



Transportation System and Its Implications on Vegetable Merchants in Oluyole Local Government Area of Oyo State

¹Adeagbo, T.A., ²Amao, S.A. and ¹Adeoye, A.A.

¹Department of Agricultural Extension and Management, Oyo State College of Agriculture and Technology, Igboora; ²Department of Agricultural Technology, Oyo State College of Agriculture and Technology, Igboora.
dear2god76@yahoo.com (07032271369)

Abstracts

Transport is one of the key factors determining agricultural development in the whole world. It is the only means by which food produced at farm site reached final consumers. Transport creates market for agricultural produce, enhances interaction among geographical and economic regions and opens up new areas to economic focus. The study was conducted in Oluyole Local Government Area, Ibadan, Oyo State, Nigeria. The Local Government is made up of 10 political wards and those wards were divided into two sectors, viz: Idi Ayunre sector and Olode sector. One hundred and fifty (150) merchants were selected using multi-stage sampling procedure. The data collected were analyzed using descriptive statistics, budgetary analysis and regression analysis. The result also revealed that 63.33% of the respondents were males and majority (81.33%) of the respondents were married. Majority (82.00%) of the respondents had secondary education which implied they could read and write. The result of the linear regression indicated that mode of measurement and farm gate cost for the two crops were significant at 1% and positively related to farmer's income while the values of adjusted R^2 were 63% and 80% for tomatoes and pepper respectively. The benefit cost ratios for tomatoes and pepper were 1.61 and 1.39 respectively while their gross margins were ₦28,380,000 and ₦33,495,000 respectively. Fuel scarcity, insufficient vehicle, low traffic volume and high cost of transportation were the major constraints faced by the merchants in the study area. Therefore, governments are implored to improve on road network and supply vehicles that will ameliorate their constraints.

Key Words: Transportation; implications; Merchant; System; Vegetable.

Introduction

Transport is one of the key factors determining agricultural development in the whole world. It is the only means by which food produced at farm sites reached final consumers (Tunde, 2018). Transport creates market for agricultural produce, enhances interaction among geographical and economic regions and opens up new areas to economic focus. There are complex relationships that vary both spatially and over time between transport and development. However, for any development to take place, transport plays a crucial role. Ogunsanya (2020) observed that there are three types of routes in the rural areas viz; bush paths, unsurfaced rural roads and surfaced rural roads. However, the bush path is very common but the least developed of all the routes. Bush paths link villages with farmsteads and they are usually narrow, winding and sometimes overgrown by weeds especially during the rainy season. In a study carried out by Filani (2019) in rural areas of Nigeria, it was discovered that where motorable roads exist they are mostly of unpaved surface, narrow width, circuitous alignment and with low quality

bridges. In most cases, they are either clad with potholes or characterised by depressions and sagging. Such unsurfaced roads are hardly passable during the rainy season when vehicles get stuck in mud or when the improvised bridges of cut-tree trunks get swept away by flood. In another study carried out by Ogunsanya (2021) on relationship between transportation, underdevelopment and rurality, he observed that the greater the degree of rurality, the lesser the level of transport development. Aderamo and Magaji (2010) noted that transportation constitutes the main avenue through which different parts of the society are linked together. Jegede (2022) cited by Ajiboye and Afolayan (2009) noted that road transport is the most common and complex network. It covers a wide range, physically convenient, highly flexible and usually the most operationally suitable and readily available means of movement of goods and passenger traffic over short, medium and long distances. According to Ajiboye (1994), availability of transport facilities is a critical investment factor that stimulates economic growth through increased accessibility. Paul *et al.*, (2009)



pointed out that the impacts of road infrastructure on agricultural output and productivity are particularly important in Sub-Saharan Africa.

