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Perceived Effects of Poor Road Transportation Network on Crop Production in Kaiama Local Government Area of Kwara State, North Central Nigeria

Lateef Lawal Adefalu [1], Oluwasogo David Olorunfemi [1], LatifatKehinde Olatinwo [2] and Yusuf Olatunji [1]*

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Abstract

This paper examines the effect of the poor road transportation network on crop production in one of the rural agrarian local government of Kwara State, Nigeria. A well-structured interview schedule was conducted to elicit information from 120 crop farmers using a two-stage sampling technique. Findings from the study revealed that the poor road transportation network in their area had led to a reduction in their income, longer time in transporting produce to more buoyant markets, as well as incurring high transportation costs. Chi-square analysis revealed that there was a significant relationship between age, educational level, years of farming experience, and the respondents' perceived effects of poor road transportation network for their crop production. The study recommends an urgent intervention from government and stakeholders in terms of construction and rehabilitation of roads in these rural agrarian areas in an attempt to help improve the livelihoods of the farmers through enhancing transportation of produce to more buoyant markets in good condition and at less cost.

Keywords:
cropproduction, Kwara State, perceived effects, poor road transportation

[1] *Department of Agricultural Extension and Rural Development, University of Ilorin, Ilorin, Nigeria*
[2] *Department of Agricultural Economics and Extension, Federal University, Dutsin-Ma, Kastina State, Nigeria*
* *Corresponding author's email: davidsoa2003@yahoo.com*

INTRODUCTION

Roads are thought to be an important factor in the process of economic development of many nations and are equally assumed to play a crucial role in the growth of rural areas (Kiprono & Matsumoto, 2014). The World Bank and lending donor agencies have identified the improvement of roads as an instrument of poverty alleviation in developing nations. Rural road transportation network and infrastructure development in Nigeria have been topical issues and have been identified as crucial components for economic development of the country (Adedeji et al., 2014). Investment in rural roads has resulted in phenomenal growth in agricultural production and productivity, while rapid growth in agricultural productivity has led to a significant trickle-down benefits for the rural poor (Fan et al., 2000). The agricultural sector is essential in the economic development and poverty alleviation drive of many countries (Olorunfemi et al., 2014), and it has been viewed presently as a pillar of the Nigerian economy, because it contributes to the GDP by 40 percent (Adekunle, 2013) and employs about 70 percent of the labour force (FAO, 2012). As reported by Jacoby (2000), a road with an important rural infrastructure provides cheap access to markets for agricultural output, thus stimulating economic development. Agricultural goods in Nigeria are mostly bulky in nature and highly perishable (Ajiboye & Afolayan, 2009). They ought to be conveyed from their area of production to zones of consumption immediately where they will yield more returns for the producer.

However, as reported by Akangbe et al. (2013), a lot of rural farmers in Nigeria and particularly in Kwara State, despite the efforts being put in place to bring about development in agriculture, still expressed the constraints they face in income maximization from their agro-output as a result of poor road network in the area. Therefore, there is aneed to shed light on the effects of the poor road infrastructure network in the rural agrarian areas under study in order to provide information that will give insights, fast-track to, and re-strategize the efforts of governments and other stakeholders in their agricultural transformation and development drive in the area. The broad objective of the present study is to determine the effects of the poor road transportation network on crop production in Kaiama LGA of Kwara State, Nigeria. The specific objectives were to describe the socioeconomic characteristics of the crop farmers in the study area; determine the perceived effects of the poor road transportation network on their crop production; and identify the coping strategies adopted by the farmers in ameliorating the agro-transportation problems encountered in the study area.

MATERIALS AND METHODS

The study was conducted in the Kaiama Local Government Area of Kwara State, Nigeria. Its headquarters is in the town of Kaiama. It has an area of 6,971 km^2 and a population of 124,164 as indicated by the 2006 census (NPC, 2006). Kaiama is endowed with natural resources such as Gold, Tantalite, and Granite. The majority of the population are farmers who are known mostly for planting tubers and cereal crops. Crops grown include yam, cassava, groundnut, millet, maize, guinea corn, cocoyam, vegetables, and fruits.

The population under study comprised crop farmers in Kaiama LGA of Kwara State. A well-structured interview schedule was conduced to elicit information from 120 respondents, whowere selected through



Figure 1. Map of Kwara State Indicating the Study Area (Kaiama LGA)

a two-stage sampling procedure from 10 wards found in the LGA. A purposive selection of the most prominent community in each ward was carried out which was followed by a random selection of 12 leading crop farmers notable for being at the forefront in crop production in these communities.

Data were collected on the socioeconomic status of the crop farmers, their perceptions of the effect of poor road transportation network on their production and the coping strategies they adopt to tackle this problem at their level. These variables were measured as follows:

Perceived effect of the poor road transportation network: Respondents were presented with a series of items and they were asked to rate how they perceive them as effects on a 5-point Likert scale ranging fromstrongly agree (5), to agree (4), undecided (3), disagree (2), and strongly disagree (1).

