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INFLUENCE OF GOOD ROADS ON POVERTY ALLEVIATION OF COOPERATIVE RURAL FARMERS IN BADAGRY LOCAL GOVERNMENT AREA OF LAGOS STATE

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Abstract

This study investigates how cooperative rural farmers' poverty can be reduced by having good roads in Badagry Local Government of Lagos State. A good road is essential for business and the timely marketing of agricultural products. In the study, a descriptive survey research design was used. In the study area, 120 farmers provided information via a structured questionnaire that was administered using a multistage sampling technique. The data were analyzed using multiple regression, frequency, percentage, and other inferential and descriptive statistics. Results show that 79.2% of roads used by the farmers were untarred while 20.8% were tarred. 28.3% of the farmers surveyed had a per capita expenditure on transportation below ₦20,001, while 42.5% fell within the range of ₦20,001 and ₦40,000. 76.7% spent more than ₦5,000 on transportation which invariably affected their profit. The reduction in poverty was positively impacted by road accessibility (t = 3.611; p = 0.000), as cooperative farmers would benefit from improved sales and profitability. The findings demonstrated a noteworthy positive correlation between road accessibility and quality of transportation and agricultural productivity and marketing (t = 5.321 for road accessibility and 6.881 for transportation quality). The low p-values (0.000) further suggest a robust and statistically significant relationship. These findings highlight the importance of well-developed road networks and transportation services in rural areas. As a result, it is advised that better road infrastructure boosts quality transportation services, supports and strengthens agriculture, and promotes strong relationships between cooperative farmers and carriers.

Keywords: *Poverty, Alleviation, Cooperative, Road, Poverty and Rural Farmers*

INTRODUCTION

According to Matas et al. (2018), poverty is a significant obstacle that modern farmers must overcome, particularly for those who reside in locations with poor roads. According to Bacaba et al. (2015) and the World Bank (2013), eradicating severe poverty in sub-Saharan Africa remains a significant challenge because of the high rates of food item costs in the region that contribute to poverty and the region's persistently high poverty rate relative to other regions. As stated by Okoye et al. (2021), the deliberate effort to lessen the intensity or effects of poverty to enhance the lives of those who are impoverished is known as poverty alleviation. A multifaceted strategy that includes both soft and hard investments in infrastructure, such as roads, agricultural, and rural development policies, is necessary to eradicate spatial poverty and reduce regional inequality, according to Bird (2019). In Nigeria, agriculture is the primary industry for those living in rural areas; it employs over half of the workforce and contributes significantly to GDP. But among the many difficulties facing agriculture is a well-developed road system (Bamenju et al., 2022).

Any nation's economic progress and the expansion of its rural areas are thought to depend on its road networks (Adefalu et al., 2016). Several people and organizations have recognized that building rural roads can help those who live in impoverished nations rural areas feel less impoverished. According to Agbigbe (2016), Nigeria's rural road conditions are a current problem that have an impact on the nation's agricultural activity. The inability of developing countries' rural road networks to provide necessities such as food, energy, water, health care, education, and jobs to rural farming communities feeds the cycle of deprivation. Communities need access to supplies, services, facilities, and opportunities. Market accessibility is necessary for people to engage in their daily lives, as well as civic, religious, and recreational pursuits. Nevertheless, accessibility is quantified in terms of time, effort, and expense, and is contingent upon the availability of infrastructure and reasonably priced transportation options for individuals and their load. It frequently takes a lot of time and effort for individuals living in rural areas to get basics, so reducing isolation and inaccessibility is essential to reducing poverty. Mobility, or ease and regularity of movement, and proximity, or distance access, are factors that determine accessibility. Greater mobility and closer proximity to services can increase accessibility.

But dedication to building a network of rural roads has boosted consistent advancement and the agricultural output of rural farmers, which is essential to raising poverty rates and improving the economies of many nations (Amare et al., 2017). Nearly 70% of the workforce is employed in agriculture, which is thought to be a solid economic pillar in Nigeria and contributes nearly 40% of the country's GDP (Abubakar et al., 2018; Osabohien et al., 2019). Nigerian rural villages' sociopolitical and economic conditions greatly depend on their roads. Nearly 90% of all local and international freight as well as passenger movements in Nigeria occur via the road sector

(Aderogba & Adegboye, 2019). According to Afolabi et al. (2018), they provide rural inhabitants with the chance to have access to farms, marketplaces, healthcare facilities, education, and other rural communities. A feature of a transportation system that is unjokingly discussed is rural transportation. Like urban transportation, rural transportation needs connectivity-related infrastructure, and both factors raise rural standards of life and mobility (UN, 2019). Rural transportation is done on rural roads and has various connotations for different individuals. But rural local governments oversee planning, constructing, and maintaining these roads.

Owing to the complexity of poverty, different societies approach the problem in different ways. Long-term poverty reduction necessitates not only equitable socioeconomic development but also giving marginalized and poor groups access to power so they can participate in decision-making processes (Abdulai, 2022). Rural residents must rely on the government, which frequently takes far longer to create secondary and tertiary roads, while private real estate developers may invest in peri-urban areas to connect their new housing projects to primary highways, according to Yap (2019). Consequently, the degree to which rural communities can profit is contingent upon the amount and caliber of transportation infrastructure as well as the ease of access to markets and new job opportunities, both of which serve to lower poverty.

