

# **EFFECT OF ROAD NETWORK ON THE MARKETING OF AGRICULTURAL PRODUCE IN IREPODUN/ IFELODUN LOCAL GOVERNMENT AREA OF EKITI STATE, NIGERIA**

**ADELUGBA, Iyabode Abisola**

**Email address: [iyabode.adelugba@eksu.edu.ng](mailto:iyabode.adelugba@eksu.edu.ng)**

## **ABSTRACT**

The study examined impact of road network on the marketing of agricultural produce in Irepodun/Ifelodun local government area in Ekiti State, Nigeria; evaluate the effect of road quality on marketing of agricultural produce, assessed the effect of road traffic on marketing of agricultural produce, investigate the influence of road provision and maintenance on marketing of agricultural produce and examine the different mode of transportation on marketing of agricultural produce in Ekiti State. The research made used of three hundred (300) respondents who were randomly selected on the basis of 75 market men and women per station, the communities market covered by each dusters Igbemo, Awo and Igede, Iyin using simple random sampling technique. The study processed the data obtained in the field using statistical package for social sciences (SPSS) computer software and analyzed using frequency counts and descriptive and inferential analysis of multiple regression analysis. The results of the study revealed that there is positive and significant effect between road quality, road traffic, road provision and maintenance, mode of transportation and marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State. The study concluded that road network has significant effect on marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State, Nigeria. Based on the result of the study it was recommended that special vehicle that will reduce quantitative and qualitative losses should be made available to marketers by the government. This will help to reduce post harvest losses, deterioration in quality and transportation problems facing marketers in the study area.

**KEYWORD:** Road Network, Marketing of Agricultural Produce, Road Quality, Road Traffic, Road Provision and Maintenance, Mode of Transportation

## **1.0 INTRODUCTION**

Traditionally, the development of a nation is incomplete without infrastructural and social amenities such as construction and maintenance of roads, bridges, schools, electricity, water, food etc both in the cities and the towns and villages (Olagunju, Ayinde, Adewumi & Adesiji, 2012). Road network in Nigeria and other developing countries are still in poor state which has resulted to excessive time and efforts spent by the rural area households' farmer on transport activities to meet basic needs. The road transport network system is, therefore, an essential

requirement for rural development: although, it is by itself not sufficient to guarantee form of success in farming activity in the rural environment (Ale, 2014).

The contribution of an efficient, accessible and well connected rural transport network to enhancing rural well-being and increase rural businesses as well as marketing of farming produce and agricultural activities from the farm to the market place and agro-allied industries cannot be overemphasized as it have overriding objectives of high productivity, poverty reduction, improvement in the income of the local farmers, employment generation and economic growth improvement (Olawole, Aloba & Adetunji, 2010).

Poor road conditions, high transport costs and distant markets have been identified as factors that hamper improved market access for emerging farmers in rural areas (Makhura & Mokoena, 2003; Groenewald & Nieuwoudt, 2003), and also contribute towards the problem of missing markets. Factors that determine access to input and output markets include distance to the markets, the state of the roads, the cost of transportation and the frequency of visits to these markets. Rural services centers and nearby towns and cities are often important sources of inputs for farmers, and also provide a market for farm produce.

Prominent studies such as (Pinstrup-Anderson & Shimokawa, 2006; Fan, Hazell & Thorat 2009; Ajiboye & Afolayan, 2009; Ale, 2014; Adedeji, Olafiaji, Omole, Olanibi & Yusuff, 2014; Orakwue, Umeghalu & Ngini, 2015; Abur, Ademoyewa & Damkor, 2015; Afolabi, Ademiluyi & Oyetubo, 2016) have attempted to relate transport provision to the well-being of the people in various settlements. All these studies failed to address the germane issues on rural road transport network as a means to marketing of agricultural produce. More so, as many studies that have been carried out in states of Nigeria, Ekiti State is yet to have a singular study on road transport network and agricultural produce. This therefore necessitates the study to fill the research gap by focusing on the effect of rural road network on farming activities as well as agricultural food crop production in Ekiti State with special reference to Irepodun/Ifelodun local government area of Ekiti State. The specific objectives of the study were to examine the extent to which road quality will significantly affect marketing agricultural produce; investigate the extent to which road traffic will significantly influence marketing of agricultural produce; determine the effect of provision and maintenance of road on marketing agricultural produce; evaluate the effect of different mode of transportation on marketing agricultural produce in Ekiti State. The remaining section of the study is divided into literature review, research method, result and discussion as well as conclusion and recommendations.

