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EFFECT OF ROAD TRANSPORT INFRASTRUCTURE AND SOFT LOANS ON FARMERS PRODUCTIVITY IN OGUN STATE, NIGERIA

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ABSTRACT

The challenges confronting rural areas especially among under-developed countries are enormous and cut across all spheres of life. Hard infrastructure such as road, machinery which could enhance accessibility to soft loans by farmers is in bad state. Previous literatures have focus on impact of road transport infrastructure on farmers' productivity without holistic view on emphasis on effect of road transport infrastructure and soft loan infrastructure on farmers' productivity. Therefore, this research will investigate impact of road transport infrastructure and soft loan on farmers' productivity with the aim of examine impact of soft loan on farmers' productivity in Ogun State. Stratify sampling technique was employed to stratify Obafemi/Owode local Government into three (3) zones (i.e Obafemi, Owode and Oba zone). At stage two, 2% of the villages in each of the zone were purposively selected. At stage three, 25% of the registered household was random selected. Descriptive and multiple regressions were employed to analyse the data. Findings reveled that soft loan has significant impact on farmers' productivity (F-ratio= 147.324, P-value = 0.000 and R^2= 82%). The descriptive analysis shows that the delay in transportation results in wastage of agricultural produce which induce discouragement to farmers. It was concluded soft loan that could boost farmers' productivity and also reverse rural-urban migration were distorted by poor rural road infrastructure. Therefore, it was recommended that, Villagers along the same route should embrace self-help by putting sand and stone on the affected part along the route. A handful big size stone should be jointly spread by the villagers on a muddy portion of the road for easy accessibility. Provision of soft loan should be embraced by all buyers to farmers. This will assist farmers in no small measure, as it does not attract interest nor difficulty procedure in getting the loan and also re-payment.

Keywords: Road Infrastructure, Soft Loan, Farmers Productivity, Credit Facilities

INTRODUCTION

The challenges confronting rural areas especially among under-developed countries are enormous and cut across all spheres of life. Poor transportation system in the rural areas will enhances rural-urban migration which poses difficulties to rural development efforts in Nigeria, as it has continued to make most of the rural areas isolated from modern societies in terms of social amenities. Low productivity, low income and poverty have seen as the consequence of lack of proper transportation system. Though, poverty rate in many rural areas in Nigeria has progressively increased over decades now. However, the nature of rural roads is in bad shape, thereby worsening problem of farmers' productivity.

Investments in both hard and soft infrastructure are very important, for the agricultural sector to achieve its potential. The essential components of hard infrastructure are roads, bridges and argued that it provides leverage within which soft infrastructure can be made available in under-developed countries. Soft infrastructure consists of rural services such as banking, credit, extension, seed provision, transport, communications and marketing of rural produce etc.

Transport operation is one of major components of agricultural input and it helps in supply chain activities and in which transport is a major decisive factor for farmers' accomplishment or else all effort would be futile. Since transport has a determinant factor for price in supply food chain, makes a barrier for subsistence farmers to see agricultural business as a lucrative one. However, people who cannot move themselves and their goods cannot pursue economic and social activities. People who cannot move cannot move out of poverty.

Due to the nature of rural road setting, farmers' treks 1-5 kilometers to their respective farms on footpath by foot, though, few make use of motorcycle or bicycle to transport them to farm on unpaved road. Wastage of perishable crops is always on high side due to excessive heat and bad roads, which resulting in loss of quality and reduction in price of such agricultural produce. The consequence of this is that farmers will be frustrated to stop farming and migrate to urban area. Rural-urban migration is as result of inaccessibility, seclusion, underdeveloped and extreme poverty, which leads to reduction in their population with a negative effect on farmers' productivity.

Adequate provision of hard infrastructure is necessary for agricultural produce development sustainability in agrarian areas. Road transport infrastructure is the major factor that will facilitate accessibility of farmers to soft loan from buyer. However, the buyers that want to loan farmer such loan will factor in how his/she going to get the produce in good quality in return the loan as repayment. This research therefore, investigates the impact of road transport infrastructure and soft infrastructure on farmers' productivity.