Rural accessibility is defined as the distance to basic services and markets, as well as the essential first link from agricultural production areas, as well as the distance to all-season roads and transportation services. The foundation of rural access is the availability of services and infrastructure for inexpensive, dependable, and inclusive rural transportation (United Nations Centre for Regional Development, 2017). Accordingly, Perz et al. (2014) propose that improving the connectivity between rural and urban areas through transportation infrastructure can help to provide interaction connectivity, or the links between rural and urban centers, including social and economic interaction, and lessen the effects of isolation. Since the economy of rural areas depends on farmers, poor roads have a detrimental impact on enhancing agricultural activities, particularly in the areas of social and economic growth. Additionally, limitations on flexibility breed discontent (Nduati, 2017). Farmers experience lower incomes due to the distance between their farm and the market (Migose et al., 2018), which has an impact on poverty.

Nearly all of the laterite roads that are currently in use in different countries have very confusing shapes in rural regions, especially during the rainy season. Through the wet season, roads are essentially impassable (Olorunfemi, 2018). Not only can poor road conditions negatively impact traffic, goods, and travelers, but they can also lead to significant losses in perishable agricultural produce, expensive transportation expenses for agricultural and other things, and exorbitant vehicle maintenance expenditures (Oladosu et al., 2018). It improves the flow of people, products, and services by tying rural areas to other villages and urban areas (Ndabeni, 2016). Despite having a significant impact on the rural population's economy, most less developed countries, including Nigeria, have extremely poor-quality rural roads (Nwankwo & Okeke, 2017). The World Bank

(2013) asserts that enhanced rural access—achieved through connectivity—and poverty reduction are positively correlated. However, the dearth of decent roads makes rural transit issues extremely evident. The foundation of rural access is the availability of services and infrastructure for inexpensive, dependable, and inclusive rural transportation (United Nations Centre for Regional Development, 2017). As a result, Perz et al. (2014) propose that enhancing the interconnectivity, that is, the links connecting rural and urban centers, including social and economic engagement—through transportation infrastructure can help to lessen the impacts of isolation and offer interactive connectedness. Excellent roads facilitate the transfer of agricultural produce throughout rural areas, support rural transportation networks, and give merchants easier access to items for more revenue and better socioeconomic development. Nigeria is not an exception to the rule that almost all agricultural produce in the globe is enormous and soon spoils if improperly preserved (Yeboa, 2016). For the farmers to make more money, they must be moved from the location of production to the point of consumption. On the other hand, a lot of Nigerian farmers still struggle to maximize their income because of poor roads, even after making every attempt to improve their operations through loans from cooperative societies to increase agricultural output, as reported by Adeniyi et al. (2018). As a result, inadequate road networks have a significant influence on farmers. As a result, it is necessary to provide pertinent information to governmental and non-governmental organizations about the necessity of paying close attention to how to alter agricultural practices and transform the sector for the benefit of both farmers and the global economy. Therefore, this study examines how cooperative rural farmers in Lagos State's Badagry Local Government Area can reduce poverty using decent roads. It also provides answers to the following research questions: Which socioeconomic traits did cooperative rural farmers in Badagry Local Government Area possess? In the Badagry Local Government Area, what were the prevalent modes of transportation that cooperative farmers utilized? How much did cooperative rural farmers in the Badagry Local Government Area spend on the transportation of rural goods? In Badagry Local Government Area, how did rural road networks affect the cooperative farmers' efforts to reduce poverty? What was the apparent effect of the rural road network in Badagry Local Government Area on the marketing and agricultural output of cooperative rural farmers? This study focused on the Badagry Local Government Area in Lagos State and looked at how well-maintained roads could help cooperative rural farmers reduce poverty. The specific goals were to: provide an overview of the socioeconomic characteristics of cooperative rural farmers in Badagry Local Government Area; determine which modes of transportation cooperative rural farmers in Badagry Local Government Area have access to and frequently use; ascertain the means and costs of produce transportation cooperative rural farmers in Badagry Local Government Area; assess the potential impact of rural road networks on the reduction of cooperative farmers' poverty; and investigate the potential effects of rural road networks on cooperative rural farmers' agricultural productivity and marketing. Nigerians' farmers, cooperative societies, and the government would all profit from the study's conclusions. By learning how good roads help farmers overcome poverty and give them appropriate solutions to deal with the problems posed by poor rural roads, the government will gain insight from this study. Additionally, it will assist the government in

understanding why farmers receiving various poverty alleviation programs are not bragging about their earnings. Typically, agricultural products are better marketed and transported when there are decent roadways. This study will help farmers understand what obstacles their businesses face as they grow. Consequently, offering answers to the threat of poor roads. Because farmers offer food security and a larger portion of the nation's GDP, Nigerians will gain from the study. The study will force the government to develop and put into action plans that will quickly expand the road network in rural areas.