Despite the fact that Nigeria is basically an agrarian nation and the majority of the goods to be transported are mostly agricultural produce or products which according to Igben (2011) are by nature often bulky, low-priced, highly perishable. They must be conveyed from their areas of production to their zones of consumption with minimum delay and cost, as well as widely dispersed over the available land area. It is therefore requires a corresponding wide-spread transport net-work to take produce from farms to markets. Ajiboye (2012) observed that inadequate supply and high cost of food stuff is as a result of inefficient transportation and distribution. Inadequate transport provision leads to the total waste of 25% of the total agricultural foodstuff produced (Olajide, 2012). Idachaba (2010) in his study of food production problems in the rural areas contended that transportation among other factors represents the most serious constraint to agricultural product and development in Nigeria.

The role of transport is very crucial. It is a phase in production processes which is not complete until the commodity is in the hands of the final consumers (Adefolalu, 2022). Availability of transport facilities is a critical investment factor that stimulates economic growth through increased accessibility, its efficiency and effectiveness (Ajiboye, 2021). All affects the basic function of production, distribution, marketing and consumption in many ways.

Transportation also influences the cost of commodity consumed and the purchasing power of the consumers. It is therefore against this background that an attempt is made in this paper to examine in depth how the transport situation in the study area affects agricultural products with emphasis on perishable crops vis-à-vis the farmers' livelihood. This research work provides answers to the following questions: what are the socio-economic characteristics of the vegetables merchants? What are the different modes of transportation of vegetables in Oluyole Local government Area? What is the cost of transportation of farm vegetables in the study area? What is the vegetables merchants' profitability level in relation to transportation of produce? What are the effects of cost of

transportation of vegetables on merchant income? What are the constraints faced by vegetables merchants in the course of transportation?

Research Methodology

The study was conducted in Oluyole Local Government Area, Ibadan, Oyo State. The Local Government is made up of 10 political wards and these wards were divided into two sectors. Which are Idi Ayunre sector and Olode sector. One hundred and fifty (150) merchants were selected using multi-stage sampling technique: stage 1: selection of Olode sector because it is an agrarian sector; stage 2: selection of the five (5) wards in Olode sector which were sourced from the registered list of the association. Ward 1: Ayegun which consist of 60 merchants; Ward 3: Pegba/ Egbeda tuba consistsof 70 merchants; Ward 4: Muslim/ Ifelodun consists of 70 merchants; Ward 6: Latunde which consist of 50 merchants; Ward 7: Olomi /Olunde which consists of 50 merchants. Stage 3: Systematic selection of merchants with even serial numbers (50% of the merchant per wards) to make total number of one hundred and fifty (150) merchants which supplied us with necessary data through interview guide. The data collected was analyzed using descriptive statistics, budgetary analysis and regression analysis.

Budgetary/Gross Margin Analysis

The budgetary technique was used to determine the cost of transportation and the profitability level of the farm produce in the study area.

Model used in estimating the gross margin is

$$GM = TR - TVC \dots\dots\dots (i)$$

$$TR = PyYi \dots\dots\dots (ii)$$

$$TVC = PxXi \dots\dots\dots (iii)$$

$$TC = TVC + TFC \dots\dots\dots (iv)$$

$$NI = GM - TFC \dots\dots\dots (v)$$

Where,

GM = Gross Margin (₦)

TR = Total Revenue (₦)

TVC = Total Variable Cost (₦)

TC = Total Cost (₦)

NI = Net Income (₦)

Py = Unity price of output produced (₦)

Y = Quantity of output (kg)



Measuring Effect of Cost of Transportation of Farm Produce on Merchants Income.

To ascertain relationship between vegetable transportation cost and merchant income, this study used linear regression and this was used. The linear regression model is specified as $Y_i = a_0 + a_1X_1 + \dots + a_7X_7 + e$

