

**Research Article**

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The synergy between Transportation Infrastructure and Food Crop Production. Implication for Economic Development in Oyo State

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The study focused on the effect of different road transportation means on food crop production in Oyo State, Nigeria. A multistage sampling technique was used to select 190 food crop farmers from two Agricultural Zone (Ibadan/Ibarapa and Saki) in Oyo State. A structured questionnaire was used to obtain needed information from the respondents. Descriptive statistics was used to analyzed the data. Results revealed that the majority (74.74%) of the respondents were male with mean age, household size and farming experience estimated at 46 years, 5 persons and 13 years respectively. The major means of transporting food crops across the study area were Head porterage (56% farm to farm), 64.21% for farm to the farmstead and 1.05% for the village-to-village transporting of agricultural produce. About 60.00% and 68.42% of the respondents strongly agreed that bad roads and high transportation costs as the main constraints faced in means of transporting agricultural produces in Oyo state. The result concluded insufficient vehicle, high cost of transportation, low traffic volume and fuel scarcity were major constraints faced in the course of food crop transportation. The study recommended that there should be provision of good and accessible road to ease the means of transporting food crop production across the study area.

Keywords: Constraints; Crop; Food; Production; Traffic**Introduction**

Transport is regarded as an important factor involved in agricultural development all over the world. It is the only means by which food produced at farm site is moved to different homes as well as markets. Transport creates market for agricultural produce, enhances interaction among geographical and economic regions and opens up new areas to economic focus. There are complete relationships that vary both spatially and over time between transport and development. However, for any development to take place, transport plays a crucial role.

Adesanya [1] 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 narrowed, winding and sometimes overgrown by weeds especially during the rainy season. In a study carried by Adeyemi, Taiwo, Akanbi and Sanni [2] 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

characterized 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-free trunks get swept away by flood. In another study carried out by Ogunsanya [3] on relationship between transportation, underdevelopment and rurality, he observed that the greater the degree of rurality, the lower the level of transport development. Adesanya [1] noted that transportation constitutes the main avenue through which different parts of the society are linked together. 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.

Ogunsanya [3] pointed out that the impacts of road infrastructure on agricultural output and productivity are particularly important in Sub-Saharan Africa for three reasons. First, the agricultural sector accounts for a large share of gross domestic product (GDP) in most Sub-Saharan countries Adefolalu [4]. Second, poverty is concentrated in rural areas. Finally, the relatively low levels of road infrastructure and long average travel time's result in high transaction costs for sales of agricultural inputs and outputs, and this limits agricultural productivity and growth. Ogunsanya [3] reported that some of the variables that determine the level of development in a given environment are easy accessibility and mobility.

Transportation affects agricultural marketing because it is the only means by which farmers can transport they produce to the market. Poor transportation in the rural areas has resulted in low productivity, low income and a fall in the standard of living of rural residents and high rate of poverty [4]. A strong relationship between transportation, underdevelopment and rurality was identified by Ogunsanya [3]. He stressed further that the greater the degree of rurality, the lower the level of transport development. When the distance of farm to the market is far and the road is rough perishable crops may be destroyed and farmers may run at a loss.

Problem Statement

Despite the fact that Nigeria is basically an agrarian nation and the majority of the goods to be transported are mostly agricultural products which are by nature often bulky, low-priced, highly perishable. They must be conveyed from their area of production to their zone of consumption with minimum delay and cost, as well as widely dispersed over the available land area [4]. It therefore requires a correspondingly wide-spread transport net-work to take produce from farm to market. Adefolalu [4] 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.

Ogunsanya (1980) 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 process which is not complete until the commodity is in the hands of the final consumers [4]. Availability of transport facilities is a critical investment factor that stimulates economic growth through increased accessibility, its efficiency and effectiveness (Adesanya, 2010). 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

The following research questions governed the study" what are the available different transportation means used for transportation in the study area, what are the perceived effect of different transportation means on food crop production and what are the constraints faced in course of transporting food crop produce?

The specific objectives are to

1. describe the socioeconomic characteristics of the respondents.
2. identify the different transportation means in the study area.
3. analyzed the perceived effect of different transportation means on food crop production in the study area.
4. identify the constraints faced in course of transporting food crop produce.

Justification

Agricultural production is very important to the economy of developing nations as a whole and Nigeria in particular. It is the major occupation of the inhabitants and people of the country while it provides employment directly or indirectly for at least 60% of the people in Ogun State [4]. Most of the rural dwellers are traditional peasants, whose individual contribution is insignificant but collectively form an important bedrock for economy of the state which represent 90% of food and fibre produced in Nigeria.