## **2.0 LITERATURE REVIEW**

Marketing of agricultural produce begins at the farm when the farmer harvests his produce. The produce when it is harvested cannot usually go directly to the consumers. Firstly, it is likely to be located some distance from the place of consumption in regular and continuous manner throughout the year. Secondly, storage is required to adjust supply to meet demand. Thirdly, a

produce when it has been harvested is rarely in a form acceptable to consumers. Therefore, it must be sorted, cleared and processed in various ways and must be presented to the consumer in convenient quality and quantities for sale. Finally the farmer expects payment when his produce leaves his possession, and hence some financial arrangements must be made to cover all the various stages until the retailer sells the produces to the final consumer (Asogwa & Okwoche, 2012). However, marketing of agricultural produce may prove unachievable without an efficient road network. Therefore, road network constitutes an important element in urban development as roads provide accessibility required by different land uses and the proper functioning of such urban areas depends on efficient transport network (Aderamo, 2003). It links different road users to their destination via arrangement and connectivity of nodes, signs, symbols and patterns (Xie & Levinson, 2007). Hence, rural road network facilitates the easy flow of movement of people and agricultural produce from the farm to the market place where it gets to the final consumers.

Transport production theory promotes social and economic development by increasing mobility and improving physical access to resources and markets (International Fund for Agricultural Development, 2001). Fromm (1965), World Bank (1994) and SACTRA (2000) treat transport as one of the factors of production. As transport cost decreases, the factor prices fall resulting in increased demand for input use or more output supply according to microeconomic theory (Varian, 1992, 1999). Bhalla (2000) argued that the marginal cost decreases as a result of improved transportation. This implies that when cost of transportation decreases, local farmers will benefit significantly from their produce.

Pravakar, Ranjau and Geethanjali (2010) in China studied the extent to which infrastructure promotes economic growth for the period of 1975 to 2007, using GMM (Generalized Methods of Moment) and ARDL(Autoregressive distributed lag model) techniques, it was explicitly discovered that infrastructure and investment played a contribute role in economic growth in China. Olagunju, Ayinde, Adewumi and Adesiji (2012) employed ANOVA and t-test estimation technique to assess the influence of road condition and market infrastructure on the income made by farmers in Nigeria. Evidence from the study indicated that availability/non availability of tarred road, condition of road leading to the market, occupation and distance from the market significantly affect the annual income positively/negatively. Akanbi, Bamidele and Dunni (2013) presented an empirical evidence on the effect of transportation infrastructure improvement on economic growth in Nigeria for the period 1981 to 2011. Using the Ordinary Least Square Regression (OLS) technique, the study made use of the generalized Cobb-Douglas production and extending the neoclassical growth model to include transport infrastructure stock (i.e output of transport sector) along with capital stock (i.e investment on transport infrastructure) as the input and gross domestic product. The study found that transport output and investment made on transport infrastructure in Nigeria has significant positive contribution to growth which showed that each impact is strong and significant.

Yaro, Okon and Bisong (2014) assessed the impact of rural transportation on agricultural development in Boki LGA in Nigeria. The study adopted a questionnaire survey method for data

collection as well as key informant interview and Focus Group Discussion. The test of paired sample test denoted that in inaccessible communities, common to the people is the use of head portage as a means of conveying their goods to the market, while in accessible areas; the common means is the use of landrover. Accessibility has therefore influenced positively the income, employment and easy access to market thereby increasing farm holdings. The study concluded that farm holdings vary significantly in terms of farm sizes. The difference between low income and high income earnings in both areas is statistically significant. Hence, transportation is vital for rural agricultural development. Ale (2014) reviewed the effect of rural road connectivity and accessibility on farming activities in Akoko South-West Local Government Area of Ondo State. The study employed graph measurement analysis and observed that road network is not well connected to support highly integrated farming activities in Akoko South-west local government area of Ondo State. The study concluded that this does not only have negative effect on food crop production but has seriously reduced the economic status of the rural farmers. Ezealaji and Adenegan (2014) empirically assessed the role of agricultural market reforms in enhancing farmers' income in Nigeria. The outcome of the study explored that farmers' effort has not translated into commensurate income overtime. However, reformative efforts at improving value chain, productivity, and market access have culminated into a wide range of technological solution in recent times.

Orakwue, Umeghalu and Ngini (2015) investigated the effect of road transport on agricultural development in Ayamelum Local Government Area of Anambra State, Nigeria. Descriptive, graphical and analytical statistical methods were used to analyze the data obtained. The findings revealed that road transport has both negative and positive effects on agricultural development and general socio-economic status of the communities in the study area. In an empirical study research by Suryani, Hartoyo, Sinaga and Sumaryanto (2015) in Indonesia on the influence of rural road infrastructure on the supply of output and the demand for inputs in food crops for the period of 2007 to 2010. The study employed the multi-input multi output approach with a translog-profit-function as the method of analysis. Finding from the study explored that the elasticity of the supply of output and the demand for inputs on rural road infrastructure was in general inelastic. Road rehabilitation will lead to an increased supply of output and demand for inputs. Iliya (2015) empirical examined survey of Agricultural Marketing Practice in Central Nigeria comprising of Nasarawa State, Benue State, Niger State and Federal Capital Territory. Simple percentages and chi-square statistical tools were employed. The study explored that there is a significance relationship between marketing of agricultural products and economic growth, there is also a significant relationship between the marketing practice and agricultural produce. Abur, Ademoyewa and Damkor (2015) investigated the impact of rural road infrastructure on productivity and income of household farmers in North Central Nigeria. Three stages random sampling technique was employed to select 720 farming households in the study area. The study employed descriptive statistics, Cobb-Douglas production function and multiple regression models to analyze data. The study provided information that cost of inputs, farm size, access to inputs and access to good roads were identified as the significant factors influencing farmers'

