

Effects of Market Access on Food Security of Rural Farming Households in Yewa Division of Ogun State

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Abstract

Food insecurity remains a major challenge among rural farming households in Nigeria, with poor access to markets as a key driver. This study examined the effect of market access on the food security of rural farmers in Yewa Division of Ogun State, Nigeria. It assessed how market-related factors influence the ability of farming households to consistently access sufficient and nutritious food. Primary data were collected from 110 farming households using a multistage sampling technique. The Market Access Index (MAI) was used to measure the level of market access, while the Food Security Index (FSI) was used to determine households' food security status. A logistic regression model was applied to examine its effect on household food security. The MAI results showed that most households (51.8%) had a medium level of market access, 28.2% had high access, and 20.0% had low access. The FSI findings showed that 55.45% of the households were food secure, while 44.55% were food insecure. The regression results indicate that the age of the household head has a negative effect on food security (odds ratio ≈ 0.54 , $p < 0.10$), implying that older farmers are less likely to be food secure. Education has a positive impact (odds ratio ≈ 1.18 , $p < 0.01$), with each extra year of schooling raising the odds of food security. Physical market access also shows a strong positive effect (odds ratio ≈ 1.37 , $p < 0.01$), suggesting that better roads, shorter distances to markets, and access to storage facilities increase the odds of food security. Institutional access (odds ratio ≈ 1.11 , $p < 0.10$) further supports this. The study concludes that improved market access and education enhance food security and recommends greater investment in rural infrastructure and farmer support services.

Keywords: Rural livelihoods, Market proximity, Food adequacy, Logit model, Ogun state

1.0 Introduction

Access to markets is central to the long-term economic survival of rural farming households. It shapes how easily farmers can sell their produce, obtain farm inputs, and earn regular income, all of which affect their livelihoods (Tadesse and Shively, 2019). When market access is good, farmers are better able to increase sales, negotiate better prices, and reinvest in their farms, which strengthens their financial position. Poor market access, by contrast, constrains agricultural growth, limits farmers' involvement in trade, and continues to trap many rural households in poverty.

Food security remains one of the major challenges of the twenty-first century, particularly in developing countries. The Food and Agriculture Organization (FAO, 2013) defines food security as a situation in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. This multidimensional concept is anchored on four pillars: availability, access, utilization, and stability. Availability refers to the physical presence of food, access relates to having the resources to obtain food, utilization involves the body's ability to use the nutrients in the food and stability is concerns with the consistency of the other three dimensions over time (FAO, 2018).

Despite global efforts to improve food supply and distribution, food insecurity continues to be widespread, especially in Sub-Saharan Africa. Reports from the African Food Security Briefs indicate that nearly one in three people in the region is undernourished (Akerle *et al.*, 2013). In Nigeria, persistent food insecurity has contributed to high levels of malnutrition, increased vulnerability, and recurring social unrest (Behnassi *et al.*, 2013). These highlight the need for a clearer understanding of the factors that limit rural households' ability to secure adequate food.

Food insecurity arises from a range of factors, including competition for inadequate resources, rapid climate change and population growth. Despite being highly vulnerable to food insecurity, rural farming households in Nigeria continue to play a vital role in the country's agricultural economy. Most households cultivate crops mainly for their own consumption, selling only small surpluses in local markets (Ekwere *et al.*, 2023; Ogunyemi, 2019). In many rural communities, including Yewa Division in Ogun State, farmers often find it difficult to take part fully in market activities. Poor road conditions, the high cost of transport, and a lack of reliable market information make it hard for them to move and sell their produce. As a result, their chances of earning a steady income are reduced, and this can affect their ability to provide enough and varied food for their households.

Market access is not only an economic matter; it also plays an important role in the food security of farming households. Earlier studies show that households that can easily reach markets often earn more income, eat better, and have a wider variety of food in their diets (Awotide *et al.*, 2021). On the other hand, farmers who live in remote areas often find it difficult to sell their produce, obtain farm inputs, or adjust when market conditions change. This situation can leave many of them struggling with poverty and food shortages (Ogundele and Olayemi, 2022). The influence of market access on food security can also differ from one place to another, depending on the condition of infrastructure, the support provided by institutions, and the general socio-economic situation in the area.

