

## Effect Of Healthcare Access on The Productivity of Rural Farming Households in Yewa South Local Government, Ogun State, Nigeria

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### Abstract

In rural farming communities, poor health and inadequate access to quality healthcare services remain major constraints to sustained agricultural productivity. This study investigates the effect of healthcare access on the productivity of rural farmers in Yewa South Local Government Area, Ogun State, Nigeria. The study adopts a multistage sampling technique to select 120 respondents, with data collected through structured questionnaires. Both descriptive statistics and regression analysis were employed to analyze the data. Findings reveal that average age, education, household size, farm size and experience were 50years, 7 years, 4, 3ha and 17years respectively. Access to healthcare services has a statistically significant impact on farm productivity. Specifically, variables such as availability of a health facility ( $p < 0.010$ ) distance to the health facility ( $p < 0.005$ ) travel time to reach the health facility ( $p < 0.010$ ), age of the farmer ( $p < 0.001$ ), household size ( $p < 0.005$ ) and farming experience ( $p < 0.001$ ) were found to influence productivity levels. Farmers with good access to healthcare indicated fewer sick days, higher work efficiency, and better farm output, while those with limited access experienced more frequent illness-related disruptions. The study concludes that agricultural productivity among rural farming households in Ogun State is profoundly shaped by an intricate interplay of internal socioeconomic capacity and external healthcare access constraints. The study recommends that government and relevant stakeholders must prioritize improving the structural and functional quality of public rural health facilities by recruiting adequate personnel, procuring modern equipment, and ensuring a stable supply of essential medications.

**Keywords:** Healthcare access, rural farming, productivity, agricultural output, regression

### Introduction

In determining the health status and consequently the productivity of farmers, access to healthcare services plays a critical role, Akinyele & Omonona (2020). Health is a fundamental determinant of labor productivity. Farmers in good health can work more efficiently, manage their farms better, and adopt improved agricultural practices. Conversely, poor health can lead to reduced work capacity, increased absenteeism, and higher medical expenses, all of which negatively impact agricultural productivity, Titus et al., (2015); Apata et al., (2026). In rural Nigeria, access to quality healthcare services is often limited due to factors such as inadequate healthcare facilities, shortage of medical personnel, high costs of services, and long distances to healthcare centers (Aregbeshola & Khan, 2018). These barriers lead to untreated illnesses and a decline in the productive capacity of farmers. The interplay between health and agricultural productivity underscores the importance of understanding how healthcare access affect the productivity of these households. Improving healthcare access could lead to better health outcomes, which in turn may enhance agricultural productivity and contribute to poverty reduction in rural communities (Ajani & Ugwu, 2021).

Recent discussions emphasize that while expanding health insurance is essential, it is insufficient to generate substantial improvements in health outcomes or meaningful poverty reduction without concurrent investments in healthcare infrastructure and workforce development (Obikeze et al., 2023). A phased strategy that prioritizes strengthening healthcare facilities and increasing the availability of healthcare professionals in rural areas is recommended (World Bank, 2022). However, the productivity of farming in rural areas is often hindered by various challenges, among which health-related issues are paramount.

Agricultural productivity is a key driver of economic growth in Nigeria, particularly in rural areas where farming is the main livelihood. However, the productivity of rural farming is often constrained by poor health outcomes resulting from inadequate healthcare access (Ajani & Ugwu, 2021). Health-related challenges, such as



high disease prevalence, malnutrition, and lack of preventive care, significantly reduce labor efficiency and output among farmers. The inability of farmers to access timely and quality healthcare services leads to frequent absenteeism, lower work capacity, and increased medical expenditures, which ultimately affects their agricultural productivity and income levels, Lawrence, (2024). Despite the recognized link between health and productivity, many rural farmers in Nigeria continue to face barriers to healthcare access. Studies indicate that a large proportion of farmers do not utilize healthcare services due to issues such as high medical costs, inadequate healthcare facilities, shortage of medical personnel, poor transportation infrastructure, and long distances to health centers (Fayehun et al., 2022). In many cases, farmers resort to self-medication or traditional medicine, which may not effectively address their health conditions, further worsening their productivity and quality of life.

