

## EFFECT OF FINANCIAL INCLUSION ON LEVELS OF COMMERCIALIZATION AMONG RURAL WOMEN FARMERS IN SOUTH EAST, NIGERIA

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### ABSTRACT

*This study evaluated the effect of financial inclusion on the level of agricultural commercialization among rural women farmers in the South-East region of Nigeria. The research was conducted in the South-East region of Nigeria, specifically targeting a sample size of 266 rural women farmers. The study utilized primary data collected through a semi-structured questionnaire. The objectives were achieved using various statistical techniques, including the Commercialization Index and the Ordinal Probit Regression model. Financial inclusion in this study encompassed the availability, adequacy, awareness, affordability, and accessibility of financial services. The findings revealed that the indices for availability, adequacy, awareness, affordability, and accessibility were 0.25, 0.44, 0.18, 0.40, and 0.37, respectively. The mean financial inclusion index was 0.33. A significant proportion (73.7%) of rural women farmers were commercially oriented, while 26.3% were not. The Ordinal Probit Regression model produced a log-likelihood value of  $-237.0175$ , which was statistically significant at the 1% level. The pseudo-R-squared value of 0.34025 indicates that the model provides a satisfactory fit. Out of the ten explanatory variables included in the model, two were found to be statistically significant at different probability levels. These variables are: expert advice on financial management (coefficient = 0.277963) and access to insurance policy (coefficient = 0.491930). The study recommends that the National Root Crops Research Institute, the International Institute of Tropical Agriculture, and local development groups should provide support in the form of production inputs, financial advisory services, and awareness creation on insurance policies to enhance the commercialization of rural women farmers. Furthermore, rural women farmers should be supported through training and extension programmes. They should also receive assistance in contract negotiations to improve market access and increase their financial returns.*

**Keywords:** *Effect, Financial inclusion, levels, Commercialization, rural, Women Farmers*

### INTRODUCTION

The agricultural sector in Nigeria is mainly made of smallholder farmers. However, these farmers face challenges in expanding their operations due to restricted access to resources and low income (Louis & Chartier, 2017). The production of agriculture has experienced a decline, as stated by Amoah, Korle, and Asiama (2020). The main impediment to the expansion of agriculture has been highlighted as limited financial resources and the diverse obstacles faced by small-scale farmers in the realm of agricultural production. Commercial agricultural output is typically funded by established financial entities. In Nigeria, there exists a diverse array of financial institutions, including commercial banks, development banks, credit cooperatives, microfinance organizations, and other savings institutions (Cessda, Eric, NSD, Cessda, NSD, Nidi & Cessda, 2020). According to Dar and Ahmed (2020), the formal financial institutions that provide access to agricultural services include commercial banks, microfinance banks, registered cooperatives, and development banks. Financial inclusion has been identified as a key factor in driving agricultural transformation and reducing poverty. It also plays a substantial role in promoting the commercialization of agriculture, ensuring food security, fostering livelihood development, and mitigating the vulnerability of impoverished individuals, particularly rural women (Demircuc-kunt, Klapper, Singer, Ansar, & Hess, 2018). According to the research conducted by Masiyandima, Mlambo, and Nyarota (2017), the concept of financial inclusion involves the provision of financial services to individuals who have low income and are not connected to the formal banking system, at affordable and fair rates.

Based on statistics from the World Bank's Global Findex database of 2017, it is estimated that almost 1.7 billion adults throughout the globe do not have access to banking services, as they do not possess an account with a financial institution or a mobile money provider (FAOSTAT, 2018). According to the National Financial Inclusion Strategy (2019), the global population of unbanked adults consists of around 980 million individuals, of which rural women account for 56 percent. Based on the aforementioned information, it is evident that the disparity in financial inclusion between genders has exhibited a consistent pattern since 2011. Presently, this difference stands at 7 percentage points on a worldwide scale, with emerging economies displaying an average discrepancy of 9 percentage points (Goel & Sharma, 2017; Hansen, 2019; Marshal, 2020) have identified various factors that contribute to women's financial exclusion. These factors include, but are not limited to, poverty, low levels of literacy, limited education, and limited assets. Women in many ethnic and patrilineal traditions find

themselves in a disadvantaged position due to their limited ownership of land, which serves as a primary collateral requirement in the majority of formal banking institutions (Ozili, 2020). According to the World Bank Group (WBG, 2017), their decision-making authority in financial matters is similarly constrained. Additional limitations exist about the involvement of a significant portion of the female population in the marketing of high-value agricultural produce (Zins & Weill, 2016). Enhancing the accessibility of financial services for rural women, also known as financial inclusion, has been demonstrated as an effective approach to promote the social and economic empowerment of rural women. This strategy also contributes to the improvement of their livelihoods, food security, poverty alleviation, and the commercialization of their rural investments (Wokabi, 2019). Based on the preceding information, this study aims to address the following inquiries:

- i. What is the level of availability, accessibility, affordability, awareness and adequacy of financial services to rural women farmers?
- ii. What is the commercialization index, status and level of rural women farmers and what financial factors influencing their commercialization level?