Empirical research has shown that market access has a major impact on household food security in rural Nigeria and throughout Sub-Saharan Africa. Farmers' ability to sell their produce and obtain supplies is hampered by inadequate rural infrastructure, especially feeder roads and

transportation, which results in post-harvest losses and lower income. Evidence from Nigeria shows that upgrading rural roads lowers transaction costs, reduces waste, and stabilises earnings, all of which increase food security (Adelaja *et al.*, 2021; FAO, 2018). Similarly, Koppmair *et al.* (2016) discovered in Malawi that market involvement boosted nutritional diversity and food accessibility, while Mutea *et al.* (2020) showed in Kenya that farmer group engagement increased income stability and access to nutritious foods.

This study is built on the idea that making it easier for farmers to reach markets can help reduce poverty and improve food security. When farmers can get their produce to markets, they can sell at better prices, earn money from different sources, and handle problems like bad seasons or sudden price changes better (Ogunniyi *et al.*, 2021).

Although the relationship between market access and food security has been widely studied in Nigeria, most existing studies focus on national or regional data. There is limited empirical evidence on how market access affects the food security of rural farming households at the local level, particularly in border agricultural regions such as Yewa Division of Ogun State.

Yewa Division is an important agricultural area where many farmers rely heavily on local markets and cross-border trade for their livelihoods. However, farmers in the area continue to face several challenges, including poor road infrastructure, high transportation costs, and limited access to reliable market information. These constraints may affect their ability to sell produce, earn stable income, and maintain adequate household food supply. Understanding these conditions is important for developing policies that can improve rural livelihoods and strengthen food security.

Even though the link between market access and food security has been widely examined, there is still very little evidence showing how this relationship plays out specifically in Yewa Division of Ogun State. This lack of location-specific evidence creates a gap in the existing literature.

This study therefore seeks to fill this gap by examining the relationship between market access and the food security of rural farming households in Yewa Division, Ogun State. Specifically, the study addresses the following questions:

- i. To what extent do rural farming households in Yewa Division have access to markets?
- ii. What is the food security status of the rural farming households in the study area?
- iii. What effect does market access have on household food security outcomes?

2 Methodology

2.1 Sampling and Data Collection

The study was conducted in Yewa Division of Ogun State in southwestern Nigeria. 110 respondents were selected for the study using a multistage sampling technique based on the blocks and circles of the Ogun State Agricultural Development Program (OGADEP). The first stage involved selection of Ilaro Zone, being the only OGADEP agricultural zone in Yewa division. In the second stage, 4 blocks within Ilaro zone namely Imeko, Sawonjo, Oke Odan, and Ado Odo were selected. The third stage involved the proportional selection of 11 circles from the 4 blocks within Ilaro zone to ensure fair representation based on their sizes. Specifically, 2

circles were selected from Imeko Block, while 3 circles were selected from each of Sawonjo, Oke Odan, and Ado Odo Blocks. The fourth stage, which is also the final stage involved random selection of 10 farming households from each of the 11 circles, thus giving a total of 110 respondents that will be selected and interviewed for the study. Table 1 gives a clear summary of the stages followed in selecting the respondents.

Table 2.1: OGADEP Blocks and Circles in Ilaro Zone

Senatorial District	Zone	Block	No. of Circles per Block	Name of Circles
Ogun West (Yewa division)	Ilaro	Imeko	6	Imeko, Aiyetoro, Sala, Idofa, Agboro, Idi-Ayin
		Sawonjo	8	Sawonjo, Imasayi, Ibese, igbogila, Igan-Alade, Ohunbe, Ijoun, Oja-Odan
		Oke-Odan	8	Oke-Odan, Ipokia, Ihunbo, Alari, Ifoyintedo, Ipaja, Ilase, Agosasa
		Ado-Odo	8	Ado-Odo, Ilaro, Iwoye, Owode, Ere, Agbara, Idolehin, Igbesa

2.2 Measurement of Key Variables

2.2.1 Market Access

Market access was measured using a composite Market Access Index (MAI), designed to capture the different ways farmers are connected to markets. Ten indicators were used, grouped into three main dimensions:

- i. **Physical access:** This included access to all-weather roads, the distance from the farm to the nearest road and to the nearest market, and the availability of a functional storage facility.
- ii. **Economic access:** This covered transportation costs, market fees, and the income earned from sales.
- iii. **Institutional access:** Access to cooperatives or farmers' associations, marketing funding availability, and buyers/aggregators.