LITERATURE

Agricultural growth and development require efficient and adequate supplies of essential farm inputs so as to increase production. Capacity of investment for majority of our farmers in developing countries is low as they are very poor; this make a great challenge's to meet with the increased demand for the purchase of improved seeds, adequate portion of fertilizer, hiring farm machinery etc; basically lack of finance is one of the main reasons for low productivity in developing countries. Literature revealed that farmers' yields of various crops were higher where credit facilities were been provided than where they have difficulties to access loan (Arif, 2001). All these research recommend that credit is one of the essential inputs to meet the cash requirements of the farmers and play the role of a bridge leading from subsistence to cash economy and eventually to invisible surplus.

Credit is an important component in agricultural production systems as it allows farmers to satisfy the needs of caused within the production cycle which characterizes crop farming: land preparation, planting, cultivation and it takes several months before harvesting of the crops in which very little cash revenue is earned, while expenditures on materials and consumption need to be made in cash. Cash income is received a short time after the harvest (Nzomo and Muturi, 2014). In the absence of financial institution or provision of soft loan by traders, farmers would have to maintain cash reserves so as to facilitate production and consumption in the next cycle. The availability of loan allows both greater consumption and greater purchased input use, and thus increases welfare of the farmers.

Credit facilities to farmers are considered as one of the best strategic resources to increase production to the optimum which consequently raising the living standards of the rural poor farming community (Nzomo and Muturi, 2014). Harnessing the potentials of credit to stabilize and perhaps increase resource productivity and output growth in Agriculture is particularly justified when farmers face very low savings capacity, poorly developed rural financial markets and availability of appropriate farm technologies whose adoption is constrained by shortage of funds. Agriculture demands different forms of inputs to be productive, among which, credit is indispensable.

Loan is the bed rock for any business including agriculture which has traditionally been a nonmonetary activity for the rural population in developing countries. Agricultural credit facility is an integral part of the process of modernization of agriculture and commercialization of the rural economy. The introduction of soft loan is the easiest and best way for increasing agricultural production in developing countries. Agriculture as a sector relies more on loan than any other sector of the economy. The reason is because of the seasonal variations in the farmers output and a changing trend from subsistence to commercial farming. However, credit provides farmers opportunity to earn more cash and improve their standard of living.

Based on the predominance of small-scale farming among the rural dwellers of Kimilili and the need to modernize farming to meet the food and income needs of the farmers, availability of agricultural credit as a key factor affecting the productivity of small scale farms was chosen for this study. It is recognized that, while farming has the potential to alleviate poverty and create the much needed employment opportunities, farmers have been neglected for a long time by finance institutions. Many of the banks consider farming as a high risk business yet farmers require financial support to meet the ever increasing costs of production and adopt modern technology in order to increase productivity of their farms and hence enjoy profits.

To transform agricultural input into output is strongly conditioned with considerable time lags (Conning and Udry, 2005), causing the rural dweller to balance its budget during the season when expenditure is high for input purchases and consumption and revenue is small. With limited access to loan, the budget balance within the year can become a problem to agricultural production.

A common characteristic of rural credit markets in under-developed countries is the coexistence of formal and informal loan markets (Boucher and Guirkinger, 2008). Ghate (1992) defined formal financial service providers as registered companies that are licensed to offer financial services by a central monetary authority. He asserted that these institutions are largely urban based in terms of distribution of branches and the concentration of deposit and lending activities. According to Kashuliza *et al.* (1998) informal financial services refer to all transaction, loans, and deposits that take place outside the regulated monetary system and this includes the activities of intermediaries such as relatives and friends, traders, and money lenders.

Freeman *et al.* (1998) said farmers' access to credit is also very essential in the sense that it do facilitate the levels of input use closer to their potential levels when cash is not a constraint, consequently leading to higher levels of output per farm and productivity, given fixed resources such as land. This implies that the marginal contribution of credit brings input levels closer to the optimal levels, thereby increasing output and productivity (Feder *et al.,* 1990).

Adeniji (1983) identified the problem of low volumes of traffic on rural roads coupled with periodic variations and sharp seasonality in the demand for transport as factors which contribute to the apparent neglect of roads in the rural areas by most of the state governments in Nigeria.

