifteen food crop marketers were randomly selected from each of the five major communities in the Local Government Area, thus bringing the total number of respondents used for the study to 150. Multistage sampling technique was used to get a sample of 150 respondents which comprised of 15 farming households and 15 food crop marketers from each of the 5 communities in the Local Government Area. Data for the study were collected from both primary and secondary sources. Primary data were collected by the use of well-structured questionnaire and interview schedule. The secondary data were gotten from agricultural journals and relevant printed materials. Collected data were analyzed by the use of descriptive statistics such as tables of frequencies and percentages. A 4-point rating scale of very high extent

(4), high extent (3), low extent (2) and very low extent (1) were also used. The benchmark for acceptance mean (\bar{x}) was 2.50. Any item with a mean score of

2.50 and above was accepted while items with mean values below 2.50 were rejected.

Table 1: Socio-Economic Characteristics of Respondents

Variables		Frequency	Percentage (%)
Sex:	Male	62	41.3
	Female	88	58.7
Age:	11-20	8	5.3
	21-39	23	15.4
	31-40	56	37.3
	41-50	42	28
	51 & above	21	14
Religion:	Christian	138	92
	Islam	10	6.7
	Traditional	2	1.3
Experience:	1-5	8	5.3
	6-10	24	16
	11-15	64	42.7
	16-20	38	25.3
	21 & above	16	10.7
Educational Level	No education	41	27.3
	Primary	67	44.7
	Secondary	34	22.7
	Tertiary	8	5.3
Monthly Income	1000 – 10,000	7	4.7
	11,000 – 10,000	55	36.7
	21,000 – 30,000	58	38.6
	31,000 – 40,000	18	12
	41,000 & above	12	6

The result of the socio-economic characteristics of respondents as shown in table 1 revealed that majority of the respondents in the study area are females (58.7%), while men accounted for 41.3% of the population sampled. This implies that females are more involved in farming and agricultural marketing than males in the study area. Most of the respondents are in their economic active age of 31-50 years. This agrees with the previous work of Uloh *et al* (2015) who established that the ages of respondents in agricultural production and marketing in Uzo-Uwani Local Government area of Enugu State fell between 31-50 years. Educationally, 44.7%, 22.7% and 5.3% of the respondents had primary, secondary and tertiary education respectively, while 27.3% had no education. The non-education and low level education amongst the respondents could be due to

the archaic belief that education was valueless and meant for lazy people and also that women education ends in the kitchen. Most of the respondents (92%) are Christians and majority (42.7%) of the respondents has been involved in the marketing of agricultural products for 11-15 years. This indicates that most of the respondents have enough experience that can guarantee success and expansion in their farming and marketing enterprises.

On the economic status of the respondents, the study revealed that 38.6% and 36.7% showed that most of the respondents had a monthly income of less than N30,000.00 (thirty thousand Naira). This could be attributed to the nature/condition of the roads, making it difficult for the rural farmers to convey their products to the market. They may be forced due to the

bad/poor condition of the road to sell to marketers at home or in the farm at farm gate prices, thereby depriving them of making much profit (income). This is in tandem with Aburetal (2015), who opined that

the availability and the condition or rural road infrastructure affects productivity and capacity to earn income.

Table 2: Mode of Transportation Used in the Marketing of Agricultural Products

Mode of Transportation	Frequency	Percentage
Head Portage	60	40
Bicycle	18	12
Motorcycle	112	74.6
Keke/Tricycle	68	45.3
Bus	120	80
Pickup van	58	38.7
Car	30	20
Lorry	28	18.7

*Multiple Response

Table 3: Characteristic Condition of the Roads in the Study Area.

Characteristics of Road	Frequency	Percentage
Foot path	34	22.6
Non-tarred but motorable	105	70
Non-tarred and not motorable	48	32
Non-tarred but seasonally motorable	64	42.6
Tarred Road	55	36.7

*MultipleResponse

Mode of Transportation Used in the Marketing of Agricultural Products in the Study Area

The modes of transportation used in transporting agricultural products in the study area were identified. The commonly used means include head portage, bicycle, motorcycle, keke/tricycle, bus, car, pickup van and lorry. As shown in table 2, farmers and marketers make use of bus (80%), motorcycle (74%) and keke/tricycle (45.3%) more in disposing their agricultural products. This finding disagrees with the findings of Udoh and Akpan (2007), Ajiboye and Afoloyan (2009) and Tunde and Adeniyi (2012) who all assert that distributive trade of the rural areas in the country depends to a large extent on head portage. The reason for this could be attributed to the quantity of agricultural products marketed. However, it agrees with Aburetal (2015) who asserted that lorry, bus, car and motorcycles were the main means of transportation of agricultural products in North Central Nigeria.