The weighting structure of the MAI (40–30–30) was determined based on the relative importance of each dimension in influencing farmers' participation in markets as commonly reported in rural market access studies. Physical access was assigned the highest weight (40%) because road infrastructure and distance to markets largely determine farmers' ability to transport produce. Economic access and institutional access were assigned weights of 30% each because both dimensions influence farmers' capacity to engage in market transactions and secure reliable buyers.

Each indicator was first normalised to ensure comparability across variables measured on different scales. The weighted indicators were then aggregated to generate a composite MAI score ranging from 0 to 100. Based on the resulting scores, farmers were categorised into three

levels of market access: low access (MAI < 40), medium access (MAI = 40–69), and high access (MAI ≥ 70).

In this study, we chose to use a composite index rather than single measures such as distance to the nearest market. Research shows that market access is a multidimensional concept that cannot be fully captured by a single variable. For instance, Chamberlin and Jayne (2013) found that relying only on distance can give a misleading picture, as smallholders often experience very different conditions across transport, infrastructure, and services.

Because of these variations, many researchers in agricultural and rural studies have developed composite indices that combine multiple indicators of market access into a single measure. These composite measures help to reflect physical, economic and institutional aspects of how farmers actually reach and use markets (Makate *et al.*, 2024). Following this approach, our MAI combines ten indicators to provide a more realistic picture about farmers' access to markets than any single measure could achieve.

2.2.2 Household Food Security Measurement

Household food security was measured using a Food Security Index (FSI). The index combines key indicators, including food expenditure, dietary diversity, and frequency of food consumption, into a single score. Each indicator was assigned a weight and normalised to produce values between 0 and 1. The FSI was calculated using the formula:

$$FSI = \frac{\sum(W_i \times X_i)}{T}$$

.....Equation 2.1

Where:

W_i = weight assigned to each food security variable,

X_i = observed value of each variable for the household,

T = total possible score, ensuring normalization of the index between 0 and 1.

Households were classified as food secure or food insecure using the mean FSI as the cut-off point.

2.2.3 Analytical Techniques

Both descriptive and econometric methods were used to analyse the data. Household socioeconomic characteristics and levels of market access were analysed using descriptive statistics such as means and percentages. A binary logistic regression model, following the approach of Abegaz (2017) was used to examine the effect of market access on household food security. The model is specified as:

$$\text{Logit}(P_i) = \ln\left(\frac{P_i}{1 - P_i}\right) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \omega_i$$

.....Equation 2.2

Where:

P_i = Probability that household i is food secure.

Y = Food security status (1 = Food secure, 0 = Food insecure)

A Food Security Index (FSI) ranging from 0 to 1 was constructed by normalising and weighting key food security indicators. Using the mean FSI as the cut-off, households were classified as either food secure or food insecure.

β_o is the intercept,

β_i shows the estimated coefficients of the explanatory variables

X_1 = Household head Age (in years)

X_2 = Education (in years)

X_3 = Household size (in numbers)

X_4 = Monthly income (in Naira)

X_5 = Physical Market Access Index (Score **0–40**, based on indicators such as all-weather road access, distance to road, distance to market, functional storage facility.

X_6 = Economic Market Access Index (Score **0–30**, based on transport affordability, market charges affordability, fairness of selling prices.

X_7 = Institutional Market Access Index (Score **0–30**, based on access to buyers/aggregators, marketing finance availability, cooperative networks).

X_8 = Crop diversity (No of distinct crops grown)

ω_i = the error term.

The logistic regression produces odds ratios that show how changes in these factors influence the probability of a household being food secure. This allows the study to identify the main determinants of food security and measure their relative effects.

3. Results and Discussion

3.1 Socioeconomic distribution of the respondents

The results of socioeconomic characteristics of the respondents as revealed in Table 3.1 showed that majority of the respondents (45.5%) were middle-aged, falling between the age bracket of 41 and 50 years with the mean age of 47.4 years. This suggests that majority of the respondents are in their working prime age. The distribution of marital status showed that most of the respondents (85.5%) were married, this suggest that family labour was available and could be mobilised for farming activities when needed.

The study revealed that majority of the respondents (59.1%) had completed secondary school, with an average of 11 years of formal education. This shows that most farming households in the area can read, write, and handle basic information. Such education helps them understand extension advice, try out new farming methods, keep simple records, and manage money. It also makes it easier for farmers to take part in markets, negotiate prices, and understand rules or policies that affect farming.

The findings also showed that more than half of the households (56.4%) had between 5 and 8 members, with an average of 5 people per household, which is similar to the finding of Antia-

Obong *et al.*, (2021). This finding suggests that these households have enough family labour to support smallholder farming, which often depends on manual work for tasks like harvesting, weeding, and preparing the land.