Nchuchuwe and Adejuwon (2012) opine that agriculture has a high multiplier effect, which means that agricultural investment can generate high economic and social returns and enhance economic diversification as well as social development. Gollin is however emphatic that "rural transportation projects have little impact on yields or overall production, since income elasticity of demand for food is relatively modest" in most developing countries and opines that the big effect is that 20% of the total population is able to move out of subsistence agriculture‟ (Gollin, 2014).

Farmers are not able to fully pass on to buyers the high transport cost, resulting in reduced profits to farmers (Salami et al. 2012). Road is an important form of rural infrastructure providing cheap access to markets for agricultural output (Jacoby, 2000). It can be said that the production capabilities of the rural farmer can be enhanced when the farmer has improved access to rural transportation and is sure that produce will not rot in the bush but get sold in the market which can stimulate economic development.

Distance from markets discourages the production of higher value more perishable crops, and reduces the linkages between these producers and more specialized markets. In order to achieve the broad goal of getting agricultural produce to the market, it is important vehicles frequently ply the rural communities and the quality of road infrastructure can determine the trip frequency.

Paul *et al.* (2009) 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 (Paul *et.al* 2009). 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.

Rural roads help in enhancing rural productivity as well as strengthening the socioeconomic, cultural and political fabrics and processes of the rural communities. Adesanya et al. (2000) had observed that, rural travel and transport in most rural areas in Nigeria still take place with great difficulties thereby compounding and worsening the problem of rural productivity and rural poverty. Several studies have been conducted on the nature and characteristics of rural roads which lead to the problems of rural accessibility. Adeniji (1983) identified the problem of low volumes of traffic on rural roads coupled with periodic variations and sharp seasonality in the demand for transport as factors which contribute to the apparent neglect of roads in the rural areas by most of the state governments in Nigeria.

Filani (1993) observed that, most rural roads in Nigeria are unpaved, narrow, circuitously aligned and with narrow bridges, they are full of pot holes and many of them remain passable only during the dry season. According to Adeniji (1983) governments at all levels in Nigeria have not being paying enough attention to provision and maintenance of rural roads, due to the problem of low volume of traffic and periodicity and seasonality in demand for transport in rural areas. Thus, governments rarely see provision of rural roads as a priority.

Farm products are usually produced in the rural areas and traded in the cities. Where there is a good transport link between the producing areas and the market, the prices of products are reduced. Otherwise, they become expensive and middlemen usually capitalize on the poor transportation to inflate prices of agricultural products to the urban markets (Ahukannah et al, 2003). This advantage extends to delivery of goods to the door-step of consumers. An efficient

transport system lowers the cost and reduces the time of moving goods and service to where they can be used more efficiently. Since roads penetrate more into such areas (with relative greater flexibility) their development adds value and spurs growth.

The condition of rural areas of Nigeria is more pathetic since they are highly deprived of infrastructural facilities, especially when compared to the urban areas (Akinola, 2007). According to Adesanya (1997) only about 5 percent of rural roads in Nigeria could be said to be in good condition. He further explained that the bad condition of these rural roads is compounded by the poor response to repairs and delays in rehabilitation by the responsible government agencies. Thus, the poor state of rural transport in the country do not only lead to high vehicle operating cost but, also result in sharp increases in prices of food items. Oni and Okanlawon (2006) reported that the neglect of roads in the country multiplies the cost of repairs at the end of every rainy season and also, sharply increase the cost of vehicle maintenance. They further established that inadequate transport imposes a great constraint on mobility and people's access to facilities like markets, hospitals and schools. The problem is more severe in the rural areas of Nigeria where the bulk of the population live.

METHODOLOGY

The study was carried out in Obafemi/Owode local government of Ogun State. The estimated population of Obafemi/Owode local government during 2006 population census was 228,851 (Census, 2006). The local government is richly blessed in the areas of agriculture as they have fertile land suitable for the cultivation of food crops and vegetables that is why they are known for cultivation of those crops in large quantities. The population of the study consisted of rural settlements in the twelve (12) wards of Obafemi/Owode Local Government Area.