Coping strategies: respondents were asked to indicate the coping strategies they adopt in tackling the effect of poor road transportation network in their area.

Data analysis was carried out using descriptive statistics such as frequency counts, percentages, mean scores, and ranks, while Chi-square analysis was used as part ofinferential statistics to test the proposed hypothesis in the study.

RESULTS

Table1 summarizes the socioeconomic status of the respondents. Findings from the study showed that the majority (74.2%) of the respondents fell within the age range of 22-59 years. The mean age of the crop farmers was 49 years.

Table 1
Socioeconomic Status of the Respondents (n=120)

Socioeconomic Characteristic	Frequency	Percentage	Mean
Age			
22-40	42	35.0	
41-59	47	39.2	
60-78	25	20.8	49 years
79 and above	6	5.00	
Gender			
Male			
Female	116	96.7	
Level of education	4	3.30	
No formal education			
Primary			
Secondary	73	60.8	
Tertiary	17	14.2	
Farming experience	12	10.0	
1-10	18	15.0	
11-20			
21-30			
>30	4	3.3	
Household size	47	39.2	29 years
1-4	16	13.3	
5-8	53	44.2	
9-12			
>12			
Secondary occupation	14	11.7	
Trading	100	83.3	7 members
Artesian	4	3.3	
Civil service	2	1.70	
None			
	14	11.7	
	18	15.0	
	6	5.00	
	82	68.3	

The result obtained further indicated that the contribution of the female gender to the active production of crops in the area was very low, as only 3.3% of them were involved in crop production when compared to their male counterparts (96.7%). More than half (60.8%) of the farmers had no formal education.

On average, the respondents had been in crop production for 29 years. The majority (83.3%) of the farmers had a household size that consisted of 5-8 members, while only a few (1.7%) had household size of greater than 12 members. The mean household size of the farmers was 7 persons. More than two-third (68.3%) of the farmers did not have any secondary occupation, while the remaining 31.7% were either engaged in trading (11.7%), were artesian (15.0%), or were involved in civil services (5.0%).

Effects of poor road transportation network on crop production

Table 2 reveals the perceived effects that poor road transportation network have on the production of the farmers in the area studied. Using mean score to rank the severity of the effects as indicated by the respondents, "Reduced farmers' income through sale at farm gate" (M=4.50), "Longer time spent to transport produce" (M=4.39), "Increased transport cost" (M=4.37); "Quality of farm produce affected during transportation" (M=4.35), "Discourages expansion of production" (M=4.35), "Wastage of highly perishable produce due to unavailability of timely markets" (M=4.26), "Poor accessibility of buyers and farmers" (M=4.01) ranked 1st, 2nd, 3rd, 4th, 4th, 6th, and 7th respectively. The table further showed that the farmers perceived the other effects whose mean scores were below 4.0 as less being severe.

Coping strategies used by the crop farmers

The coping strategies adopted by the farmers were ranked with a view to ascertain those strategies that were prominently used. As shown by Table 3 below, the majority (87.5%) of the farmers indicated that they had used "Sale of their farm produce to any available buyer at reduced cost", as it ranked first among the strategies listed. The table further reveals that 81.7 percent of the farmers indicated that they had sold their produce to intermediaries who came around to buy from them in large quantities during harvest periods. Above two-third (75.0%) of the farmers opted for transporting their produce together to nearby markets in groups. Yet, it is worthy of mention that less than one-third (31.7%) of the farmers made use of "reduction in the bulky nature of their produce through processing initiatives" for easier transportation and income.

Hypothesis Testing Using Chi-Square Analysis

The following hypothesis was tested in the study:

H_o: There is no significant relationship between the socioeconomic status of the respondents and their perceptions of the effects of poor

Table 2

Respondents' Perceived Effects of Poor Road Transportation Network on Crop Production (n=120)

Perceived effects	Mean	Rank
Reduces farmers' income through sale at farm-gate	4.50	1st
Discourages agro-investors	3.20	11th
Longer time spent to transport produce	4.39	2nd
Increased transport cost	4.37	3rd
Reduce productivity	2.19	15th
Poor accessibility of buyers and farmers	4.01	7th
Discourages expansion of production	4.35	4th
Exposure to robbery and theft on roads	2.92	13th
Discourages transporters from plying routes	3.08	12th
Cause quick dilapidation of vehicles	2.64	14th
Quality of farm produce is affected during transportation	4.35	4th
Wastage of highly perishable produce due to unavailability of timely markets	4.26	6th
Rural Urban migration	3.66	10th
Poor accessibility to improved farm inputs and other govt. agro credit schemes & intervention	4.01	7th
Inadequate accessibility to other infrastructural amenities	3.82	9th