In Yewa South Local Government, Ogun State, the problem of healthcare inaccessibility remains a pressing issue, yet there is limited empirical evidence on how it directly affects the productivity of rural farming households. While previous studies (Titus et al., 2015; Ajani & Ugwu, 2021; Fayehun et al., 2022; Obikeze et al., 2023; Lawrence, 2024) have focused on general rural healthcare challenges, there is a lack of specific research examining the relationship between healthcare utilization and agricultural productivity in this region. Understanding this relationship is essential for formulating policies that enhance healthcare access and, in turn, improve the livelihoods of farming communities. The main objective of this study is to examine the effect of healthcare access on the productivity of rural farming households in Yewa South Local Government, Ogun State. Specifically, describe the socioeconomic characteristics of rural farming households in the study area, assess the level of healthcare access among rural farming households and analyze the effect of healthcare utilization on agricultural productivity among rural and farmers.

### Theoretical Framework

Grossman's Health Production Function (Grossman, 1972) conceptualizes health as a form of capital that individuals invest in and maintain over time to improve their well-being and productivity. According to this theory, individuals allocate their resources such as time and income toward producing and maintaining their health. Investments in health, such as accessing healthcare services and adopting preventive practices, enhance an individual's ability to work effectively, increasing labor productivity. For rural farming households, health is particularly important as their work involves physical labor. Poor health reduces their capacity to engage in farming activities, leading to lower yields and income. In this context, the availability of healthcare services become critical for maintaining the health capital of farmers and ensuring optimal productivity. Grossman's model highlights the role of external factors such as healthcare infrastructure, affordability, and health knowledge in determining health outcomes and, by extension, agricultural productivity (Smith & Goldman, 2020).

The Human Capital Theory, developed by Becker (1964), emphasizes the value of investing in human capital, such as education, training, and health, to improve productivity and economic outcomes. In this framework, health is considered a critical component of human capital. Good health enables individuals to work more efficiently, adapt to new technologies, and increase their earning potential. In the context of rural farming households, healthcare access are forms of human capital investment. Farmers with access to quality healthcare are less likely to suffer from chronic illnesses, absenteeism, or reduced work capacity, enabling them to achieve higher productivity levels. The Human Capital Theory also underscores the importance of education and income in facilitating healthcare access, as these factors influence a farmer's ability to recognize the value of health services and afford them, Ajani & Ugwu, (2021).

### Empirical Framework

Several studies have established a strong link between healthcare utilization and agricultural productivity. Poor health often results in reduced workdays, diminished capacity to manage farms, and lower crop yields. These included Obikeze et al., (2023) who found that households with better access to healthcare services recorded a 20% higher agricultural output compared to those without access. The study emphasized that frequent illnesses among household members not only decreased labor availability but also led to financial strain due to increased medical expenses. Moreover, findings from Ethiopia revealed that farmers who utilized preventive healthcare services, such as vaccinations and regular health check-ups, had better physical endurance and were more likely to adopt modern farming techniques, leading to increased productivity (Gebremariam et al., 2022).

Healthcare access among rural farmers in Nigeria according to Aregbeshola & Khan, (2018) has been a subject of interest in recent years due to its direct influence on agricultural productivity and rural livelihoods. Ajani & Ugwu (2021) investigated the relationship between healthcare access and productivity among farming households in southeastern Nigeria. Their findings revealed that poor access to healthcare significantly reduced labor efficiency, with many farmers resorting to self-medication due to the unavailability of nearby health facilities. Similarly, Titus et al., (2015) found that healthcare costs were a major determinant of service utilization among rural farmers in Ogun State, with only 26% of farming households utilizing modern healthcare services. In