The distribution of respondents by gender showed that 70% were men. Most of them (67.3%) had between 10 and 15 years of active farming experience, with an average of 10.68 years. Farmers with this level of experience are usually better able to understand local market trends, seasonal price changes, and the available marketing channels, which helps them get better prices and find profitable outlets for their produce.

The study further revealed that most of the respondents (97.3%) has their farms less than 5 km from the nearest road, with an average distance of 2.62 km. However, many of these roads are in poor condition and cannot be used by vehicles which makes it difficult for farmers to transport their produce. Similarly, most respondents (93.6%) revealed that their farms were between 5 and 10 km from the nearest market, with an average distance of 5.02 km. While this may not seem far, the poor condition of the available roads makes it difficult for farmers to transport their produce. Many of them rely on head-loading, bicycles, or hired motorcycles, which increase the transportation costs, limits the amount they can carry at once, and discourages regular trips to the market.

Table 3.1: Socio Economic Characteristics of the Respondents

Characteristics	Dominant Indicators	Mean Value
Age	45.5% between 41–50	47.4
Sex	70% male	-
Marital status	85.5% married	-
Household income	29.1% between ₦50,001 to ₦100,000	₦61,180.85
Education	59.1% had secondary education	-
Household size	56.4% between 6-8 member	6 people
Years of experience in farming	67.3% between 10-15 years	12 years
Farm distance to nearest road	97.3% with less than 5KM road distance from farm	2.62 KM
Market distance from farm	93.6% with 5-10KM market distance from Farm	5.02 KM

Source: Field Survey, 2025

3.2 Assessment of the Level of Market Access

A composite Market Access Index (MAI) was developed to measure the level of market access among farming households in the study area. In this study, market access is grouped into three main dimensions, as shown in Table 3.2: (i) physical market access, (ii) economic market access, and (iii) institutional market access. These dimensions were measured using 10 specific indicators.

The physical market access dimension includes all-weather road access, farm distance to the nearest road, farm distance to the nearest market, and the availability of functional storage facilities. The economic market access dimension is captured through transport affordability, market charges affordability, and the fairness of selling prices received. The institutional market access dimension comprises access to buyers or aggregators, availability of marketing finance, and cooperative membership.

Each indicator was coded on a binary scale (1 = present/adequate; 0 = absent/inadequate). The scores for each dimension were added together and adjusted according to the dimension's weight, producing weighted scores for each dimension: Physical (0–40), Economic (0–30),

Institutional (0–30). The three weighted scores were then added together to produce the overall Market Access Index (MAI), which ranges from 0 to 100. Higher scores indicate better access to markets. To make the MAI easier to interpret, respondents' scores were divided into three levels: Low (<40), Medium (40–69), and High (≥ 70).

The assessment of market access among the respondents, as shown in Table 3.3, indicated that majority of the respondent (51.8%) fell into the medium access category. This shows that many of the households are fairly connected to markets, their participation is still limited by poor infrastructure, high costs, and restricted access to reliable services. About 28.2% of households had high market access, indicating that they are more closely connected to the marketing system through better roads, affordable transport, reliable buyers, and membership of cooperatives. The study showed that most disadvantaged group, representing 20% of the respondents, had low market access. These households are often left out of effective marketing opportunities due to poor infrastructure, high expenses, and weak institutional support.

The study found that rural farming households in the area have different levels of market access. A large number of them, especially those in the medium and low access categories, are at a disadvantage because of poor roads, high transport costs, and weak institutional support. To address this, there is a need for practical measures such as improving rural infrastructure, making transport more affordable, increasing access to finance, and encouraging farmers to join cooperatives.

Table 3.2 Market Access Indicator Items

Dimension	Indicator	Coding
Physical Infrastructure	All-weather road access	Yes=1; No=0
Physical Infrastructure	Farm distance to nearest road	<5km=1; ≥ 5 km=0
Physical Infrastructure	Farm distance to nearest market	<5km=1; ≥ 5 km=0
Physical Infrastructure	Functional storage facility	Yes=1; No=0
Economic	Transport affordability	Affordable=1; Not=0
Economic	Market charges affordability	Yes=1; No=0
Economic	Fair selling prices received	Yes=1; No=0
Institutional	Access to buyers/aggregator	Yes=1; No=0
Institutional	Marketing finance availability	Yes=1; No=0
Institutional	Cooperative membership	Yes=1; No=0

Table 3.3: Market Access Level Distribution

Level of market access	Frequency	Percentage
Low Market Access	22	20.0
Medium Market Access	57	51.8
High Market Access	31	28.2

Source: Field Survey, 2025

3.3 Food Security Status of the Rural Farming Households

Food Security Index (FSI) was used to estimate the food security status, and the result was presented in Table 3.4. The FSI helps us to determine which of the rural farming households had enough food and which of the households did not.