LITERATURE REVIEW

Concept and Definition of Poverty

Being the first sustainable development goal (SDG) to aim to eradicate poverty in all its forms by 2030 is a testament to the significance of poverty. One of the main obstacles to growth is poverty, which has several facets and dimensions (Ogunniyi et al., 2017). According to definitions, poverty is characterized as a condition in which individuals lack access to positive aspects of life, wellness, and a level of living that is acceptable in society. Interestingly, poverty is more common in rural areas than in urban ones. There are limited social and physical services, and a significant section of the population—nearly 80%—lives below the poverty line (Ogundipe et al., 2019; Aderounmu, 2018).

By 2019 (Kharas et al., 2018), there will be less than 600 million people worldwide living in extreme poverty, down from 767 million in 2015 (UNDP, 2016). Living in filthy, degrading conditions that are accentuated by hunger, illness, desperation, and degradation are billions of people worldwide. In 2013, the World Bank reported that 766 million people, including 385 million children, survived on less than US$ 1.90 a day, despite the remarkable progress made in the past 25 years to eradicate poverty. As estimations from 2012 showed that over 300 million people lived in poverty, it is undeniable that the problem of poverty is not limited to developing nations but is also becoming more prevalent in developed nations (UNDP, 2016). By applying the global poverty threshold of US$1.90 per person per day (World Bank, 2013) and the current (2018) ₦355.00 conversion rate to US dollars, any individual in Nigeria making less than ₦20,235.00 per month is living below the poverty line.

Both absolute and relative poverty exist, according to Raywat (2019). Making the distinction between "relative" and "absolute" poverty is crucial. Poverty is defined as falling below a threshold that is calculated from inside the population of interest in a relative measure of poverty. A person who is considered "relatively impoverished" is much less wealthy than other members of the community. For instance, it's customary to classify someone as impoverished if their income is less than 60% of the median income of the community. This idea is often referred to as "economic distance." This strategy has the benefit of guaranteeing that poverty is comprehended within the

framework of the community in which it exists. The main drawback is that a relative measure requires that at least some community members be classified as poverty, regardless of real wealth levels. Consider a country where everyone is a millionaire. Some of those millionaires will inevitably make less than 60% of the median income because of math requirements. The level of poverty known as "absolute" poverty, on the other hand, is determined by what is needed as a minimum to support a minimal standard of living. the lack of dependability. This term is consistent with the definition provided by the World Bank, which describes poverty as an intolerable denial of economic opportunity, health, nutrition, and education to people, coupled with a lack of security and empowerment (Ludi, 2022). Economics, health and social well-being are the main factors that are present in all definitions of poverty. The seven SDGs, which cover health, education, and living conditions, were compiled by Alkire and Santos (2014) as indicators of poverty.

Transport and Sustainable Agriculture for Economic Growth

Ogunsanya (2018) noted that there are three different kinds of rural routes: bush pathways, unsurfaced rural roads, and surfaced rural roads. Though the least developed of all the paths, the bush walk is extremely popular. Typically, narrow and twisting bush paths, especially during the rainy season, connect settlements with farm steads. They are occasionally overrun by weeds. In a study conducted in rural Nigeria by Filani (2018), it was found that most motorable roads are unpaved, small, and have a convoluted routing. Additionally, the bridges are in bad condition. They typically have drooping and depressions or are covered in potholes. During the wet season, when vehicles become bogged in the mud or the makeshift bridges made of chopped tree trunks are washed away by floods, these unsurfaced roads are nearly impassable.

A key component of Nigeria's sustainable development, according to Olorunfemi and Adenigbo (2017), is agricultural growth, particularly around food security. This suggests that all crops produced through agricultural endeavors will be valued and purchased at a cost that will make farmers wealthy. The writers made the point that to do this, sufficient road infrastructure for transportation services must be offered to get produce to markets. However, if this is not given, produce will inevitably go bad, and the farmers will become impoverished as a result. Sustainable development in terms of food security will be challenging to attain in Nigeria given the extent to which this continues. According to Ogunsanya (2018), the level of transportation development was predicted by the degree of rurality, according to a different study. Transportation, underdevelopment, and rurality were all investigated in this study. As Aderamo and Magaji (2020) point out, transportation is the main way that various aspects of society are connected. Traffic is the most prevalent and intricate network, according to Ajiboye and Afolayan (2019). It provides a broad range of physically convenient, highly adaptable, and typically the most operationally suitable and easily accessible means of moving people and things over short, medium, and long distances. Because roads and transportation have a favorable impact on aspects like mobility and

the adoption of high-yielding varieties, they are crucial for the sustainability of agricultural production in sub-Saharan Africa.

Rural Transport and Economy

Reducing poverty has long been a goal of development in many developing nations (Banjo et al., 2012). A minimum basket of goods and services, including transportation infrastructure, must be provided to the rural population as part of a broader agenda, with the key to accomplishing this developmental goal being increased agricultural productivity and output (World Bank, 2013). (Banjo et al., 2012). Rural transport has remained inadequate despite increases in investment since the mid-1990s, most likely because of the incredibly low levels at the beginning (Banjo et al., 2012). This has persisted as a barrier to raising rural growth and agricultural output, thereby reducing rural poverty (Banjo et al., 2012).