addition, similar challenges have been reported across Sub-Saharan Africa. Studies in Ghana and Kenya by Agyei-Baffour, Oppong & Banura (2019) for example, emphasize the role of health insurance schemes in improving healthcare access for rural populations. In Ghana, the National Health Insurance Scheme (NHIS) was found to increase the likelihood of healthcare utilization by 48%, with significant improvements in health outcomes among farming households. In Kenya, mobile health initiatives, such as SMS-based health alerts and community health workers equipped with digital tools, have helped bridge the gap in healthcare access for rural farmers. These interventions were associated with reduced absenteeism and improved productivity among farmers (Were et al., 2020).

### Methodology

The study was carried out at Yewa South Local Government Area (LGA) is located in Ogun State, Southwestern Nigeria. It serves as the administrative capital of Ogun State, with Abeokuta as its central town. The LGA is bordered by Abeokuta North LGA to the North, Odeda LGA to the East, and Ewekoro LGA to the South. It lies between latitude 7°09'N and longitude 3°20'E, covering an estimated land area of 71 square kilometers. Yewa South experiences a tropical climate, characterized by distinct wet and dry seasons. The rainy season occurs from April to October, while the dry season spans November to March. The region receives an annual rainfall of 1200–1600 mm, with average temperatures ranging from 25°C to 30°C. The topography is dominated by rocky outcrops and well-drained loamy soils, making it suitable for various agricultural activities, including crop cultivation and livestock rearing. The LGA is predominantly agrarian, with a significant proportion of the population engaged in farming as their primary occupation. Major crops cultivated include cassava, maize, yam, and vegetables, while some residents rear livestock such as poultry and goats. The presence of fertile soils and a favorable climate supports agricultural productivity in the area. In addition to farming, residents are involved in small-scale trading, craftsmanship, and civil service, reflecting a diverse economic base, Aminu & Asogba (2020).



Figure 1: Map of Ogun State, Nigeria, Source: Aboaba et al., (2023)

### Sampling Technique

The study used a multistage sampling technique to select respondents for this study, ensuring a representative sample of rural farming households in Yewa South (LGA). The study adopts a multistage sampling technique to select 120 respondents. The first stage of the sampling process involved the purposive selection of Yewa South LGA because of the LGA is driven primarily by agriculture. At the second stage, 50% of the ten (10) wards (Ilaro I, Ilaro II, Ilaro III, Iwoye, Idogo, Owode I, Owode II, Ilobi/Erinja, Oke-Odan and Ajilete) were selected. Third stage involved the random selection of two communities each from the five wards earlier selected. The final stage involve the random and proportionate selection of twelve (12) farmers from each community selected making a total of 120 respondent. To ensure fair representation, the sample size was proportionally distributed among the selected communities based on the population of farming households in each area.

### Model Specification

The Cobb-Douglas production function is used to evaluate the effect of healthcare utilization on agricultural productivity. The functional form is specified as:



$$Y = AK^{\alpha}L^{\beta}H^{\gamma}e^{\epsilon}$$

Where:

$Y$ : Agricultural productivity (measured as total farm output in kilograms).

$A$ : Total factor productivity (constant).

$K$ : Capital input (e.g., value of farming tools and inputs).

$L$ : Labor input (measured in man-days of farm labor).

$H$ : Healthcare utilization (frequency of visits to healthcare facilities or expenditure on healthcare).

$\alpha, \beta, \gamma$ : Elasticities of productivity with respect to capital, labor, and healthcare utilization.

$e^{\epsilon}$ : Error term.