Firstly, stratify sampling technique was employed to stratify the wards into three (3) zones (i.e Obafemi, Owode and Oba zone). Secondly, 2% of the villages in each of the zone were purposively selected. Thirdly, 25% of the registered household was random selected which give the sample size of two hundred and forty-five (245) respondents. Lastly, random sampling was employed to administer questionnaire to the household in those villages.

Table 1: Details of the sampling procedure for the study

S/N	Zones	Wards	Number of Villages
1		Ajebo	27
2	Obafemi	Obafemi	63
3		Alapakooni	58
4		Kajola	89
			237
5		Mokoloki Asipa	75
6	Oba	Oba	73
7		Egbeda	249
8		Onidundu	70
			467
9		Ajura	207
10	Owode	Ofada	24
11		Owode	58
12		Mokoloki	94
			383
		Total	**1,087**

Source: Researcher's Compilation (2022)

Table 2: Details of the sampling procedure for the study

Zones	No. of Wards in each zone	Total number of villages	Name of the villages (2%)	No. of registered household	No. of respondents (25%)
Obafemi			Olobi	52	13
			Sapala Makinde	45	11
	4	237	Labosi Otun	35	9
			Oko Nlado	57	14
			Oluwo Ifote	33	8
				222	**55**
Oba			Akeju	23	6
	4	467	Olugbo	31	8
			Ashipa	101	25
			Base Ijeja	54	14
			Igbo-Itoku	32	8
			Jagan Iloko	61	15
			Ayesoro	32	8
			Imo Emulu	48	12
			Osiki	37	9
				419	**105**
Owode			Igun Elegande	31	8
			Ikanna Balogun	63	16
	4	383	Orimerunmu	51	13
			Lowa Oke	34	9
			Are Village	28	7
			Igbo Oya	29	7
			Erinla	46	12
			Ijere Onigbedu	52	13
				334	**85**
Total	**12**	**1,087**		**975**	**245**

Source: Researcher's Compilation (2022)

Both descriptive and inferential statistics were used for data analysis. Descriptive statistics will involve the use of table, frequencies and percentages, while the inferential statistics adopted multiple regression analysis to test hypotheses.

Model specification

Multiple Regression Analysis

$Y=a+b_1x_1+b_2x_2+b_3x_3+b_4x_4+e$

Where:

Y= Soft loan

a= Constant

$b_1....b_4$= Regression coefficient

X_1: accessibility to the market

X_2: employment creation

X_3: productivity

X_4: transport infrastructures

X_5: connectivity

X_6: distance

X_7: refund difficulties

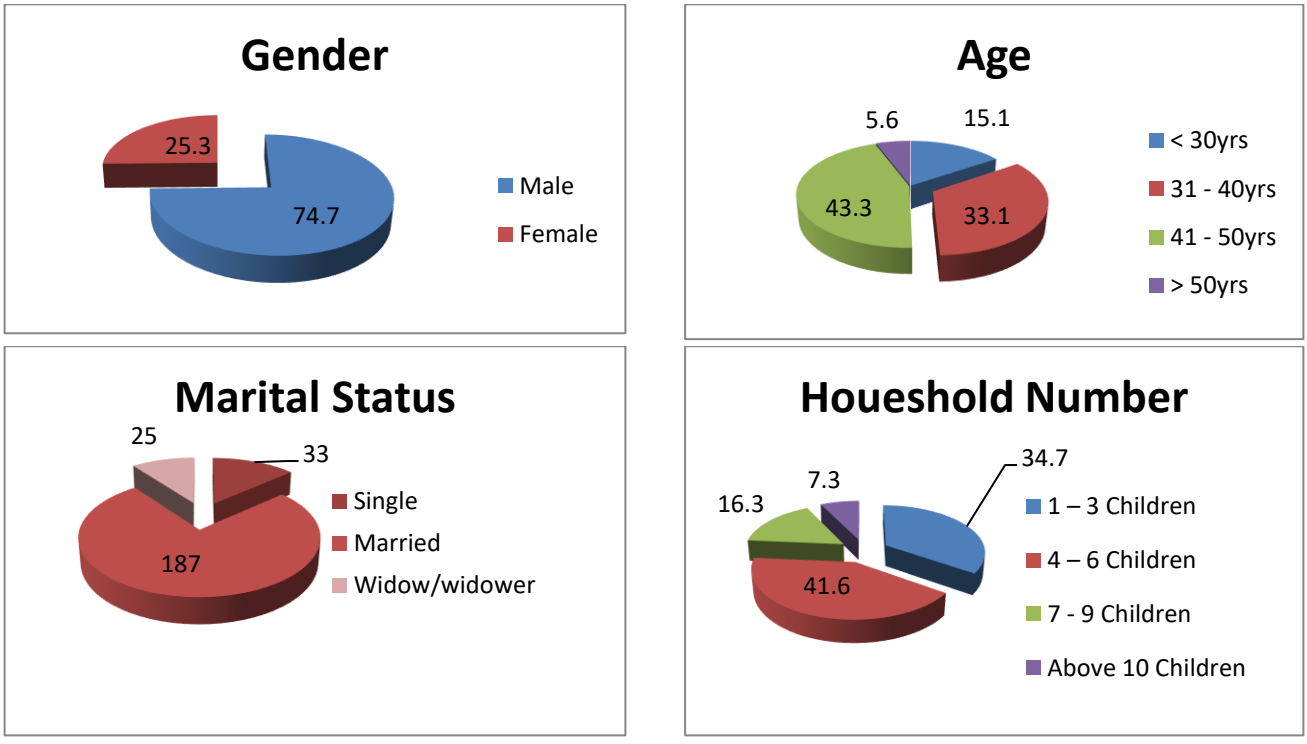
X_8: Farm gate pricing

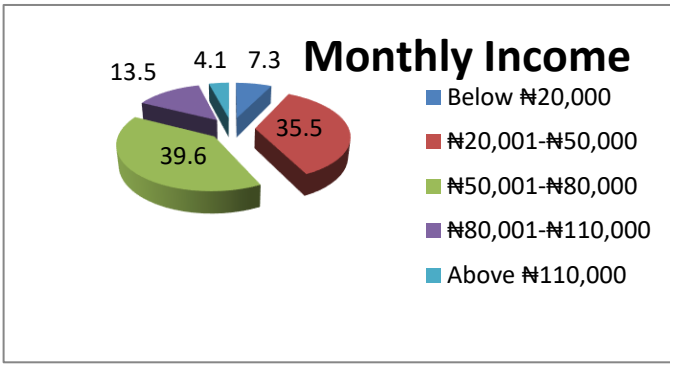
X_9: nature of the road

X_{10}: wastage

RESULTS AND DISCUSSION

Figure 1: Characteristics of the respondents





Source: Author's field survey, 2022

Figure 1 showed that, majority of the respondents (75%) were male while the remaining of the respondents was female. This indicates that male were the majority of the farmers and heads of the household.

It also revealed that less than 30yrs of age of respondents were (15%), 31 – 40yrs of the respondents were (34%), 41 – 50yrs of respondents were (45%) while the remaining the respondents were above 50yrs and above. This indicate that, majority of the respondent in the rural area were adult.

Figure 1 showed that majority of the respondents (76%) were married, 10% of respondents were separated/divourced while the remaining were of respondents were single. This indicate that, majority of respondents were still in their marriage.

It was revealed that, 35% of respondents have 1 – 5 household, 42% of respondents have 4 - 8 household, 16% of the respondents have 7 – 11 household while the remaining respondents have above 10 household. This indicated that majority of respondents have above 4 household.

Figure 1 shows that, 7% of the respondents monthly income is below ₦20000, 36% of the respondents monthly income is between ₦20001 - ₦50000, 40% of the respondents monthly income is between ₦50001 - ₦80000, 14% of the respondents monthly income is between ₦80001 - ₦110000 while the remaining respondent monthly income is above ₦110000. This indicate that majority of the respondents earned below ₦80000 monthly.