Among the issues facing Sub-Saharan Africa are the effectiveness of transporting and marketing agricultural products, the high cost of transportation, and the accessibility of services and infrastructure for rural transportation (Taiwo & Kumi, 2013; Hine, 2014). Inadequate investment and upkeep, together with defects in the institutional structure, are the main causes of the poor quality of rural transportation infrastructure (Hine, 2014). Increasing social welfare, promoting economic development, and reducing poverty and social isolation all depend on better rural mobility (Porter, 2013; Hine, 2014). According to Carruthers et al. (2009), insufficient rural transportation reduces the possibility for trade within and between rural areas, raises production and distribution costs, and decreases the profit margin on produce sales, thus, resulting to inefficient rural transportation.

Dorosh et.al. (2010) posited that investing in rural transport can enhance a nation's economy by stimulating agricultural operations. Enhanced rural transportation enhances the transportation of agricultural products to the market, increases the availability of extension services, and improves the accessibility of agricultural inputs like fertilizers and seeds (Dorosh et al., 2010; Airey, 2014; Limi et al., 2015; Stifel et al., 2016). The ultimate result is a rise in agricultural production and productivity (Banjo et al., 2012). Establishing dependable transportation services in rural areas that connect farmers to markets is essential for maximizing the benefits of increased agricultural production in those areas (Njenga et al., 2014).

Theoretical Review

Narrative Transportation Theory

The research design in this study was based on the narrative transportation theory. Transportation theory focuses on the process of people becoming fully engaged in narrative content and the resulting impact of this immersive experience. In recent times, numerous scholars have displayed

a keen interest in narrative theory owing to its profound influence on individuals' views and attitudes. An allegory in the shape of a voyage to elucidate the procedure of transportation: An individual, referred to as 'the traveler', is conveyed from one place to another using a specific mode of transportation, because of carrying out specific behaviors (Olagunju, 2022). The traveler ventures a considerable distance away from their original realm, rendering certain elements of their original realm unattainable. The wanderer returns to the realm of origin, somewhat transformed by the journey (Green & Sestir, 2017). A topic of special attention has been the "change" that happens during the transportation experience; this effect has been perceived as a way to affect the farmer's perceptions and attitudes regarding the actual income generated (Price, 2017). This theory's implication is the expense of transportation, which can either positively or negatively impact travelers' income.

Empirical Review

Olagunju (2022) investigated how local farmers' incomes are impacted by the characteristics of rural transportation networks. Farmers growing arable crops in Ondo State, Nigeria's Ilaje local government area participated in the study. Using a two-stage random selection technique, information was gathered through structured interviews with 120 farmers in rural villages throughout the local government. The data were analyzed using both descriptive and inferential statistics, including Pearson Product Moment Correlation (PPMC) and chi-square. The study found that farmers' revenue is negatively impacted by the inadequate quality of their transportation networks. Farmers' income was positively impacted by their marriage status and gender. Furthermore, a moderate and substantial link was found between the perceived benefits of rural transportation, the transportation systems that were employed, and the farmers' income from agricultural activities. The results have shown that the serious constraint faced by the farmers is the high cost of transportation which has a great influence on their generated income. The study concludes that the nature of transportation networks available in the communities under study has a significant impact on the level of income to be realized by farmers.

The current agricultural issues and international cooperation initiatives in Cameroon were described by (Bamenju et al., 2022). To determine if agricultural projects have helped beneficiaries' income and other multidimensional poverty indicators, a social inquiry involving the collecting of qualitative and quantitative data was carried out. The authors of the report offered helpful suggestions for resolving the issue of poverty and completing the SDGs. The investigation showed that the income, well-being, and standard of life of project recipients have increased dramatically because of agriculture programs. African nations, like Cameroon, are unable to sustain consistent crop output now, thus they must improve the agricultural sector to combat poverty. Enhancing crop yields, incomes, and quality of life can be achieved through international collaboration in the agriculture industry.

Abdulai (2022) assessed the obstacles to farmers in the northern region reducing poverty. Data from a survey of 420 farmers from five randomly chosen districts in the area were used in the study. A multi-stage sample procedure was utilized, and important informants were subjected to in-depth interviews. The data were analyzed using descriptive statistics and Kendal's coefficient of concordance. The study shows that several obstacles impede the country's efforts to reduce poverty in the north. Among the main obstacles are unpredictable weather patterns, insufficient credit, a poor road system, unstable agricultural markets, wildfires, pest and disease outbreaks, a lack of job opportunities, violent conflicts, corruption, and improper handling of poverty alleviation initiatives.