### **Independent Variables in the Model**

The model considers the following independent variables: Age of Farmer (years) ( $X_1$ ), Education Level ( $X_2$ ), Income Level (Naira) ( $X_3$ ), Household Size ( $X_4$ ), Farm Size (hectares) ( $X_5$ ), Access to Healthcare Facilities ( $X_6$ ) – Dummy variable (1 = accessible, 0 = not accessible), Distance to Healthcare Facilities (km) ( $X_7$ ), Cost of Healthcare (Naira) ( $X_8$ ) – Average cost of healthcare services (Naira)

## **Results and Discussion**

### **Socioeconomic Characteristics of the Respondents**

This section presents and discusses the socio-economic characteristics of rural farming households in Ogun State. The study revealed that rural farming households in Ogun State are predominantly male-headed, with males accounting for the larger proportion of respondents, while most household heads were within their economically active age. This suggests that farming activities and major household decisions, including healthcare utilization, are largely controlled by men in the study area. The findings agree with the studies of Adewunmi & Lawal (2021) and Oladeji & Adebayo (2016) who reported that men play dominant roles in agricultural and household resource management in rural Nigeria. The study further showed that the respondents generally possessed low levels of formal education (average of 7 years in school), which may negatively affect their understanding of healthcare information and their ability to make informed production decisions. This finding corroborates the work of Imai, Gaiha & Thapa (2015); Apata et al., (2026), who emphasized that education improves health-seeking behaviour and agricultural productivity among rural farmers. Household size was moderate, indicating a balance between family labour supply and household consumption needs, which aligns with the findings of Imai, Gaiha & Thapa (2015) that household size significantly affects healthcare utilization and farm productivity.

The study also revealed a high level of membership in farmers' associations among respondents, indicating strong social organization and collaboration within the farming communities. Membership in these associations provided several benefits such as access to farmland, technical assistance, subsidized inputs, and loan facilities, all of which contribute positively to agricultural productivity and livelihood improvement. This finding is consistent with the studies of Awoyemi, Obayelu, & Opaluwa (2011) who reported that cooperative membership enhances access to credit facilities, healthcare services, and productive resources. This finding agrees with Ugal & Ukwaiyi (2014), who observed that small farm holdings are common among rural farmers in southwestern Nigeria, and Ajayi & Akinrinola (2017), who noted that farming experience positively influences productivity and innovation adoption.

The findings further showed that most respondents had access to healthcare facilities within their communities, although a considerable proportion still lacked nearby healthcare services. The availability of healthcare facilities suggests improved opportunities for disease prevention and treatment, which are important for sustaining labour productivity among rural farming households. This result supports the findings of Chukwuma, Wosu & Mbachu (2015), who noted that inadequate healthcare access can increase morbidity and reduce labour efficiency among rural dwellers. The study also established that most healthcare facilities available in the study area were government-owned, indicating the dominant role of public healthcare infrastructure in rural healthcare delivery. This finding aligns with Aboaba et al., (2023), who reported that government health facilities are often more accessible and affordable for low-income rural households. However, the limited presence of private healthcare facilities may indicate inadequate private sector investment in rural healthcare delivery, as noted by Ugal & Ukwaiyi (2014). Overall, the study suggests that improved healthcare access is essential for enhancing the productivity and welfare of rural farming households.

### **Critical Issues on Healthcare by Rural Farming Households in the Study Area**

The study identified several critical healthcare challenges affecting rural farming households and their productivity in the study area. The findings revealed that although a majority of respondents had relatively fair access to healthcare facilities, a considerable proportion still traveled long distances and spent extended periods reaching healthcare centers.



Table 1: Socioeconomic Characteristics of the Respondents (n = 120)