The major agricultural products found in the area are cash crops like cocoa, kola-nut, rubber, palm-oil, citrus trees and the arable crops such as yam, maize, cassava, rice, coco-yam, sugar-cane and melon to mention a few. These products serve as food for man and raw materials for agro-allied industries within and outside the state while they also provide revenue to farmers and generate foreign exchange to the government

Methodology

The study was carried out in Oyo State, South Western Nigeria. It is an inland state in south-western Nigeria, with its capital at Ibadan. It is bounded in the north by Kwara state, in the east by Osun State, in the south by Ogun State and in the west partly by Ogun State and partly by the Republic of Benin. It has a tropical climate with rainforest vegetation on its southern part and a derived savannah on its northern end. It has an estimated land area of 28,454 square kilometers. The estimated human population is 5,580,894 (2006 population census) and it is characterized commercially by a dual economic focus, the burgeoning industrial sector and a dominant

agricultural sector.

Sampling Techniques

Multistage sampling technique was used to select 190 food crop farmers from 18 communities in two agricultural zones of Oyo State (Ibadan/Ibarapa and Saki). First stage involved the selection of two Zones which are Ibadan/Ibarapa and Saki randomly. Second stage involved simple random selection of three (3) and two (3) blocks

from each of the two ADP zones respectively making 6 blocks. Stage three involved random selection of four (3) cells from each of the 6 blocks making 18 cells. While the last stage involved random selection of eleven (11) food crop farmers from each of the 18 cells making 198 food crop farmers while 190 respondents were selected. Primary data were collected using structured interview guide. Data were analysed using frequency count, percentage, mean and Regression.

Result and Discussion

Socioeconomic Characteristics of the Respondent

Table 1: Distribution of the Respondent According to Their Socioeconomic Characteristic.

Variable	Frequency	Percentage	Means
Age			
Less than 30	30	15.79	46
30-40	32	16.84	
41-50	60	31.58	
51-60	36	18.95	
Above 60	32	16.84	
Gender			
Male	142	74.74	
Female	48	25.26	
Marital Status			
Single	36	18.95	
Married	142	74.74	
Separate	6	3.16	
Divorced	2	1.05	
Widowed	4	2.11	
Religion			
Islam	110	57.89	
Christian	70	36.84	
Tradition	10	7.27	
Education status			
No formal education	18	9.47	
Primary education	26	13.68	
Secondary education	90	47.37	
Tertiary education	56	29.47	
Household size			
Less than 4	70	36.85	5
4 - 7	100	52.63	
8 - 12	16	8.42	
Above 12	4	2.11	
Farming year			
Less than 5	20	10.53	13
5.1	36	18.95	
15-Nov	36	18.95	
Above 15	96	51.58	

Secondary occupation		
Other	60	31.58
Trading	60	31.58
Teaching	22	11.58
Artesian	44	23.16
Tractor	4	2.12
Landownership		
Inheritance	88	46.32
Purchased	14	7.37
Husband's farm	14	7.37
Leasing	70	36.84
Other	4	2.11
Total	190	100

Source: Field Survey Data, 2020.

Distribution of age of the food crop farmers in the study area as shown in Table 1 reveals that majority (83.16 percent) of food crop farmers were aged below 60 years with the mean age of 46 years. This implies that majority of the food crop farmers are still in their active age and are therefore expected to be productive for available resources. This was in line with Fawole and Oladele [5] who also showed the mean age of the respondents to be 47 years. Also, majority (74.74 percent) of the food crop farmers were married with mean household size of 5 persons. Majority (90.53 percent) had one form of formal education as against 9.47 percent with no formal education with the mean farming experience estimated at 13 years. This was in line with Fawole and Oladele [5] in his study on food production through multiple cropping patterns among farmers in South West where majority of food crop farmers had no formal education. In addition to farming as main occupation, 31.58 percent of food crop farmers were traders while 2.12 percent were Civil servant. The findings thus shows that production of food crops is undertaken by people of diverse profession to ensure food security.

Available Transportation Means in the Study Area

Table 2 showed the distribution of respondents based on means of transportations of agricultural produce from the farm to market or final consumers. Based on means of transporting agricultural produce across one farm to another, 58.95%, 16.84% and 10.53% of the respondents used head portorage, motorcycle and bicycle respectively as a means of transportation. Also, majority (64.21%) and 27.37% of the respondents used motorcycle and bicycle respectively as means of transporting agricultural produce from farm to farmstead. As revealed in Table 2, 42.11%, 24.21% and 3.16% of the respondents made use of motorcycle, van and taxis respectively for transporting of agricultural produce from village to market in town and final consumers in cities. This result was buttressed by work of Adefolalu [4] who reported that availability of transport facilities is a critical investment factor that stimulates economic growth through increased accessibility in various agricultural value chain.

Table 2: Distribution of respondents based on means of transporting agricultural produce from farm.