RESEARCH METHODOLOGY

The study area was Badagry Local Government Area, Lagos State. Badagry, also known as Gbadagri, is a coastal town and the Local Government Area situated on the South-west coast of Nigeria. It is the second largest town in Lagos State. It is surrounded by lakes, creeks or runlets, and island, which makes beaches and resorts one of the major attractions of the ancient town, bordered by the Gulf of Guinea to the south, along the bank of inland lagoons and creeks. The waterways are navigable to Lagos and Port Novo. The LGA covers an area of $441m^2$ with coordinates $6^o25'$N Latitude and $2^o53'$E Longitude. The Badagry LGA is one of the communities covered under the ABP, because of the thriving smallholder rice farms (Nwoke, 2016). The sample for the study comprises 120 cooperative rural farmers in Badagry Local Government Area. Two-stage sampling techniques were used to select respondents. In the first stage, four farming communities; Ibereko, Oke oko, Ajara, and Gbaji, were selected from the LGA because they are prominent for farming communities in Badagry. In the second stage, random selection of one (1) rural farmer's cooperative society from each of the communities in stage one were selected and 30 cooperative farmers were selected from stage two. In all, a total of one hundred and twenty (120) cooperative rural farmers were randomly selected from the four communities.

Both primary and secondary sources of data were used. Primary data was obtained by using a structured questionnaire while secondary data was collected from the available literature. The questionnaire was on rural farmers' socioeconomic characteristics, social network variables, farm-specific variables, and production activities (inputs and total output and their respective prices) elucidated by the farmers. The respondent's perception was based on the statement rated on a five-point Likert scale of Strongly Agree (SA), 4 points for Agree (A), 3 points for Undecided (U), 2 points for Disagree (D) and 1 point for Strongly Disagree (SD). Descriptive and inferential statistical tools were used for the analysis of data. Descriptive statistics such as frequency count and percentage were used to analyze demographic data such as age, gender, education, income,

occupation, and family size and regression analysis. The Logit regression models were specified below:

$$Y = \beta_0 + \beta_1 + X_1 + \beta_2 + X_2 + \beta_3 + X_3 + + \beta_4 + X_4 + \beta_5 + X_5 + \beta_6 + X_6 + \mu$$

Where:

Y is the dependent variable (Poor = 1, otherwise = 0),

X_1 = Availability of rural road network (Available = 1, otherwise = 0)

X_2 = Mode of transportation (Land = 1, otherwise = 0)

X_3 = Monthly cost of transportation (₦)

X_4 = Condition of road (bad = 1, otherwise = 0)

X_5 = Accessibility of road (access = 1, otherwise = 0)

X_6 = Quality of road (Good = 1, otherwise = 0)

β_0 is the intercept of the regression line which measures the value of the independent as all independent indicators are held constant

Socio-Economic Characteristics of Cooperative Rural Farmers

Table 1 presents the socio-economic characteristics of cooperative rural farmers. It provided valuable insights into various variables related to the sampled farmers' demographics, occupations, access to resources, and experiences. 23.3% of the cooperative sampled farmers had a household size between 1 and 3 with 5 mean households, 46.7% had a household size between 4 and 6, 22.5% had a household size between 7 and 9, and 7.5% had a household size above 9. 57.5% of the farmers were male, while 42.5% were female. 14.2% of farmers were below 30 years and mean age of 35 years, 27.5% were in the 30 and 39 age group, 42.5% were aged between 40 and 49, and 15.8% were between 50 and 59. This implies the farmers were in the active age but were hindered in income through bad roads. Almost all surveyed farmers, accounting for 98.3%, are engaged in farming as their primary occupation. However, there are also 1.7% of farmers who had occupations other than farming, and the educational background of farmers varies. Approximately 10.0% had no formal education, 45.0% had completed primary education, 39.2% had obtained secondary education, and 5.8% possessed a diploma or higher certification. It also showed that the farmers' experience in farming also varies. Around 38.3% had between 1 and 10 years of farming experience, 43.3% had between 10 and 20 years of experience, and 18.3% had farming experience between 20 and 30 years with a mean age of 11 years. 86.7% considered farming their major

occupation. 30.0% had secondary occupations alongside farming. 98.3% had access to telecommunication services while electricity was 97.5%. Facilities were available to only 22.5% of the farmers. 35.0% had access to pipe-borne water, while 70.0% had access to a post office.

Table 1: Distribution of Respondents by their Socio-Economic Characteristic (n=120)

Variables	Categories	Frequency	Percentage	Mean
Household Size	≤ 3	28	23.3	
	4 – 6	56	46.7	5 households
	7 – 9	27	22.5	
	≥ 9	9	7.5	
Gender	Male	69	57.5	
	Female	51	42.5	
Age (Year)	Below 30	17	14.2	35years
	31 – 39	33	27.5	
	41 – 49	51	42.5	
	51 – 59	19	15.8	
Occupation	Farming	118	98.3	
	Others	2	1.7	
Education	No Formal Education	12	10.0	
	Primary	54	45.0	
	Secondary	47	39.2	
	Diploma/Nigeria Certificate or Higher National Diploma	7	5.8	
Farming Experience	1 – 10 years	46	38.3	
	10 -20 years	52	43.3	11years
	20 -30 years	22	18.3	
Major Occupation	Yes	104	86.7	
	No	16	13.3	
Secondary Occupation	Yes	36	30.0	
	No	84	70.0	
Access to Telecommunication	Yes	118	98.3	
	No	2	1.7	
Availability of Infrastructural facilities	Yes	27	22.5	
	No	93	77.5	
Availability of Pipe borne water	Yes	42	35.0	
	No	78	65.0	
Access to Electricity	Yes	117	97.5	