Characteristics of Roads in the Study Area

Table 3 reveals the nature of the roads in the study area. Out of the five characteristics mentioned, 70% of the roads were not tarred but were motorable, 2.6% were not tarred but only seasonally motorable while

32% were not tarred and not also motorable. Only 36.7% of the roads in the study area are tarred and motorable. The untarred nature of most roads in the study area makes the selling price of agricultural products by the farmers to be low. This scenario makes the farmer's share of the consumers' purchasing price to be very small which consequently keep the farmers in a vicious cycle of poverty. This finding agrees with Akpabio (2011) who averred that the farmers made very little share in consumers' purchasing price when compared to that of the middlemen in the marketing of fish in Cross River State, Nigeria.

Marketing Channels for Agricultural Products Produced and marketed in the Study Area

In determining the marketing channels for the agricultural product produced and marketed in the study area, the agricultural crops and animals commonly grown, reared and marketed in the study area were ascertained as shown in table 4. The table indicates that crops such as grains, legumes, fruits, tubers, vegetables and livestock such as chicken, goat, pig and sheep are produced in the study area though in different quantities.

Table 4: Agricultural Commodities Commonly Grown in the Study Area

Classification	Crop/Animal name
Grains	Rice, maize
Tubers	Yam, cassava, cocoyam, sweet potato
Legumes	Groundnuts
Vegetables	Pumpkin, cucumber, okra, pepper, spinach, tomatoes, bitter leaf
Fruits	Oranges, mango, banana, plantain, pawpaw, avocado, pear, guava
Livestock	Chicken, goat, pig, sheep.

Table 5: Marketing Channels of Agricultural Products in the Study Area.

	Marketing Channels	VHE	HE	LE	VLE	\bar{x}	S.D	Decision
1	Producers – Consumers	21	26	64	39	2.19	0.98	Rejected
2	Producer – Retailers – Consumers	76	48	20	6	3.29	0.84	Accepted
3	Producer – Wholesaler – Retailer – Consumer	81	56	12	2	3.45	0.69	Accepted
4	Producer – Wholesaler – Consumer	44	35	39	32	2.60	1.11	Accepted
5	Producer – Commission agent – Wholesaler – Retailer – Consumer	50	53	21	26	2.84	1.07	Accepted
6	Producer – Commission agent – Wholesaler – Consumer	48	39	43	30	2.83	1.07	Accepted
7	Producer – Commission agent – Retailer – Consumer	23	18	51	58	2.04	1.06	Rejected
8	Producer – Commission agent – Consumer	12	19	60	56	1.95	0.95	Rejected

The marketing channel of agricultural products in the study area which is the set of individual, marketers or participants which facilitate the transfer of title as the agricultural product moves from the producer to the final consumer was determined. Out of the eight outlined channels as shown in table 5, 5 different channels were accepted as been used under the present condition of rural road infrastructure in the

study area. Channel 3 (Producer – Wholesaler – Retailer – Consumers) and channel 2 (Producer – Retailer – Consumers) were the dominant channels frequently used in the study area in the marketing of farm products. This collaborates with Amao, Adelani, Olajide, Adeoye and Olabode (2011) where five alternative channels were identified for the marketing of pineapple in Edo State of Nigeria.

Table 6: Effect of Rural Road Infrastructure On the Development of Agriculture in The Study Area

	Effects	VHE	HE	LE	VLE	\bar{X}	S.D	Decision
1	Makes the delivery of agricultural product difficult	79	29	23	19	3.12	1.66	Accepted
2	Increases cost of marketing agricultural products	89	25	16	20	3.22	1.71	Accepted
3	Increases cost of transportation generally	102	28	12	8	3.49	1.12	Accepted
4	Increases cost of farm inputs	96	27	24	3	3.17	0.83	Accepted
5	Increases the price of farm products	87	33	21	9	3.22	0.93	Accepted
6	Increases spoilage/wastage of farm products	73	35	27	15	3.10	1.02	Accepted
7	Increases cost of farm labour	69	61	17	13	2.82	0.96	Accepted
8	Makes supervision/monitoring difficult	81	50	11	8	3.37	0.83	Accepted
9	Discourages farmers from embarking on large scale production	64	58	16	12	3.16	1.01	Accepted
10	Causes vehicle to easily wear out	59	56	20	15	3.06	1.5	Accepted
11	Reduces the availability of food crops	41	47	50	12	2.96	0.89	Accepted
12	Increases farm theft and risks	43	38	49	20	2.69	1.05	Accepted