### Objectives of the study

The broad objective of the study is to assess the effect of financial inclusion on levels of agricultural commercialization among rural women farmers in South east, Nigeria. The specific objective of the study is to:

- i. examine the level of availability, accessibility, affordability, awareness and adequacy of financial services to rural women farmers;
- ii. ascertain financial inclusion factors affecting commercialization levels of rural women farmers;

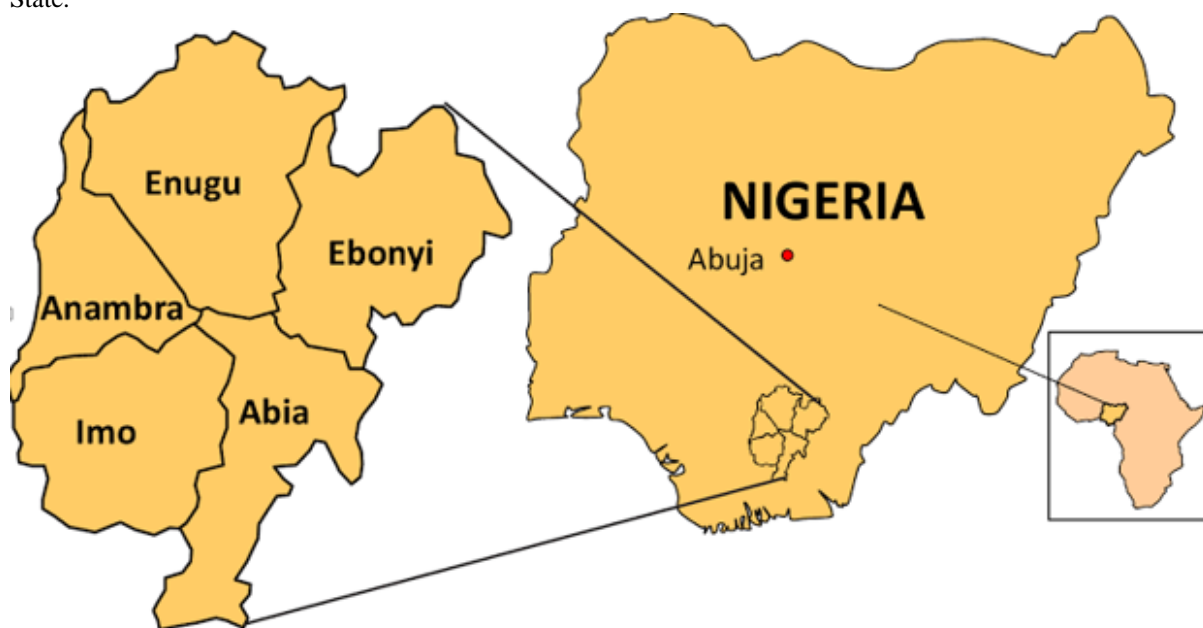
### Hypotheses of the study

The following null hypotheses were tested:

**HO<sub>1</sub>:** selected financial factors do not significantly influence commercialization levels of rural women in agriculture.

### RESEARCH METHODOLOGY

The research was conducted inside the South-East geographical region of Nigeria. The region of South-East Nigeria encompasses five states, namely Enugu State, Abia State, Ebonyi State, Imo State, and Anambra State.



**Figure 1: Map of South-east, Nigeria; Source: Maps.nigeria.com (2020).**

The study focused on the rural women farmers engaged in rice and cassava cultivation in the South-eastern states of Nigeria, constituting the target population. The information was obtained from Agricultural Development in multiple states within the South East region. The sample size was obtained by a three-stage sampling procedure. The initial phase of the study entailed the deliberate selection of Anambra, Enugu, and Ebonyi states due to their larger populations of rural farmers engaged in cassava and rice cultivation, as well as their comparatively higher levels of agricultural credit provisions (Amurtiya et al., 2018). In the second stage, two agricultural zones were randomly picked from each of the chosen states. This results in a cumulative count of six agricultural zones. The study utilized a random sampling technique to determine the sample size of rural women

farmers from a list provided by ADP in different states. Applying the Yamane (1967) formula with a 10% margin of error and a 95% confidence level, the resulting sample sizes were 92, 88, and 86. Consequently, a total of 266 rural women farmers were selected as participants for the study (Table 1).