	No	3	2.5	
Access to Post Office	Yes	84	70.0	
	No	36	30.0	
Access to Bank	Yes	83	69.2	
	No	37	30.8	
Availability of market stalls, warehouses and agro-process machines	Many	5	4.2	
	Few	80	66.7	
	Moderate	35	29.2	
Negative Effect of Education on farmers	Yes	88	73.3	
	No	32	26.7	
Access to extension agent	Yes	31	25.8	
	No	89	74.2	
Percentage access to electricity (%)	100 – 80	5	4.2	
	60 – 41	86	71.7	
	40 – 20	29	24.2	1.0250
Rate of Income	Low	118	98.3	
	High	2	1.7	
Availability of health center	Yes	113	94.2	
	No	7	5.8	
Adequacy of health center facilities	Yes	31	25.8	
	No	89	74.2	
Membership of Cooperative	Yes	120	100.0	
Type of farming	Fish Farm	2	1.7	
	Poultry Farming	19	15.8	
	Crop Farming	99	82.5	
Average profit realize in business	₦15,000 - ₦30,000	45	37.5	
	₦30,001 - ₦45,000	63	52.5	
	₦45,001 - ₦60,000	11	9.2	₦48,000
	₦60,001 and above	1	0.8	
	Total	120	100.0	

Source: Field Survey, 2023

As shown above, 69.2% of farmers had access to banking services, and 94.2% had access to a health center. However, 25.8% of farmers considered health center facilities adequate. Most farmers, 82.5% were engaged in crop farming, while 15.0% involved in poultry farming and fish farming is 1.7%. 98.3% of farmers reported to have low income, while 1.7% indicated high income. Additionally, the average profit realized in business varies, 37.5% of cooperative farmers earned between ₦15,000 and ₦30,000, 52.5% earned between ₦30,001 and ₦45,000, 9.2% earned between ₦45,001 and ₦60,000, and negligible percentage earned 60,001 and above.

Mode of transportation networks available and widely used by cooperative farmers in Badagry Local Government Area

Table 2 presents information on the availability of transportation networks and their usage among the sampled rural cooperative farmers. 20.8% had access to tarred roads, while 79.2% relied on untarred roads for transportation. 75.0% of the farmers had access to roads, while 25.0% did not. 2.5% of farmers relied on foot and bicycles, 7.5% used motorcycles, 84.2% used vehicles, and 5.8% used boats and canoes for transportation. These findings highlight the availability and utilization of transportation networks among the sampled cooperative farmers. Most of the roads they used were untarred, and a significant percentage had access to road networks. The most common mode of transportation for farm produce is by using vehicles, followed by motorcycles, boats, and canoes, with only a small proportion relying on foot or bicycles.

Table 2 Distribution of the availability of transportation network and usage

Variable	Category	Frequency	Percentage
Condition of Road	Tarred	25	20.8
	Untarred	95	79.2
Road Accessibility	Yes	90	75.0
	No	30	25.0
Mode of transportation for farm produce	Foot or Bicycle	3	2.5
	Motorcycle	9	7.5
	Vehicle	101	84.2
	Boat or Canoe	7	5.8
	Total	120	100.0

Source: Field Survey, 2023.

Means and cost of transportation of cooperative rural farmers

Table 3 provides information on the means and cost of transportation among cooperative rural farmers. 28.3% had a per capita expenditure on transportation below ₦20,001, 42.5% had an expenditure between ₦20,001 and ₦40,000, and 29.2% had an expenditure between ₦40,001 and ₦60,000. In

terms of the monthly cost of transportation, 2.5% of farmers spent between ₦2,000 and ₦4,000, 20.8% spent between ₦4,001 and ₦5,000, and the majority accounting for 76.7% spent above ₦5,000. 2.5% of farmers used foot or bicycles, 7.5% used motorcycles, 84.2% used vehicles, and 5.8% used boats or canoes. Per capita expenditure on transportation varies, with a significant portion falling within the range of ₦20,001 to ₦40,000. The monthly cost of transportation is predominantly above ₦5,000 for the majority of farmers. Vehicles are the most commonly used means of transportation for farm produce, followed by motorcycles, boats/canoes, and a small proportion relying on foot or bicycles.