This study revealed that 55.45 % (61) of the households were classified as food secure, while 44.55 % (49) were food insecure. This shows that nearly half of the rural farming households in the study area were finding it difficult to get enough food. The FSI scores ranged from 0.21 to 0.88, with an average of 0.58, indicating a moderate level of food security in the study area. This result agrees with the earlier findings of Awe *et al.* (2024) that revealed that 53.33 percent of rural households were food secure and 46.67 percent were food insecure. Similar study of Irohibe and Agwu (2014) in rural area of Kano State also found that 74 percent of farming households were food secure, while 26 percent were food insecure. This shows that while food security may differ from place to place, many rural farming households still struggle to get enough food.

Table 3.4: Food Security Status of Households

Food Security Status	Number of Households	Percentage (%)
Food Secure	61	55.45
Food Insecure	49	44.55
Total	110	100

Source: Field Survey, 2025

3.4 Effect of Market Access on the Food Security Status of Rural Farming Households

This section presents the results of the logistic regression analysis, which examined how market access affects the food security status of the rural farming households in the study area. The dependent variable, food security status, is binary, with households classified as either food secure or food insecure. The logistic regression estimates the probability that a household is food secure based on selected socio-economic and market access variables.

In the analysis, market access was measured using three separate dimensions: physical market access (X5), economic market access (X6), and institutional market access (X7). This allowed the model to show how each aspect of market access affects food security on its own. The regression results are presented in Table 3.5. The results revealed that four (4) out of the eight (8) explanatory variables significantly influenced household food security in the study area.

The model was statistically significant (LR $\chi^2 = 16.71$; Prob > $\chi^2 = 0.033$). This means that, taken together, the explanatory variables in the model jointly influenced the prediction of household food security compared with a model that contains no predictors. The estimated pseudo- R^2 value of 0.414 indicates that the model accounts for 41.4% of the variation in food security status among the household. This mean that the explanatory variables included in the model explains a reasonable share of the variation in food security among the sampled households.

To make the results easier to interpret, the coefficients can be expressed as odds ratios. An odds ratio greater than one indicates that the variable increases the likelihood of food security, while a value below one indicates a reduction in the likelihood.

The age of the household head (X_1) has a negative coefficient (-0.608) and is significant at the 10 percent level. The corresponding odds ratio is about 0.54, meaning that an increase in the age of the household head reduces the odds of the household being food secure by about 46 percent. An odds ratio of 0.54 means that the likelihood falls to 54 percent of its previous level as age increases. In other words, each additional year in the age of the household head reduces the chance of being food secure by about 46 percent. This suggests that older household heads are less likely to maintain food security compared to younger ones, possibly due to factors such as reduced physical strength, lower income-generating capacity, or limited engagement in productive activities. This finding is consistent with the earlier findings of Iyakaremye and Kabanda (2024), who also reported similar age-related challenges impacting the food security of rural households.

Education of the household head (X_2) shows a positive and statistically significant relationship with food security at the 1 percent level. The odds ratio is approximately 1.18, which means that each additional year of schooling increases the odds of a household being food secure by about 18 percent. This result suggests that education plays an important role in improving household food security. Farmers with more years of education are better able to comprehend and implement better farming methods, utilise market information and extension data more effectively, and embrace cutting-edge technology that boost output. Beyond farming, education opens up more job options and alternate revenue streams, which lessen dependency on a single source of income and increase stability in supplying food for the family consumption. This finding corroborates the earlier work of Irohibe and Agwu (2014), who also stated that the chance of food security in rural areas was considerably increased with higher educational level.

Physical market access (X_5) also shows a positive and significant effect on household food security. The coefficient is 0.316 and is significant at the 1 percent level. The estimated odds ratio is about 1.37. This indicates that an improvement in physical access to markets increases the odds of a household being food secure by roughly 37 percent. This finding met our *a priori* expectations, as better roads, shorter distance to markets, and the availability of storage facilities make it easier for farmers to sell their produce and obtain food when needed. Good physical access to markets can also reduce transport costs and post-harvest losses. Our findings are consistent with Munawar *et al.* (2021) and Usman and Haile (2022), who also reported that the distance from the farm to the nearest market has a significant impact on the food security of rural households.