Types of Trips	Lorries	Van	Taxis	Motorcycle	Bicycle	Head portorage
	Freq %	Freq %	Freq %	Freq %	Freq %	Freq %
Farm to farm	24 (12.63)	2 (1.05)	0 (0.0)	32 (16.84)	20 (10.53)	112 (58.95)
Farm to farmstead	--	--	--	122 (64.21)	16 (8.42)	52 (27.37)
Farmstead to village			12 (6.32)	158 (83.16)	20 (10.53)	--
Village to village	--	2 (1.05)	32 (16.84)	144 (75.79)	10 (5.26)	2 (1.05)
Village to town		10 (5.26)	82 (43.16)	88 (46.32)	2 (1.05)	8 (4.21)
Village to headquarter	46 (24.21)	6 (3.16)	10 (5.26)	80 (42.11)	44 (23.16)	4 (2.10)

Source: Field Survey, 2020 (% are in parentheses).

Perceived effect of different Transportation Means on Food Crop Production

Table 3 showed the distribution of respondents based on their perceived effect of difference means of transportation on food crop production in the study area. About 2.00% of the respondents strongly disagreed to the fact that transportation reduces drudgery. Also, 71.58% agreed on the fact that it improve healthy living while 2.11% of the respondents strongly disagreed on it. Majority

(74.74%) of the respondents agreed to the perception statement of increase in market accessibility, 66.32% agreed to increase farm accessibility while 73.68% of the respondents agreed to reduce product perishability. This work was in conformity with Adeyemi [2] pinpointed that infrastructure such as good road network and improved technology ease the movement of food crop from where they are produced to final consumer, reduces drudgery and perishability of agricultural produce through timely delivery of across the production value chain.

Table 3: Perceived effect of different transportation means on food crop production.

Perception statements	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed
	Freq %	Freq %	Freq %	Freq %	Freq %
Increased production	4 (2.11)	6 (3.16)	18 (9.47)	118 (62.11)	44 (23.16)
Reduce drudgery/boredom	8 (4.21)	6 (3.16)	8 (4.21)	128 (67.37)	40 (21.05)
Improve healthy living	4 (2.11)	8 (4.21)	14 (7.37)	136 (71.58)	28 (14.74)
Increase market accessibility	8 (4.21)	6 (3.16)	16 (8.42)	142 (74.74)	18 (9.47)
Increase farm accessing	6 (3.16)	12 (6.32)	42 (22.11)	126 (66.32)	4 (2.11)
Reduce product perishability	6 (3.16)	10 (5.26)	12 (6.32)	140 (73.68)	22 (11.58)
Increase product price	32 (16.84)	124 (65.26)	24 (12.63)	4 (2.11)	6 (3.16)
Easy distribution	20 (10.53)	--	18 (9.47)	116 (61.05)	36 (18.95)

Source: Field Survey, 2020 (% are in parentheses).

Constraint faced by the respondents during transportation of food crop produce

Table 4 showed the distribution of respondents based on their perceived constraint faced in course of transporting food crop production from farm to various agricultural value chain in Oyo state. Majority (60.00%) of the respondents strongly agreed on bad road as major constraint faced, 74.74% of the respondents

agreed to be facing constraints on insufficient/bad vehicle while 48.42% respondents reported that high cost of transportation is a mild constraint. Also, 49.47% respondents perceived fuel scarcity as a strong constraint while 3.16% of the respondents perceived low traffic volume not a strong constraint. This was in conformity with Adeyemi [2] which discovered that where motorable roads exist in Nigeria, they are mostly of unpaved surface, narrow width, circuitous alignment and with low quality bridges.

Table 4: Perceived constraint faced by the respondents during transportation of food crop produce.

Constraints	Strongly Disagreed	Disagreed	Undecided	Agreed	Strongly Agreed
	Freq %	Freq %	Freq %	Freq %	Freq %
Bad roads	--	2 (1.05)	14 (7.37)	114 (60.00)	60 (31.58)
Insufficient vehicle	4 (2.11)	--	12 (6.32)	142 (74.74)	32 (16.84)
High cost of transport	16 (8.42)	8 (4.21)	24 (12.63)	130 (68.42)	12 (6.32)
Low traffic volume	18 (9.47)	32 (16.84)	42 (22.11)	92 (48.42)	6 (3.16)
Fuel scarcity	20 (10.53)	38 (20.00)	34 (17.89)	94 (49.47)	4 (2.11)

Source: Field Survey, 2020 (% are in parentheses).

Conclusion and Recommendation

The result concluded that male dominates food crop production in the study area and within economy active working age physical fitness prone to expansion of energy in transporting food crops production. Also, constraints in means of transporting food crop from point of production to final consumers conclude insufficient vehicle, high cost of transportation, low traffic volume and fuel scarcity.

The study recommends that:

1. There should be provision good and accessible road to ease the means of transporting food crop production in the study area.
2. There should be reduction in the price of the transport in order to encourage the farmers to be transporting their produce through the means of vehicles, taxis and motorcycle etc.

Acknowledgement

None.

Conflicts of Interest

None.

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