Where,

Y_i = Merchant Income

X_1 = Farm Produce Cost of Transportation

X_2 = Insufficient Vehicle

X_3 = Bad Road

X_4 = Mode of Measurement

X_5 = The Cost of the Produce from Farm

X_6 = Transportation Cost

X_7 = Fuel Scarcity

a_0 = Intercept

a_1 to a_7 = Coefficient

e = Error Terms

Results and Discussion

Socioeconomic Characteristics of the Respondents

Table 1 showed that the average age of the respondents in the study area was 49 years. About 41.33% of the respondents were within 51-60 years of age which implied that not less than 41% of the respondents were within their active working ages. Also, 63.33% of the respondents were males. Furthermore, majority (81.33%) of the respondents were married. It further showed that 42.00% of the respondents were Christians, 53.33% of the respondents were Muslims and 4.67% of the respondents were traditionalists. The result revealed that the enterprise was not religious-biased. Majority (82.00%) of the respondents had secondary education which implied they could read and write. Average family size of the respondents was 8 persons. Majority (76.67%) of the respondents had household size between 6-10 members which was the highest household size in the study area. Also, 28.00% of the respondents had trading experience of 5-15 years. A little above average (59.33%) of the respondents had trading experience of 16-25 years. However, 100% of the respondents engage in trading occupation.

Table 1: Distributions of socioeconomic characteristics of the respondents

Socio Economic Characteristics	Frequency	Percentage	Mean
Age (years) :			
21-30	10	6.67	
31-40	17	11.33	
41-50	56	37.33	
51-60	62	47.33	49
61-70	5	3.33	
Sex:			
Female	55	36.67	
Male	95	63.33	
Marital Status :			
Single	11	7.33	
Married	122	81.33	
Separated	2	1.34	
Divorced	9	6.00	
Widowed	6	4.00	
Religion :			
Christianity	63	42.00	
Muslim	80	53.33	
Traditional	7	4.67	
Educational Status :			
No formal education	12	8.00	
Primary education	15	10.00	
Secondary education	123	82.00	
Family size (person):			
1-5	27	18.00	8
6-10	115	76.67	
11-15	8	5.33	
Years of Experience (years)			
5-15	42	28.00	19
16- 25	89	59.33	
26-35	12	8.00	
Above 35	7	4.67	
Primary Occupation :			
Trading	150	100.00	
Secondary Occupation :			
Farming	4	2.67	
Artisan	9	6.00	
Trading	137	91.33	
Total	150	100.00	

Source: field survey, 2023



Transportation modes in the study area

Table 2 showed the frequency and percentage of farm to farm means of transportation of the respondents. Majority (90.00%) of the respondents used Lorries as a means of transportation. About 68.67% of the respondents used taxis as a means of transportation from farm to farmstead. Half (52.67%) of the respondents used taxis as a

means of transportation from farmstead to village. It showed that 64.00% of the respondents used taxis as a means of transportation from one village to another village. Also, 49.33% used taxis followed by Lorries (45.33%) as a means of transportation from village to town. It further showed 66.00% of the respondents used Lorries as a means of transportation from village to headquarter.

Table 2: Distribution of respondents on different transportation modes in the Study Area.

Types of Trip	Lorry F (%)	Van F (%)	Taxis F (%)	Motorcycle F (%)	Bicycle F (%)	Head porter age F (%)
Farm to farm	135(90.00)	5 (3.33)	6 (4.00)	4 (2.67)	0 .00	0.00
Farm to farmstead	11 (7.33)	9 (6.00)	103(68.67)	23(15.34)	2(1.33)	2(1.33)
Farmstead to village	49(32.67)	14(9.33)	79(52.67)	8(5.33)	0.00	0.00
Village to village	32 (21.33)	17(11.33)	96(64.00)	5(3.34)	0.00	0.00
Village to town	68 (45.33)	7(4.67)	74(49.33)	1(0.67)	0.00	0.00
Village to headquarter	99 (66.00)	7 (4.67)	42(28.00)	2(1.33)	0.00	0.00

Multiple responses

Keyword:

F = Frequency

% = Percentage

Source: Field Survey, 2023

The effects of transportation costs on merchant income

The result on table 3 showed the effect of transportation costs on merchants' income in the study area. Among the included variables for both crops, mode of measurement and farm gate cost were significant at 1% and positive coefficient indicates that the higher the cost the higher the amount realized by the merchants.