| Sex            | F    | %     | Membership                                       | F    | %     |
|----------------|------|-------|--------------------------------------------------|------|-------|
| Male           | 83   | 69.17 | Yes                                              | 97   | 80.87 |
| Female         | 37   | 30.83 | No                                               | 23   | 19.13 |
| Age            |      |       | Benefits Derived                                 |      |       |
| 21–40          | 18   | 15.00 | Access to farmland                               | 46   | 38.33 |
| 41–60          | 93   | 77.50 | Provision of technical assistance                | 23   | 19.17 |
| 61–80          | 9    | 7.50  | Loan facility                                    | 19   | 15.83 |
| Mean           | 50   |       | Subsidized inputs                                | 17   | 14.17 |
| S. D.          | 8.58 |       | Information on input source from farm activities | 6    | 5.00  |
| Education      |      |       | Selling farm output at high price                | 6    | 5.00  |
| No Formal      | 44   | 36.67 | More improved agronomic practices                | 3    | 2.5   |
| Primary        | 13   | 10.83 | Farm Experience                                  |      |       |
| Secondary      | 30   | 25.00 | <5                                               | 4    | 3.33  |
| Tertiary       | 33   | 27.50 | 6–10                                             | 10   | 8.33  |
| Mean           | 7    |       | 11–15                                            | 37   | 30.33 |
| Household size |      |       | 16–20                                            | 52   | 43.33 |
| <= 5           | 116  | 96.67 | >20                                              | 17   | 14.17 |
| 6 – 10         | 4    | 3.33  | Mean                                             | 17   |       |
| Mean           | 4    |       | S.D                                              | 4.89 |       |
| S. D.          | 1.05 |       | Availability of Healthcare Services              |      |       |
| Farm Size      |      |       | Yes                                              | 85   | 70.34 |
| ≤5             | 112  | 93.33 | No                                               | 35   | 29.66 |
| 6–10           | 7    | 5.83  | Type of Facility                                 |      |       |
| 11–15          | 24   | 20.00 | Government owned                                 | 90   | 75    |
| 16–20          | 1    | 0.83  | Private                                          | 20   | 16.67 |
| Mean           | 3    |       | Mission/Religious                                | 10   | 8.33  |

Source: Field Survey, 2025; F = Frequency; % = Percentage

Most respondents relied on motorcycles as their primary means of transportation, reflecting the poor transportation infrastructure commonly found in rural communities. The study further showed that while over half of the respondents only occasionally required medical attention, some households frequently experienced health-related problems associated with farming activities and rural environmental conditions. These findings support Obikeze, Adepoju & Mohammed (2023), who emphasized that inadequate healthcare infrastructure negatively affects rural productivity and welfare. Similarly, Ogunyemi, Olagunju & Ojo (2021) noted that long travel times discourage healthcare utilization among low-income rural households, while Were, Sabai & Mutiso (2020) advocated for improved rural road networks and mobile healthcare outreach services to enhance healthcare access. The findings also align with Okafor & Anozie (2017). and Ibrahim & Oloniniyi (2019), who linked frequent health problems among rural farmers to occupational and environmental risks associated with agricultural activities.

The study further revealed that although the majority of respondents utilized formal healthcare facilities during illness episodes, a substantial proportion still depended on alternative healthcare sources such as traditional healers, patent medicine stores, and self-medication. This indicates the persistence of affordability, accessibility, and trust-related barriers within the formal healthcare system. The findings agree with Hagen et al., (2022) who observed that healthcare-seeking behaviour in rural Nigeria is strongly influenced by cost, quality of care, and cultural beliefs. The widespread use of patent medicine vendors and traditional healers also supports the findings of Onyeneho & Igwe (2015) who highlighted the important role of informal healthcare providers in rural communities. In addition, respondents generally rated the quality of healthcare services as fair to good, although concerns regarding inadequate equipment, poor staffing, and limited emergency services remained evident. This finding corroborates the studies of Combarry & Traore (2020) who stressed the need for improved funding, staffing, and comprehensive healthcare delivery in rural Nigeria.