output and income. The study concluded that rural road infrastructure impact productivity and income of farmers which translate to employment generation and better welfare of the citizens.

Afolabi, Ademiluyi and Oyetubo (2016) analyzed the effect of rural-urban transportation on agricultural produce in Ijebu north local government area of Ogun State. A well-designed questionnaire, personal observation, descriptive and inferential statistics were employed. Findings showed that combination of food crops, cash crops, tubers, poultry, fruits, vegetables and poultry product dominate Ijebu North Local area in which farmers combined cultivation of those crops. The respondent use the following means of transportation in the study area i.e. walking, motor bike, bus, pick-up van and car. Roads in the study area are in a deplorable condition, the type of vehicle used by farmers and traders depend on the volume of the agricultural produce, while petrol, maintenances, ticketing and extortion are the operating cost of vehicle in the movement of produce by the transporters. Oni (2016) investigated socio-economic factors that determined productivity and profitability of the crop in Nigeria. Regression and budgetary techniques were used in analyzing primary data collected through a survey of farmers. Finding revealed that three significant determinants of net profit were land area planted to cassava, man-days of labour used and marketing cost incurred by the farmer. Effects of land area planted were positive, while those of man-days of labour and marketing cost were negative on net profit.

Adeniyi, Akinrinmade and Abiodun (2018) assessed road transportation impact on rural development, with a view to determine the contributions of road transport to rural development. The study employed systematic sampling technique and chi-square analysis to administer questionnaire and run the analyses respectively. Findings from the study revealed that the rural roads are in poor condition which has influence on the cost of transporting farm produce and economy of the area.

### **3.0 RESEARCH METHOD**

#### **3.1 Research Design, Population and Sample size**

The study will adopt a survey research design method. The population of the study covered all the market men and women that patronises agricultural produce in Irepodun/Ifelodun local government, Ekiti State. The study judgmentally selected Igbemo, Awo, Igede and Iyin dusters from list of dusters in Irepodun/Ifelodun local government area. A total of 300 participants were randomly selected and questionnaire were administered to all the selected participants that sell and buy agricultural produce in Irepodun/Ifelodun local government area of Ekiti State. The choice of these four market places was borne out of the fact that they are the market that people mostly patronize.

#### **3.2 Method of Data Analysis and Model Specification**

Multiple regression technique served as the main method of data analysis. However, descriptive analysis was employed alongside to test the influence of road quality, road traffic, road

maintenance and mode of transportation on marketing of agricultural produce in Irepodun/Ifelodun Area of Ekiti State, Nigeria.

The model specification is specified mathematically as:

$$MAP = f(RQ, RT, RM, MT) \text{ ----- } 3.1$$

Econometrically, the regression analysis is specified as:

$$MAP = \alpha_0 + \beta_1 RQ + \beta_2 RT + \beta_3 RM + \beta_4 MT + e_t \text{ ----- } 3.2$$

Where:  $MAP$  = Marketing of agricultural produced;  $RQ$  = road quality;  $RT$  = road traffic;  $RM$  = road maintenance;  $MT$  = mode of transportation;  $e_t$  = error term;  $\alpha_0$  = Constant,  $\beta_1 - \beta_4$

### 3.3 Sources of Data and *Apriori* Expectation

The data for the study were primarily sourced from well structured questionnaire. The study expects that all the explanatory parameters will significantly influence marketing of Agricultural produce. Summarily,  $\beta_1 > 0$ ;  $\beta_2 > 0$ ;  $\beta_3 > 0$ ;  $\beta_4 > 0$

## 4.0 RESULT AND DISCUSSION

### 4.1 Result

The study established four hypotheses which were tested with multiple regression analysis through SPSS 20 version. The hypotheses were stated in null form that is: Marketing agricultural produce in Ekiti State will not be significantly determined by road quality, road traffic; road maintenance and mode of transportation.

Table 4.1: Regression analysis showing the extent to which marketing of agricultural produce will be determined by road quality, road traffic, road maintenance and mode of transportation.