Agricultural production/development is not only measured by the strength of the production factors put in place in the production process, the quality of the rural road infrastructure has a great part to play also. The result shown in table 6 indicates that all the respondents accepted that inadequate or low quality rural road infrastructure affects agricultural development in the study area. As shown in the table, the 12 items had a mean score above 2.5 which is the benchmark of acceptance. This indicates that in reality the present nature of the road in the study area affects agricultural development in the study area. From the result in table 6, it shows that the absence of rural road infrastructure brings about an increase in

the cost of farm inputs, cost of transportation generally and the cost of marketing agricultural products. This is shown with the acceptance mean of 3.17, 3.49 and 3.22 respectively. This finding is in line with that of Tunde and Adeniyi (2012), which revealed that quality of transportation will increase agricultural production. It also discourages farmers from embarking on large production of crops and animals as shown with the acceptance mean of 3.16. this agrees with the finding of Aburetal (2015) where it was discovered that before the provision of rural road infrastructure, the average size of land cultivated by household farmers in North Central Nigeria was 1.089hac; but after the provision of rural road infrastructure it increased to 1.401hac.

Table 7: Problems Encountered in the Marketing of Agricultural Products Due to Unfavourable Rural Road Infrastructure in the Study Area.

	Problems	VHE	HE	LE	VLE	\bar{x}	S.D	Decision
1	High transport cost	86	19	27	18	3.15	1.63	Accepted
2	Poor/bad road condition	70	45	30	5	3.4	0.87	Accepted
3	Harassment by law enforcement agents	30	41	51	28	2.4	1.67	Rejected
4	Irregularity of vehicles	66	42	22	19	3.14	1.04	Accepted
5	Instability of product price	55	41	31	23	2.92	1.48	Accepted
6	Multiple taxation	41	33	51	25	2.59	0.93	Accepted
7	Frequent spoilage of vehicle	39	41	60	10	2.72	0.92	Accepted
8	Frequent spoilage/wastage of farm products	44	43	27	36	2.63	1.14	Accepted
9	Lack of storage facility	75	41	13	21	3.13	1.06	Accepted
10	High cost of marketing of farm products	69	40	18	23	3.3	1.09	Accepted

The result of the problems encountered in the marketing of agricultural products in the study area presented in table 7 shows that the respondents indicated that the unfavourable rural road infrastructure imposes problems in the marketing of agricultural products in the study area. Out of the 10 problem items mentioned, the mean score of 9 items were above the acceptance mean of 2.5. This result is an indication that poor rural road infrastructure is a constraint which adversely affect the marketing of agricultural products. This finding collaborates with Gbam (2017) who asserts that poor road network adversely affect accessibility and personal mobility. It is also in tandem with Afolabi^{etal} (2016), who revealed that the poor condition of the rural road makes transport inaccessible and the movement of agricultural produce difficult in Ijebu North Local Government Area of Ogun State, Nigeria.

Conclusion

The foregoing has portrayed rural road infrastructure as a very important facility to the marketing of agricultural products and the development of agriculture in the rural area. The efficient marketing of agricultural products contributes significantly towards ameliorating most ills in the agricultural sector. It enhances the livelihoods of the rural farmers as it is a strong driver for economic, social and environmental survivability of agricultural production systems. The findings revealed that the present nature of the rural road in the study area affects the marketing of agricultural product which consequently affect agricultural development in the study area. If the rural road infrastructure is effective, it will have a positive impact in the production and marketing of agricultural products in the study area. It will also bring about agricultural development as more people will embark on large scale production which will ultimately increase their economic status. Some of the problems identified amongst others include high transport cost, irregularity of vehicles and poor/bad road condition.

Recommendations

Based on these, the following recommendations were made:

1. Due to the necessity of good road network, the government (Federal, State and Local Government and local community based organizations) should provide adequate rural

road network. This will help to make the delivery and distribution of farm products easy.

2. Government and private individuals should invest maximally into rural-urban transport. This will strengthen the economy and help the rural farmers and marketers come out of poverty.
3. The rural farmers and food marketers in the study area and beyond are encouraged to form cooperative societies. This will help them to easily attract governmental assistance and boost their agricultural product marketing and source information easily.

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