Institutional market access (X_7) has a positive coefficient of 0.105 and a standard error of 0.063. The result is statistically significant at the 10 percent level. The odds ratio is about 1.11, which shows that households with better institutional support are more likely to be food secure. In practical terms, a one unit increase in institutional market access raises the odds of being food secure by about 11 percent. This suggests that factors such as cooperative membership, access to buyers, and availability of marketing finance play an important role in improving household food security. These forms of support help farmers to organise themselves better, gain access to credit, and sell their produce more easily, which can lead to more stable income and improved access to food. This finding agrees with earlier studies. Kehinde and Kehinde (2020) reported that cooperative membership and access to credit improve food security among rural households in southwestern Nigeria. In the same way, Okafor *et al.* (2024) found that participation in

agricultural cooperatives is positively associated with both farm sustainability and household food security in Anambra State

The remaining variables, including household size, monthly income, economic market access, and crop diversity, were not statistically significant in this model. Although some of them show the expected direction of influence, the evidence is not strong enough to confirm their effect on household food security in this analysis.

Table 3.5: Effect of Market Access on Food Security

Variable	Coefficient	Std. Err	Z	e^{β} (Odds Ratio)
Household head Age	-0.608*	0.313	-1.94	0.54
Education	0.165***	0.064	2.57	1.18
Household size	-0.935	1.085	-0.86	0.39
Monthly income	0.044	0.100	-0.44	1.05
Physical Market Access Index	0.316***	0.122	2.59	1.37
Economic Market Access Index	0.157	0.175	0.89	1.17
Institutional Market Access Index	0.105*	0.063	1.67	1.11
Crop diversity	0.014	0.010	1.40	1.01
Log-likelihood	65.250			
LR Chi ²	16.71			
Prob>Chi ²	0.033			
Pseudo R ²	0.414			

***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: Field Survey, 2025

4. Conclusion and Recommendations

The study showed that market access among farming households in the area is uneven. About 51.8% of households had moderate access, while roughly 28.2% enjoyed better access, supported by improved roads and participation in cooperatives. However, 20% of households had poor access, facing difficulties such as bad roads, high transport costs, and little institutional support. This shows the need for practical policies that will support all farmers. Investing in rural roads, affordable transport, and stronger institutional support will help more farmers to take part in the market. The Food Security Index (FSI) showed that 55.45% of households were food secure, while 44.55% were food insecure, highlighting persistent vulnerabilities in the area.

The logistic regression analysis, interpreted using odds ratios, indicated that both socioeconomic and structural factors significantly influence household food security. Older household heads were less likely to be food secure, while higher education among the household heads increased the odds of food security in the study area. Among market access factors, both physical and institutional access were positive. This study revealed that households with better roads, markets,

and storage facilities, as well as connections to cooperatives, buyers, and credit facilities, had higher odds of being food secure. These findings highlight the crucial role of infrastructure, institutional support, and education in improving food security in the rural area. In view of the above, the study makes the following practical recommendations for government and other stakeholders:

- i. **Support for older farmer:** Government and development partners should provide social protection programmes, targeted extension support, and simple labour-saving tools to help older household heads. These will make it easier for them to manage their farms and improve their food security.
- ii. **Education:** Farmers should be given opportunities to learn practical skills, attend literacy programmes, and receive continuous training. This will help them make better decisions, adopt improved farming methods, and increase food production and household food security.
- iii. **Enhancing Physical Market Infrastructure:** Rural roads, market centers, and storage facilities need to be fixed and properly maintained so that farmers can easily get farm inputs and take their produce to market. Good infrastructure will help reduce losses after harvest, lower transport costs, and make selling crops easier. This should be done by government agencies like the Ministry of Agriculture, the Ministry of Rural Development, and local councils, with support from development partners and NGOs working in rural areas.
- iv. **Strengthening Institutional Support:** Farmers should be supported through cooperatives, connections to reliable buyers, and access to marketing finance. This will make it easier for them to sell their produce, obtain credit, and manage their farms properly. Stronger institutional support can help households improve their food security by giving them better access to markets and financial resources. Government agricultural departments, extension services, farmer cooperatives, banks, and NGOs should work together to provide these services to rural households.

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