Model	B	Std.Error	T	Sig.T	Beta	r	r <sup>2</sup>	Adr <sup>-2</sup>	F
Constant	1.365	0.106	12.909	.000					
						.623	.550	.347	15.649
Road quality	0.228	.058	3.956	.000	.348				
Road traffic	0.156	.049	3.181	.000	.181				
Road provision and maintenance	0.170	.051	3.347	.000	.483				
Mode of transportation	0.227	.058	3.902	.000	.220				

Source: Field survey, 2019

Dependent variable: Marketing of agricultural produce

From the table above, the estimated regression model is given as:

$$Y = \alpha + \beta_x + \mu_t$$

$$Y = 1.365 + 0.228_{RQ} + 0.156_{RT} + 0.170_{RM} + 0.227_{MT} + \mu_t$$



Std. Error = (0.106) (0.058) (0.049) (0.051) (0.058)

t = (12.909) (3.956) (3.181) (3.347) (3.902)

Where:

Y = dependent variable (Marketing of Agricultural produce)

X = independent variables (Road quality, Road traffic, Road provision and maintenance and Mode of transportation)

$\alpha$  = intercept

b = slope

$\mu t$  = Error term or stochastic variable

Table 4.1 showed that correlation coefficient (r) was .623. It implies that there is positive relationship between road quality, road traffic, road maintenance, mode of transportation and marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State. The coefficient of determination ( $r^2$ ) was .550 which implies that about 55% variations in marketing of agricultural produce could only be explained by road quality, road traffic, road maintenance, mode of transportation while the remaining 45% were due to other variables outside the regression model which also have impact on marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State.

The table further revealed that road quality affects marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State with Beta value (.348,  $p < 0.05$ ); road traffic affects marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State with Beta value (.181,  $p < 0.05$ ); road provision and maintenance affects marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State with Beta value (.483,  $p < 0.05$ ) and mode of transportation affects marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State with Beta value (.220,  $p < 0.05$ ). The overall regression models is significant in terms of its overall goodness of fit as F calculated (15.649) is greater than F tabulated (3.86) at n-k degree of freedom. Therefore, road quality, road traffic, road provision and maintenance and mode of transportation significantly impact marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State, Nigeria.

## 4.2 Discussion of Finding

The study examined road network on the marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State. In line with the objective of the study four research questions and four research hypotheses were raised for the study purpose. The questions were tested at 5% using descriptive analysis which was made through the use of frequency counts and percentage method. The hypotheses were tested at 5% percent using inferential statistics which was made through the use of regression analysis.

Based on the analysis of the hypotheses in the study, the result of the hypotheses revealed that road quality, road traffic, road provision and maintenance significantly impact marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State. The result of the

study is in connection with the work of Abur, Ademoyewa and Damkor (2015), they found that road transport has positive effects on agricultural development and general socio-economic status of the rural communities in Nigeria. The result of hypothesis four found that mode of transportation significantly impact marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State. this is in consistence with the study of Afolabi, Ademiluyi and Oyetubo (2016) who opined that transportation mode such as walking, motor bike, bus, pick-up van and car used by farmers and traders depend on the volume of the agricultural produce, while petrol, maintenances, ticketing and extortion are the operating cost of vehicle in the movement of produce by the transporters.

## **5.0 CONCLUSION AND RECOMMENDATIONS**

### **5.1 Conclusion**

It is quite obvious, that transportation is responsible for the development of agriculture and other industries right from the past to the present by meeting travel requirement of people, goods and services from areas of production to areas of consumption. In an agrarian culture like Nigeria the impacts of transportation spans different areas of economic, environment, social, agricultural, political background. The study concluded that road quality, road traffic, road provision and maintenance and mode of transportation have significant effect on marketing of agricultural produce in Irepodun/Ifelodun local government area of Ekiti State, Nigeria.

The study recommended that provision of road and market infrastructure will improve the income of the rural households in the rural areas and will reduce rural-urban migration; provision of good and tarred roads linking the rural areas to the urban areas will reduce the rate at which perishable agricultural products turn bad thereby reducing wastefulness of the farmers' output; road traffic should be minimize by creation of market infrastructure where commuters and farmers can assess good and speedy road to deliver their produce; it is not enough for government to enrich the rural communities with tarred road but should be maintained as at and when due to avoid complete damage and lastly special vehicle that will reduce quantitative and qualitative losses should be made available to marketers by the government. This will help to reduce post harvest losses, deterioration in quality and transportation problems facing marketers in the study area.

### **5.2 Contribution to Knowledge**

This study has made progressive contribution on the literature road network and marketing of agricultural produce in Nigeria and developing countries. This research has ascertained how road network can effectively increase quick delivery of agricultural produce and enhance maximum profit for the farmers. Also, it has shed light into the area of motorway transportation which is considered as the best alternative to supply agricultural produce from the farm to the market place. Finally, the work has contributed significantly to existing body of knowledge on the literature.



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