Selected States	ADPs	Pop. size of rural women farmers	Confidence level (%)	Margin error (%)	Sample size drawn
Anambra State	ANADEP	1737	95	10	92
Enugu State	ENADEP	932	95	10	88
Ebonyi State	EBADEP	764	95	10	86
<b>Total</b>		<b>3433</b>			<b>266</b>

**Table 1** Survey result

**Source:** Author's computation using Online Survey Monkey (2022)

The study employed primary data. Descriptive and inferential statistical measures, such as percentage, frequency, and mean scores and Ordinal Probit regression were used in analyzing the data.

**Commercialization index**

The investigators involved in Alawode et al.'s (2018) study classified the level of commercialization among the selected farmers into three categories: slightly commercial, semi-commercial, and commercial. This categorization was based on the percentage of crops sold by rural women farmers. Specifically, those who sold 60% or more of their production were considered the most commercialized, while those who sold less than 30% were categorized as subsistence farmers. Farmers who sold between 30% and 60% of their production were classified as semi-commercialized. In order to examine the process of commercialization among the sample respondents, the commercialization index of rural women farmers was calculated for each respondent using the subsequent formula.

$$\begin{aligned}
 & \text{Rural women in agriculture commencialization index} \\
 & = \frac{\text{Amount of crops sold in the market}}{\text{Amount of total crops produced}} \dots \dots \dots 1
 \end{aligned}$$

**Ordered Probit regression model**

Ordered Probit regression model was employed to achieve objective iv. The model was specified as follows:

$$Y(\leq j) = \ln\left(\frac{p(Y \leq j/X)}{p(Y > \frac{j}{X})}\right) \dots \dots \dots 3.10$$

It then means that:

$$\Pr(Y \leq j) = \ln\left(\frac{\sum pr(Y \leq j/X)}{1 - \sum pr(Y \leq j/X)}\right) = \alpha_j + \beta_1 X_1 + \dots \dots + \beta_{14} X_{14} \dots \dots \dots 2$$

j = 1, 2, 3

Where;

Y = commercialization levels of rural women farmers (which is categorized into 3: high = 3, medium = 2 and low = 1)

$\beta_1 - \beta_{14}$  = Estimated parameters

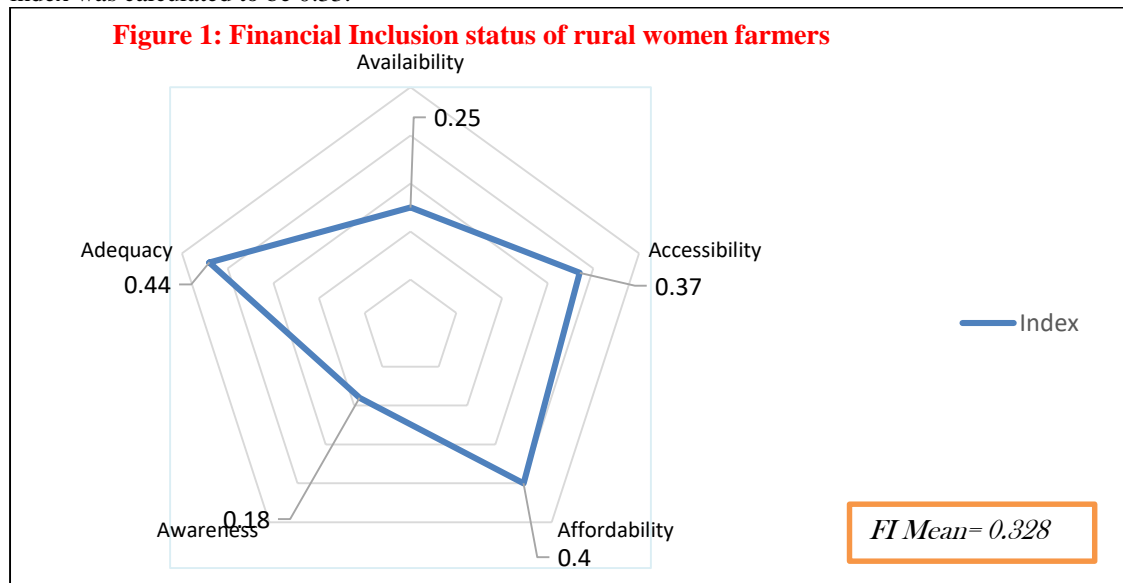
The explanatory variables for rural women farmers are:

- X<sub>1</sub> = frequency of bank mobile application usage (continuous variable: number of times bank mobile application is used for transaction);
- X<sub>2</sub> = ownership of account with commercial banks (continuous variable: number of accounts with commercial banks);
- X<sub>3</sub> = amount saved in the past 12 months (continuous variable: Naira);
- X<sub>4</sub> = means of saving (discrete variables: bank, home, group of friends);
- X<sub>5</sub> = farm income (continuous variable: ₦);
- X<sub>6</sub> = professional advice on finance management (continuous variable: number of times received professional advice on finance management);
- X<sub>7</sub> = Transport cost to financial institutions in a month (continuous variable: ₦);
- X<sub>8</sub> = level of savings with bank in the last 12 months (continuous variable: Naira)
- X<sub>9</sub> = Proportion of credit utilized (measured in percentages);
- X<sub>10</sub> = access to Insurance Policy (dummy variable; Yes = 1, No = 0);

## RESULTS AND DISCUSSION

### Level of Availability, Accessibility, Affordability, Awareness and Adequacy of Financial Services to rural women farmers

Financial inclusion refers to the extent to which financial services are utilized by rural women farmers (World Bank, 2019). It comprises the accessibility, adequacy, and variety of financial services provided to those who are underserved or excluded from the financial system (Zins & Weill, 2016). In this study, financial inclusion was defined as the extent to which financial services are available, sufficient, known, affordable, and easily accessible. The study findings indicated that the respective indices for availability, adequacy, awareness, affordability, and accessibility of financial services were 0.25, 0.44, 0.18, 0.40, and 0.37. The mean score for the financial inclusion index was calculated to be 0.33.



**Figure 1: Level of availability, accessibility, affordability, awareness and adequacy of financial services to rural women farmers. Source: Field Survey Data (2023).**

The index scores for several dimensions of financial inclusion were examined, revealing that awareness had the lowest score of 0.18. Conversely, adequacy obtained the greatest score of 0.44, followed by affordability (0.44) and availability (0.25), all of which are crucial factors in this context. The mean financial inclusion score of 0.33 suggests that rural women farmers have a significantly low level of financial inclusion. This is because the benchmark index score of 0.60, which is deemed adequate by the World Bank (2015), is not met. Moreover, values below 0.4 are generally regarded as indicative of very poor financial inclusion. In a study conducted by Wokabi (2019), it was shown that the provision of financial services had a positive impact on agricultural productivity and income levels among rural women farmers. This, in turn, leads to increased commercialization and improved food security.

Consequently, the reduction of poverty-induced hunger ensues, enabling impoverished individuals to break free from cycles of poverty and effectively cope with intermittent adversities (Uma & Rupa, 2013). When considering the aspect of affordability (0.4) within the context of financial inclusion, it is observed that rural women farmers may have access to a limited range of financial services that may not adequately support their needs in terms of money management and alternative investment opportunities. Moreover, based on the accessibility score of 0.37, it is apparent that despite the significant role of agriculture in economic activity, the sector continues to face persistent challenges in securing financial support from financial institutions. This phenomenon can be elucidated by referencing a study from the National Bureau of Statistics (NBS) in 2010. According to the report, during the second quarter of 2019, the agricultural sector obtained a mere 4.2% of the total financing from commercial banks. In contrast, the industrial sector received 15.3%, the oil and gas sector received 22%, and the services sector received a substantial 36.5% of the credit. This observation implies that the agricultural sector is predominantly marginalized in terms of access to formal financial services. This assertion is substantiated by the findings of Nalini and Mariappan (2012), who have demonstrated that rural women farmers constitute the most significant segment of individuals experiencing financial exclusion in Nigeria. According to EFINA (2018), a notable 37.6% of farmers in Nigeria face financial exclusion. Consequently, the agricultural sector in Nigeria is predominantly excluded from formal financial services. The aforementioned information underscores the deficiency in financial resources allocated to the agricultural sector in Nigeria, resulting in a persistent lack of investment in this industry (Aigbokhan & Asemota, 2011). The provision of financial resources would significantly contribute to enhancing agricultural output and productivity. It is projected that enhancing