Table 3: Characteristics of Rural Road in the Study Area

		Frequency	Percentage
Road condition	Bad	151	61.6
	Fair	63	25.7
	Good	31	12.7
	Total	245	100.0

Road condition in rainy season

	Passable	37	15.1
	Impassable	113	46.1
	Almost impassable	95	38.8
	Total	245	100.0

Source: Authors' field survey (2022)

Table 3 revealed that, 61.6% of the respondents stated that the road condition is bad and it therefore pose a challenge when transporting agricultural produce, 25.7% of respondents said it is fair while the remaining respondents said the road condition is good in transporting agricultural produce.

However, only 15.1% of the respondents were still able to move their agricultural produce during the rainy season with ease, 46.1% of the respondents struggled to convene their agricultural produce to market while 38.8% of the respondents stated that the road is impassable during rainy season, thus, it takes a longer time for their agricultural produce to reach the market. Consequently, some of these agricultural produce perish. Furthermore, additional costs are incurred in getting the agricultural produce to the market, and this in turn erodes the farmers' profit, also, resulting in sometimes in rural-urban migration in a bid to seek better lives.

Table 4: Characteristics of rural transport

		Frequency	Percentage
Condition of vehicles:	Road worth	94	38.4
	Not road worth	151	61.6
	Total	245	100.0
Frequent breakdown of vehicle:	On every trip	175	71.4
	Once in 2 trips	50	20.4
	Once in 3 trips	17	6.9
	Once in 4 trips	3	1.2
	Once above 5 trips	0	0
	Total	245	100.0

Delay:	Very high	47	19.2
	High	162	66.1
	Moderate	21	8.6
	Low	10	4.1
	Very low	5	2.0
	Total	245	100.0

Source: Authors' field survey (2022)

Majority of vehicles used in rural area are not road worth as it has confirmed by 61.6% of respondents while the 38.4% of respondents said rural vehicle are road worth. This indicate that, rickety vehicle are those supply to rural route because of the nature of such road.

For frequent breakdown of vehicle, 71.4% of respondents said vehicle supply to rural road always breakdown on every trip, 20.4% of respondents said rural vehicle breakdown once in every 2 trips, 6.9% of respondents said rural vehicle breakdown Once in 3 trips while the remaining respondents said vehicle breakdown once in four trips. This indicates that condition of vehicles and rural road were the reason for the breakdown.

Delay caused by frequent breakdown and nature of rural road, 19.2% of respondents said the delay was very high, 66.1% of respondents said delay was high, 8.6% of respondents said delay was moderate, 4.1% of respondents said delay was low while the remaining respondents said delay was very low. This indicates that delay in transportation result in wastage of agricultural produce which induce discouragement to farmers.

H0: Soft loan has no significant effect on rural productivity.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.816	.811	.47293

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	190.782	7	27.255	147.324	.000[a]
	Residual	43.705	236	.185		
	Total	233.782	243			

Source: Author's field survey (2022)

The analysis of variance (table 5) shows that the F-ratio is 147.324 with a P-value of 0.000. From table 5, the R-square statistics indicated that the model as fitted explains 82% of variability in rural productivity. From ANOVA table, the analysis of variance of the relationship between explanatory variables and vehicle operating cost values shows that the F-ratio is 160.568 and a P-value is less than 0.005. This implies that the null hypothesis was rejected meaning that there is a statistically significant relationship between soft loan and rural productivity.

CONCLUSIONS AND RECOMMENDATIONS

Transport infrastructure is not a development itself but as a catalyst that will bring development to rural area. Soft loan that could boost farmers' productivity and also reverse rural-urban migration were distorted by poor rural road infrastructure.

1. Since rural road is been characterized as unpaved road therefore, constant grading should be carried out regularly especially towards rainy season by local government.
2. Rural road should not be left in the hand of local government alone, assistance need to be provided by state government.
3. Provision of soft loan should be embraced by all buyers to farmers. This will assist farmers in no small measure, as it does not attract interest nor difficulty procedure in getting the loan and also re-payment.
4. Villagers along the same route should embrace self-help. A handful big size stone should be jointly spread on a muddy portion of the road for easy accessibility.

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