Also, insufficient vehicle was significant at 10% for both crops while transportation cost was significant at 10% for pepper only. The adjusted R^2 were 63.00% and 80.00% for tomatoes and pepper respectively, meaning that the included variables only explained 63.00% and 80.0% of the changes in merchant income for tomatoes and pepper respectively.

Table 3: Regression Test on Effect of Transportation Variable on Merchant Income

Variables	Coefficient	Standard error	T	P>(t)
Tomato				
Insufficient vehicle	21387.2	12707.09	1.68	0.095***
Bad road	-33430.72	28175.01	-1.19	0.237
Mode of measurement	4128.528	391.5581	10.54	0.000*
Farm gate cost	78.51054	15.8164	4.96	0.000*
Transportation cost	0.3221166	0.8721043	0.37	0.712
Fuel scarcity	9071.721	12053.14	0.75	0.453
Pepper				
Insufficient vehicle	38154.29	19736.78	1.93	0.055***
Bad road	-28490.33	42390.05	-0.69	0.503
Mode of measurement	7774.881	899.972	8.64	0.000*
Farm gate cost	64.90696	4.909412	13.22	0.000*
Transportation cost	3.806458	2.007237	1.90	0.060***
Fuel scarcity	4410.662	21117.88	0.21	0.835

Cost, return and profitability of tomatoes and pepper merchants

Tomatoes	Pepper
Number of obs = 149	Number of obs = 149
F (6,142) = 40.83	F (6,142) = 100.59
Probability > F = 0.0000	Probability = 0.0000
R ² = 0.63	R ² = 0.80



Table 4 showed the cost, return and profitability of tomatoes and pepper merchants in the study area. Total Revenue from tomatoes was ₦75,150,000; total variable cost on tomatoes was ₦49,770,000; the benefit cost ratio for tomatoes was 1.61. This implies that merchants of tomatoes were making profit of 61kobo on every ₦1 invested on the business and gross

margin for the tomatoes was ₦28,380,000 per trip. Total Revenue from pepper was ₦80,570,000; total variable cost on pepper was ₦57,910,000; the benefit cost ratio for pepper was 1.39 and gross margin for the pepper was ₦33,495,000. This implies that merchants of pepper in the study were making profit of 39 kobo on every ₦1 invested on the enterprise.

Table 4: Cost and return with profitability of tomatoes and pepper

Variable	Amount
Tomatoes	
Total revenue	₦ 75,150,000
Total variable cost	₦ 49,770,000
Gross margin	₦28,380,000
Benefit cost ratio	1.61
Pepper	
Total revenue	₦ 80,570,000
Total variable cost	₦ 57,910,000
Gross margin	₦ 22,660,000
Benefit cost ratio	1.39

Constraint faced by the merchants in course of transporting farm produce

Table 5: Constraint faced by the crops merchants in course of transporting farm produce

CONSTRAIN FACED	STRONGLY DISAGREED F %	DISAGREED F %	UNDECIDED F %	AGREED F %	STRONGLY AGREED F %	WMB	RANK
Bad roads	1(0.67)	0	0	2 (1.33)	147 (98.00)	38.4	5 th
Insufficient vehicle	1(0.67)	19 (12.67)	2 (1.33)	118 (78.67)	10 (6.66)	66.6	2 nd
High cost of transport	0.00	2 (1.33)	1 (0.67)	108 (72.00)	39 (26.00)	53.2	4 th
Low traffic volume	1(0.67)	2 (1.33)	1 (0.67)	140 (93.33)	6 (4.00)	60.4	3 rd
Fuel scarcity	0.00	9 (6.00)	54 (36.00)	62 (41.33)	25 (16.67)	69.4	1 st

Source: Field Data, 2023

Multiple responses.

According to table 5 the major constraints faced by merchants of pepper and tomatoes in order of the degree of severity are fuel scarcity, insufficient vehicles, low traffic volume, high cost of transportation and bad road.