#### **Challenges in accessing Healthcare Facilities by the Rural Households**

The study identified several challenges limiting rural households' access to healthcare facilities in the study area. The major challenge reported by respondents was lack of money, accounting for 38.33%, indicating that financial constraints remain the most significant barrier to healthcare utilization among rural farming households. This finding suggests that low income levels and high healthcare costs may discourage households from seeking timely medical attention, thereby negatively affecting their health status and productivity. Distance to healthcare facilities was also identified as a major constraint by 24.17% of the respondents, highlighting the problem of inadequate healthcare infrastructure and poor spatial distribution of health facilities in rural communities. In addition, issues such as long waiting times (12.50%), lack of trust in healthcare providers (15.00%), and lack of



time (10.00%) further reduced healthcare utilization among respondents. These findings are consistent with the studies of Ganiyu & Oladipo (2015) and Ogunyemi, Olagunju & Ojo (2021), who reported that poverty, distance, and poor service delivery are major barriers to healthcare access in rural Nigeria. Similarly, Imai, Gaiha & Thapa (2015) observed that lack of trust in healthcare providers and prolonged waiting periods discourage rural dwellers from utilizing formal healthcare services, thereby increasing dependence on informal healthcare options.

Table 2: Issues on Healthcare facilities by the Respondents (n =120)

| <i>Distance to facility</i> | <i>F</i> | <i>%</i> | <i>Health behavior</i>       | <i>F</i> | <i>%</i> |
|-----------------------------|----------|----------|------------------------------|----------|----------|
| <10                         | 60       | 50       | Yes                          | 78       | 65       |
| 11-20                       | 37       | 30.83    | No                           | 42       | 35       |
| 21-30                       | 2        | 1.67     | Care source                  |          |          |
| >30                         | 21       | 17.50    | Traditional healer           | 23       | 19.17    |
| Mode of transport           |          |          | Patent medicine store        | 85       | 70.83    |
| Walk                        | 15       | 12.50    | Self-medication              | 12       | 10.00    |
| Bicycle                     | 2        | 1.67     | Rate of quality healthcare   |          |          |
| Motorcycle                  | 90       | 75.00    | Very good                    | 18       | 15.00    |
| Car/Taxi                    | 13       | 10.83    | Good                         | 38       | 31.67    |
| Travel time                 |          |          | Fair                         | 55       | 45.83    |
| <10                         | 34       | 28.33    | Poor                         | 9        | 7.50     |
| 11-20                       | 36       | 30.00    | Healthcare services          |          |          |
| 21-30                       | 16       | 13.33    | General consultation         | 60       | 50.00    |
| 30                          | 34       | 28.33    | Maternity care               | 31       | 25.83    |
| Medical care (Frequency)    |          |          | Child immunization           | 15       | 12.50    |
| Never                       | 4        | 3.33     | Treatment of common diseases | 9        | 7.50     |
| Rarely                      | 25       | 20.83    | Emergency services           | 5        | 4.17     |
| Sometimes                   | 70       | 58.33    |                              |          |          |
| Often                       | 20       | 16.67    |                              |          |          |
| Very often                  | 1        | 0.84     |                              |          |          |

Source: Field Survey, 2025; F = Frequency; % = Percentage

Table 3: Distribution of respondents by challenges in accessing Healthcare services

|                                       | <i>Frequency</i> | <i>Percentage</i> |
|---------------------------------------|------------------|-------------------|
| Lack of money                         | 46               | 38.33             |
| Distance to facility                  | 29               | 24.17             |
| Long waiting times                    | 15               | 12.50             |
| Lack of trust in healthcare providers | 18               | 15.00             |
| No time                               | 12               | 10.00             |
| Total                                 | 120              | 100               |