Table 3: Distribution of the means and cost of transportation of cooperative rural farmers

Variable	Category	Frequency	Percentage	Mean
Per capita expenditure on transportation (₦)	≤ ₦20,000	34	28.3	
	₦20,001 - ₦40,000	51	42.5	
	₦40,001 - ₦60,000	35	29.2	₦45,001
Monthly Cost of Transportation (₦)	₦2000 – ₦4000	3	2.5	
	₦4001 – ₦5000	25	20.8	
	≥ 5001	92	76.7	₦5000
Means of transportation of farm produce	Foot or Bicycle	3	2.5	
	Motorcycle	9	7.5	
	Vehicle	101	84.2	
	Boat or Canoe	7	5.8	
	Total	120	100.0	

Influence of rural roads networks on poverty alleviation of cooperative farmers in Badagry Local Government Area

The statistical examination of how rural road networks affect cooperative rural farmers' efforts to reduce poverty is shown in Table 4. The low t-value (0.037) and p-value (0.398) of the variable "Mode of Transportation" reflect a non-significant link with poverty alleviation. Although the specific variable did not significantly affect the reduction of poverty, the model was statistically significant, as indicated by the F-value of 3.755. The t-value (-0.066) and p-value (0.160) for the variable "Monthly cost of transportation" show a non-significant link with reducing poverty. There was no statistically significant link. The low t-value (-0.003) and high p-value (0.956) of the variable "Condition of the road" suggest that there is no meaningful link between them and the reduction of poverty. The reduction of poverty was not statistically affected by the state of the

road. The variable "Road accessibility" demonstrates a strong positive correlation with reducing poverty. It was evident from the low p-value (0.000) and high t-value (0.204) that road accessibility significantly affected cooperative rural farmers' efforts to reduce poverty. The t-value (-0.015) and p-value (0.667) for the variable "Quality of transportation" show a non-significant relationship with reducing poverty. The reduction of poverty is not statistically significantly impacted by the quality of transportation. Road accessibility significantly improved cooperative rural farmers' ability to reduce poverty. However, the mode of transportation, monthly cost of transportation, condition of road, and quality of transportation do not show a significant relationship with poverty alleviation. In general, when the entire variable was input in the model, there was a significant influence of rural roads networks on poverty alleviation of cooperative farmers'

Table 4: Influence of rural roads networks on poverty alleviation of cooperative rural farmers

Variables	B	T	P	F	Sig.
Mode of Transportation	0.0370	0.848	0.398	3.755	0.003
Monthly cost of transportation	-0.0660	-1.414	0.160		
Condition of road	-0.0030	-0.055	0.956		
Road accessibility	0.2040	3.611	0.000		
Quality of transportation	-0.0150	-0.432	0.667		
a. Dependent Variable: Poverty Alleviation					

Apparent impact of rural road network on agricultural productivity and marketing of cooperative rural farmers in Badagry Local Government Area

The statistical analysis of how rural road networks affect cooperative rural farmers' agricultural productivity and marketing is shown in Table 5. The t-value (-0.331) and high p-value (0.742) for the variable "Mode of Transportation" indicate that there is no significant relationship between the variable and marketing and agricultural productivity. A statistically significant overall model was indicated by the F-value of 26.490; however, the specific variable did not significantly affect marketing or agricultural productivity. The t-value (-1.204) and p-value (0.231) for the variable "Monthly cost of transportation" show a non-significant relationship with agricultural productivity and marketing. There is no statistically significant relationship.

The t-value (-0.878) and p-value (0.382) for the variable "Condition of the road" indicate a non-significant relationship between agricultural productivity and marketing. Agricultural productivity and marketing were not statistically significantly impacted by road conditions. The variables "Road accessibility" and agricultural productivity and marketing have a strong positive correlation. Road accessibility had a significant impact on agricultural productivity and marketing among cooperative rural farmers, as evidenced by the high t-value (5.321) and low p-value (0.000). Marketing and agricultural productivity have a strong positive correlation with the "Quality of transportation"

variable. The low p-value (0.000) and high t-value (6.881) suggest that among cooperative rural farmers, the quality of transportation has a major effect on agricultural productivity and marketing. Among cooperative rural farmers, road accessibility and the standard of transportation significantly improved agricultural productivity and marketing. However, there was no discernible correlation between agricultural productivity and marketing and the mode of transportation or the monthly cost of transportation. The rural road network has a big influence on rural cooperative farmers' marketing and agricultural productivity.

Table 5: Effect of rural road network on agricultural productivity and marketing of cooperative rural farmers

Variables	B	t	P	F	Sig.
Mode of Transportation	-0.02610	-0.331	0.742		
Monthly cost of transportation	-1.0220	-1.204	0.231		
Condition of road	-0.9290	-0.878	0.382	26.490	0.000
Road accessibility	5.4980	5.321	0.000		
Quality of transportation	4.4820	6.881	0.000		
a. Dependent Variable: Agricultural Productivity and Marketing					