Summary, Conclusion and Recommendations

Summary of the Major Findings

The result showed that the average age of the respondents in the study area was 49 years and not less than 41.33% of the respondents were within their active working ages. Majority (90.00%) of the respondents used Lorries as a means of transportation. About 68.67% of the respondents used taxis as a means of transportation from farm to farmstead. Half (52.67%) of the respondents used taxis as a means of transportation from farmstead to village. Among the included variables for both crops, mode of measurement and farm gate cost were significant at 1% and positive coefficient indicates that the higher the cost the higher the amount realized by the merchants. Also, insufficient vehicle was significant at 10% for both crops while

transportation cost was significant at 10% for pepper only. There adjusted R² were 61.76% and 80.00% for tomatoes and pepper respectively, meaning that the included variables only explained 61.8% and 80.0% of the changes in merchant income for tomatoes and pepper respectively. The major constraints faced by merchants of pepper and tomatoes in order of the degree of severity are fuel scarcity, insufficient vehicles, low traffic volume, high cost of transportation and bad road.

Conclusion

In conclusion, the major means of transportation was through lorry. Among the included variables for both crops, mode of measurement and farm gate cost were significant at 1% and positive coefficient indicates that the higher the cost the higher the income realized by the merchants. The



adjusted R^2 were 61.76% and 80.00% for tomatoes and pepper respectively. Also, the enterprises were profitable because the benefit cost ratios were greater the one. The major constraints faced by merchants of pepper and tomatoes in order of the degree of severity are fuel scarcity, insufficient vehicles, low traffic volume, high cost of transportation and bad road.

Recommendations

The outcome of this study leads us to the following recommendations: Federal Government should formulate policy that make fuel (petrol) available at affordable price. Also, both governments at all levels and Non-Governmental Organisations should invest in making necessary facilities available to easy transportation of the farm produce at affordable amount for the masses especially the food merchants.

Reference

Adefolalu, (2022), 'The Green Revolution: A Food Production Plan for Nigeria'. Final Report

Aderamo and Magaji (2010). *Technology transfer in the food sector in West Africa*. Paper presented at 15th International Union of Food Science and Technology Conference, Cape Town, South Africa.

Ajiboye (1994). The impact of transportation on agricultural production in a developing country: a case of kolanut production in Nigeria.

Ajiboye (2012). Green revolution and the distribution of farm income. GR Saini, Economic and political weekly, A17-A22, (2012).

Ajiboye and Afolayan (2009), 'Transportation and Distribution of Agricultural Products. A case study of Kolanut production in Remoland Ogun State'. Unpublished M.Sc Transport Studies Thesis Ogun State University, Ago-Iwoye.

Ajiboye, (2021), 'Nigerian Railway Corporation: A Liability or An Asset' in Onakomaiya and Ekanem (eds). Transportation in National Development. "NISER", Ibadan.

Filani M.O. (2019) Rural Transportation and the Distribution of Public Facilities in Nigeria: A Case of Edu Local Government Area of Kwara State. *Journal of Human Ecology*, 29(3): 171-179. Kamla-Raj Publishers.

Idachaba (2010). Intercropping: A food production strategy for the resource poor farmers. *Nature and Science*, 5(1), 46-59.

Igben (2011). Transport and Rural Development in Nigeria. *Journal of Transport Geography*, 1: 248-254.

Jegede (2022), 'Traditional Agriculture' in Onakomaiya *et al* (eds) Ogun State in Maps. Rex Charles Publication, Ibadan.

Ogunsanya (2020), 'Significance of Transportation in Rural Development in Environmental and Spatial Factors'. Proceeding of 20th Annual Conference of Geographical Association of University of Ife, Ile-Ife.

Ogunsanya (2021). Transportation Development in Nigeria in 2010 Ibadan: Nigerian Institute of Social and Economic Research (NISER).

Olajide, (2012). Rural employment linkages through agricultural growth: Concepts, issues, and questions.

Tunde (2018). Building and institutionalizing an effective agricultural technology transfer process in Nigeria: Research and extension for more food and income to farmers. In *Proceedings of the Second Annual Farming System Research and Extension Workshop in South Eastern Nigeria Umudike, January 10-14, 1988* (pp. 10-14).