Mean Score derived from strongly agree=5, agree=4, undecided=3, disagree=2, strongly disagree=1;

Table 3
Coping Strategies Employed by the Respondents (n=120)

Coping strategies	Frequency	Percentage	Rank
Sale of produce to any available buyer at reduced cost	105	87.5	1st
Consumption and distribution of unsold produce by family and neighbours	65	54.2	5th
Sale of produce to middle men	98	81.7	2nd
Reduction in Land area cultivated	55	45.8	6th
Transport produce in groups	90	75.0	3rd
Embarking on community service efforts to rehabilitate access roads to make it motorable	72	60.0	4th
Reduce bulky nature of produce through processing initiatives	38	31.7	7th

road transport network on crop production.

Table 4 shows that there is a significant relationship between the respondents' perceptions of the effect of the poor road transportation network on crop production and their age, educational level, and years of experience; therefore, the null hypothesis was rejected. The table shows further that there is no significant relationship between respondents' perceptions of the effects of poor road transportation network on crop production and their gender, household size, and their secondary occupation; accordingly, the null hypothesis was accepted.

DISCUSSION

The present study carries the implication that most of the farmers were still middle aged, active, and agile. This suggests that the male respondents mostly practiced crop production, which might be a positive boost to the level of productivity in the area. This attribute may likely stifle the initiative of the farmers. A good educational background may help facilitate farmers' use of coping strategies that will give them the ability to maximize their income despite poor road network conditions.

This indicates that farmers are highly experienced in farming, and this long-time experience might have facilitated their acquisition of good skills in the production, transportation, and marketing of their produce. The finding on household size suggests that the farmers could draw some level of family labour from their household considering the mean household size. This implies a likely reduction in the cost of hired labour, which increases the net gain of the farmers.

Some effects that were perceived as severe by the respondents agree with Akangbe et al.'s study (2013) where they reported that sale of produce at the farm gate and increased transportation cost were severe effects of poor transportation facilities on crop production. Similarly, Inoni and Omotor (2009) also indicated that poor road quality reduces the income of farm households. The implication of this is that farmers need an urgent intervention from government and stakeholders in terms of construction and rehabilitation of roads so as to improve the livelihoods of the farmers through the privilege of transportation of produce to more buoyant markets in good condition and at less cost.

Thus, as revealed by the farmers was because most of the products from their farms are perishable and so need to be disposed of on time in order to make the fewest and quick income they can get from it before spoilage. This was be-

Table 4
Relationship between the Socioeconomic Status of Respondents and their Perceived Effects of Poor Road Transportation Network on Crop Production (n=120)

Variable	df	X^2	p-value	Decision
Age	3	2.353	0.011	Reject H_0
Gender	1	3.284	0.305	Accept H_0
Level of Education	3	1.846	0.025	Reject H_0
Farming Experience	3	5.422	0.003	Reject H_0
Household Size	3	6.905	0.338	Accept H_0
Secondary Occupation	3	11.98	0.122	Accept H_0

cause they cannot afford high costs, time, and rigour of transporting their produce over a long distance before they can get them sold. This serves as a strategy for spreading and reducing the cost of transportation for better income maximization. This implies that most of the farmers in the study area lack the capacity to process their farm produce, which makes it less bulky to transport, enhance the shelf life, and increase the value for the higher income generation. Therefore, there is aneed for the government, extension agents, and other stakeholders to focus more of their attention on building the capacity of the farmers on processing initiatives which will not only help them cope with the rigour of transporting their bulky goods but will also ensure product availability for a longer period in markets and better income for the farmers.

The implication of this result is that the respondents' perceived effect of the poor road transportation network on crop production is most likely to be influenced by their educational level, age, and years of experience, while respondents' gender, household size, and secondary occupation may not have any significant influence on their perceived effects.

CONCLUSION

Based on the findings of the study, the farmers were able to indicate that poor road transportation network in their area handled to a reduction in their income, longer time in transporting produce to more buoyant markets, and incurring high transportation costs. The respondents have, however, tried to cope with the constraints posed by the poor road transportation network by selling their produce to any available buyer at a reduced cost, sale to middlemen, and sometimes, transporting their produce in groups to reduce costs.

The study, therefore, suggests that urgent intervention in terms of construction and rehabilitation of roads should be made by governments and other stakeholders in an attempt to improve the livelihoods of the farmers through the privilege of transportation of produce to more buoyant markets in good condition and at less cost. In addition, in order to expand the coping strategy options available to the farmers, extension agents and other stakeholders should focus more of their attention on building the capacity of the farmers on processing initiatives, which will not only help them to cope with the rigour of transporting their bulky goods but will also ensure product availability for a longer period in markets and better income for the farmers. This suggests that many of the respondents are solely dependent on agriculture for their livelihood, hence the need to ensure they maximize the income-generating potential of the sector.

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