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Understanding the socioeconomic traits of the cooperative rural farmers sampled is made possible by this study. Factors including the size of the household, age, gender, and occupation are included. Other factors include education, prior farming experience, access to facilities and services, and cooperative membership. The majority of Six to seven people made up 46.7% of the sampled farmers' households, while one to three people made up 23.3%. Of the farmers, 42.5% were women and 57.5% were men. Of them, 42.5% fell between the ages of 40 and 49, and 27.5% fell between the ages of 30 and 39. 39.2% of people had completed secondary school, compared to 45.0% who had only completed elementary school. In addition, the study offered data on prior farming experience, cooperative membership, and availability of infrastructure and services (such as banks, telephones, electricity, and post offices). With regard to the sampled farmers' demographics, educational backgrounds, occupational profiles, and accessibility to different services and support networks, these socioeconomic factors provided a thorough picture. The majority Twenty.8% of the farmers' roads were paved, compared to 79.2% of unpaved ones. Of them, 25.0% lacked access to roads, whereas 75.0% did. 84.2% of the cooperative farmers in the sample stated that using a car was their preferred form of transportation, followed by walking or bicycling (2.5%), motorcycling (7.5%), and canoes or boats (5.8%). Road types and modes of transportation were revealed by observing the availability and usage patterns of transportation networks among cooperative rural farmers. To transport their agricultural products, they mainly depended on automobiles. Regarding the means and cost of transportation for cooperative rural farmers, which

takes into account factors like monthly transportation costs, per capita transportation expenditures, and the modes of transportation utilized for farm produce. Within these variables, the frequencies and percentages are given for every category. Of the farmers in the sample, 28.3% spent less than N20,000 per person on transportation, and 42.5% spent between N20,000 and N40,000. The majority of farmers—76.7%—spent more than N5,000. Vehicles accounted for 84.2% of the common modes of transportation used for farm produce, with motorcycles coming in second at 7.5%, boats or canoes at 5.8%, and bicycles or foot at 2.5%. The outcomes showed how various variables relate to one another and what effect they have. According to the regression analysis, reducing poverty is significantly aided by road accessibility. The high t-value (3.611) and low p-value (0.000), which show a strong and statistically significant relationship, make this clear. Farmers are more likely to see improvements in their financial circumstances and a decline in poverty rates if they have better access to roads. Furthermore, there is no discernible relationship between poverty alleviation and variables like the mode of transportation, monthly cost of transportation, road conditions, and transportation quality. These variables have small regression coefficients, and their t- and p-values indicate that they are not very important in lowering poverty among rural cooperative farmers. The relationship between the variables and how they affect marketing and agricultural productivity are shown by the regression analysis. The findings show that road accessibility and transportation quality significantly boost agricultural marketing and productivity. A substantial and statistically significant relationship is suggested by the low p-values (both 0.000) and high t-values (5.321 for road accessibility and 6.881 for quality of transportation). This suggests that farmers are more likely to see improvements in agricultural productivity and marketing opportunities if they have better access to roads and higher-quality transportation services.

Nevertheless, there is no discernible relationship between the factors of road condition, transportation mode, and monthly cost of transportation and agricultural productivity and marketing. These variables have small regression coefficients, and their t- and p-values show that they have little effect in this situation. These results highlight how important it is for rural farming communities to have well-developed road networks and transportation services in order to improve their economic standing and agricultural results. The study offers insightful information about how rural road networks affect marketing among cooperative rural farmers, agricultural productivity, and poverty alleviation. It demonstrates that reducing poverty is significantly aided by road accessibility. This implies that enhancing road accessibility may help lower rural farmers' rates of poverty. Nevertheless, other elements like the kind of transportation, the monthly cost of transportation, the state of the roads, and the caliber of transportation do not appear to have a major impact on reducing poverty. However, the study also emphasizes how crucial it is to have good transportation and road accessibility in order to increase agricultural marketing and productivity. Increased agricultural productivity and better marketing opportunities are more likely to be experienced by farmers with better access to roads and transportation services. These findings highlight the importance of well-developed road networks and transportation services in rural

areas. Improving road accessibility and ensuring the provision of high-quality transportation can have a positive impact on both poverty alleviation and agricultural outcomes for cooperative rural farmers. As a result, policymakers and stakeholders should prioritize investments in rural road infrastructure with the goal of enhancing road accessibility and improving the quality of transportation services. On the other hand, the mode of transportation, monthly cost of transportation, and condition of the road do not significantly impact agricultural productivity and marketing. They can ultimately help cooperative rural farmers and advance sustainable rural development by doing this, which will also increase agricultural productivity and ease the marketing of agricultural products. Improve road infrastructure: Enhancing road accessibility is crucial for poverty alleviation, agricultural productivity, and marketing. Governments and relevant authorities should invest in improving rural road networks by constructing and maintaining well-paved roads. This will facilitate easier transportation of agricultural produce, reduce transportation costs, and increase market access for cooperative rural farmers. The study's conclusions allow for the following recommendations to be made:

1. Boost Road Connectivity: Efforts should be made to guarantee greater road connectivity in addition to enhancing road infrastructure. This entails establishing connections between rural areas and important processing, transportation, and market hubs. Farmers will have better market opportunities and be able to reach a larger spectrum of buyers thanks to it.
2. Invest in Transportation Services: It is imperative to make transportation service investments in addition to road improvements. Particularly in places with poor access to roads, governments and organizations ought to encourage the availability of dependable and reasonably priced transportation options like cars, motorbikes, and boats/canoes. By making it easier for agricultural products to be transported from rural to urban areas, this will lower post-harvest losses and boost farmer income.

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