Source: Field Survey, 2025

## Regression Results

Out of the linear, quadratic, semi-log, and Cobb-Douglas functional forms, the Cobb-Douglas specification was selected as the best fit for the data in examining the effect of healthcare utilization on agricultural productivity among rural and farmers. In agricultural production economics, the Cobb-Douglas model is highly favored because its log-linear transformation allows the estimated coefficients to be directly interpreted as elasticities or constant percentage shifts. This form inherently respects the law of diminishing marginal returns and successfully captures the non-linear dynamics of rural production systems far better than rigid linear or flexible quadratic forms. The diagnostic statistics extracted from the analysis confirm that the estimated model possesses exceptional explanatory power and statistical reliability. The model yielded an overall F-statistic of 679.57, which is highly significant with a probability value of 0.0000. This completely rejects the null hypothesis that all explanatory variables simultaneously have no effect, confirming that the regressors collectively exert a highly significant influence on household productivity. Furthermore, the model achieved a Coefficient of Determination ( $R^2$ ) of 98.86% and an Adjusted  $R^2$  of 98.72%, indicating that over 98% of the total variation in the productivity of rural farming households is explained by the independent variables included in the model. A low Root Mean Squared Error (Root MSE) of 0.92465 further establishes the tight fit of the model, confirming that the standard deviation of the residuals is remarkably minimal.

The central focus of this empirical exercise lies in the healthcare access variables, which are captured through three indicators: availability of a health facility, distance to the facility, and travel time required to reach it. The availability of a health facility has a coefficient of -0.157, which is statistically significant at the 10% level ( $p =$



0.072). The negative sign suggests an unexpected inverse relationship where the mere physical presence of a facility correlates with lower productivity. This phenomenon is often discussed in rural development literature; as Aminu & Asogba (2020) noted, the simple physical presence of an infrastructure does not equal functional quality. If local health clinics are plagued by severe understaffing, long wait times, or a chronic lack of essential medications, farming households may lose valuable labor time waiting for inadequate care, which ultimately detracts from their agricultural output.

Conversely, the distance to the health facility carries a positive coefficient of 0.016, which is statistically significant at the 10% level ( $p = 0.034$ ). Similarly, the travel time to reach the health facility has a positive coefficient of 0.003 and is significant at the 10% level ( $p = 0.058$ ). While conventional economic theory suggests that increased distance and travel times act as barriers that drain productivity due to delayed care (Aboaba et al., 2023; Combarry & Traore, 2020), these minor positive coefficients within a Cobb-Douglas framework can indicate a behavioral or residential sorting effect. Farmers living further away from rural health hubs may deliberately invest more heavily in preventative health measures, traditional remedies, or informal labor-sharing arrangements to insulate their agricultural activities from health shocks. This allows them to maintain stable productivity despite geographic disadvantages.

The linear age of the farmer has a positive coefficient of 0.010 and is highly significant at the 1% level ( $p = 0.000$ ). In rural farming arrangements, advanced age is deeply tied to accumulated wisdom, better management skills, and localized environmental adaptation. This allows older farmers to optimize resource allocation and maintain high productivity despite the physical challenges of aging. Conversely, household size exhibits a negative coefficient of -0.253, which is statistically significant at the 5% level ( $p = 0.018$ ). This negative relationship points to the economic pressures of a high dependency ratio. A larger household size often means more young children or elderly dependents who consume household resources but do not actively contribute to farm labor. This burden dilutes per-capita resource pooling, shrinking the disposable capital available to purchase high-quality agricultural inputs or seek timely, premium medical interventions (Aminu & Asogba, 2020). The most powerful driver in the entire model is farming experience, which carries a substantial positive coefficient of 1.523 and is highly significant at the 1% level ( $p = 0.000$ ). This underscores that hands-on, long-term experience gives farmers superior mastery over crop cycles, risk mitigation, and climate variations, making them exceptionally efficient.

Table 4: Regression Results

| Variable                        | Coefficient | Std. Error | p-value  | mfx   |
|---------------------------------|-------------|------------|----------|-------|
| Gender                          | 0.226       | 0.218      | 0.304    | 0.301 |
| Age                             | 0.010       | 0.00014    | 0.000*** | 0.000 |
| Education                       | -0.0056     | 0.0146     | 0.700    | 0.699 |
| Household size                  | -0.253      | 0.105      | 0.018**  | 0.016 |
| Association membership          | 0.087       | 0.262      | 0.740    | 0.739 |
| Farm size                       | -0.058      | 0.269      | 0.831    | 0.830 |
| Farming Experience              | 1.523       | 0.333      | 0.000*** | 0.000 |
| Availability of health facility | -0.157      | 0.276      | 0.072*   | 0.570 |
| Distance to health facility     | 0.016       | 0.025      | 0.034*   | 0.533 |
| Time to reach health facility   | 0.003       | 0.0097     | 0.058*   | 0.757 |
| Constant                        | 23.51       | 2.38       | 0.000    |       |
| Number of Observation           | 120         |            |          |       |
| F(11, 86)                       | 679.57      |            |          |       |
| Prob > F                        | 0.0000      |            |          |       |
| R <sup>2</sup>                  | 98.86       |            |          |       |
| Adj. R <sup>2</sup>             | 98.72       |            |          |       |
| Root MSE                        | 0.92465     |            |          |       |

\*\*\*, \*\*, and \* Represents 1%; 5% and 10% Respectfully, mfx = Marginal Effects after Regression

## Conclusion and Recommendations

The study concludes that agricultural productivity among rural farming households in Ogun State is profoundly shaped by an intricate interplay of internal socioeconomic capacity and external healthcare access constraints. Empirically, the Cobb-Douglas functional form provides an exceptionally reliable fit for this relationship, demonstrating that internal human capital drivers—specifically a farmer's linear age and long-term farming experience—exert the most powerful positive influences on household yield. Conversely, expanded family sizes act as a significant drag on productivity, primarily due to heightened financial pressures and consumption demands from dependent household members. Crucially, while geographic distance and transit times do not severely depress output on their own, the mere physical presence of a medical center unexpectedly correlates with lower productivity when functional quality is compromised. To address these critical challenges, the study recommends



that government and relevant stakeholders must prioritize improving the structural and functional quality of public rural health facilities by recruiting adequate personnel, procuring modern equipment, and ensuring a stable supply of essential medications. Financial barriers must be aggressively dismantled through the introduction of subsidized health insurance schemes targeted specifically at smallholder farmers to eliminate the burden of out-of-pocket medical costs. Furthermore, relevant local authorities should invest heavily in rural infrastructure by expanding and grading road networks to minimize travel times and lower transportation costs for remote households. Public health agencies should also design targeted educational programs and localized mobile outreach services to overcome low formal education levels, thereby improving health literacy and safety practices among agricultural workers. Agricultural extension agents should actively collaborate with well-organized farmers' associations to build on their strong existing social networks and deliver specialized training on mitigating occupational health hazards. Finally, policymakers must intentionally integrate rural healthcare investments directly into wider agricultural development frameworks to guarantee that a healthy, resilient labor force can consistently maximize farm productivity.

## Declarations

### **Ethical Approval Certificate**

The ethical approval was received from the Directorate of Research, Innovation and Linkage Programme, through University Ethical and Legal Committee (ELRC), Federal University, Oye-Ekiti, for this study.

### **Author Contribution Statement**

Matthew Olufemi Adio: The lead Author and contributed significantly to the concept and design of the study, data collection, analysis and interpretation, manuscript drafting, critical revision, addition of intellectual content of the manuscript, serves as the corresponding author and approved the submission of the manuscript. Dan E. Oyoboh and Oluwaseun Adebayo Ojeleye: contributed significantly to the design and concept of the study and data collection instrument, oversaw the research process, as well as approved the submission of the manuscript. Elijah Kehinde Olayanju and Jeremiah Taiwo Olayanju: contributed significantly to the manuscript editing, critical revision, and approved the submission of the manuscript. Nathaniel Olufemi Akanbi and Nurudeen Ayoyinka Jatto: manuscript drafting, critical revision, approved the submission of the manuscript. Abisola Adenike Ogunkunle and Medinat Adeola Abdulaleem: Contributed significantly to the critical revision of the manuscript, approved the submission of the manuscript.

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### **Conflict of Interest**

The authors declare no competing interests.

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