access to financial resources for women engaged in rural farming might potentially result in a substantial growth of agricultural output, estimated to be more than 300%, from \$280 billion to \$880 billion by the year 2030 (Dar & Ahmed, 2020). Based on the findings, the provision of financial services (0.37) is a crucial factor in promoting rural development (Allen, Demircuc-Kunt, Klapper & Peria, 2012). This is attributed to its ability to enhance income generation through profitable investments, facilitate the creation of employment opportunities, facilitate investments in healthcare and education, and mitigate the financial vulnerability of impoverished individuals by enabling them to stabilize their income patterns over time. Furthermore, the absence of financial services in rural regions not only impedes economic advancement but also exacerbates poverty and inequality. Nigeria's substantial expertise in the realm of rural finance exemplifies a comprehensive comprehension of the importance of rural finance accessibility. However, the persistent absence of sustainable access to such financial resources imparts valuable insights for future considerations (Agbo, Onwumere, & Ebe, 2013). Access to finance can serve as a catalyst for investment in innovative and enhanced technologies, particularly for farmers, with a particular emphasis on rural women farmers. Additionally, it can facilitate organizational growth by enabling the recruitment of additional personnel and fostering expansion to a greater magnitude. According to the findings of Akpan, Jeyiol, and Tee (2019), women encounter several obstacles in their ability to access financial services, not only within the specific region under study but also on a global scale. For example, according to Ajagbe (2018), in situations where property rights are restricted, female farmers in rural areas typically possess a smaller number of assets compared to their male counterparts. When rural women farmers experience low levels of wages and labor force participation, they frequently have challenges in acquiring adequate collateral to secure financing. Furthermore, in contexts characterized by a predominantly male loan officer demographic, women may have a potential disadvantage. The presence of cultural and educational barriers can hinder women from accessing suitable financial services that have the potential to significantly enhance their quality of life (Aduda & Kalunda, 2012). Based on the research conducted by Akinbode (2013), it has been observed that women face obstacles in accessing financial resources due to factors such as lower educational attainment and limited managerial experience compared to men. Furthermore, when women do manage to access financial services, they encounter difficulties in obtaining favorable conditions. The women, along with their families and society at large, experience a lack of advantages that could be attained if they were granted the opportunity to fully realize their capabilities. It is imperative to directly confront and address these barriers. Financial inclusion has a crucial role in fostering inclusive growth by mitigating poverty and facilitating job creation. Moreover, it serves as a pivotal factor in addressing gender disparities and lowering inequality.

The finding regarding financial inclusion (0.37) aligns with the World Bank's report from 2008, which suggests that rural areas in Nigeria accommodate 53% of the country's population and over 70% of its impoverished individuals. These predominantly agricultural communities experience limited access to financial services, hindering their development. Specifically, less than 2% of rural households have the opportunity to engage with any form of institutional finance. This finding is consistent with a report published by G20 in 2011, which highlights that a significant number of individuals, totaling over 2 billion adults worldwide, face a lack of access to fundamental financial services. Additionally, the report reveals that in developing economies, more than 70% of rural women farmers are unable to obtain credit. This aligns with the conclusions drawn by Obisesan and Adeyonu (2018) and challenges the results presented by Obisesan and Adeyonu (2018), which indicated that 72.4% of Nigerian farmers had access to banking services. The findings indicated that a limited number of rural women farmers had access to financial services within their communities. Furthermore, it was observed that a small proportion of these women were still not integrated into the financial system, potentially due to a lack of awareness (0.18). According to Kalu et al. (2018), the findings indicate that the establishment of a formal financial institution in the research area did not significantly enhance the level of knowledge among rural women farmers about the attainment of financial inclusion. Aduda and Kalunda (2012) argue that the provision of financial services is crucial for facilitating rural farm investments in productivity, enhancing post-harvest practices, managing household cash flow, facilitating market access, and mitigating risks. The availability of financial resources can significantly impact climate adaptation efforts and enhance the ability of agriculture to withstand the effects of climate change, thereby making a valuable contribution to the long-term sustainability of food security. Rural women smallholder farmers in developing nations have a notable obstacle in obtaining a broad array of financial services. This result aligns with the research conducted by Obisesan and Adeyonu (2018), which indicated that a small proportion of rural farmers possessed knowledge of financial inclusion, as evidenced by an index score of 0.20. The aforementioned issue arises due to the complex nature of the loan acquisition process and the absence of security. Additional factors that may contribute to this phenomenon include risk aversion among farmers, stemming from their apprehension towards incurring debt, the imposition of exorbitant interest rates on loans, and the hesitancy of commercial banks to extend credit for small-scale agricultural endeavors (Obisesan & Adeyonu, 2018).

### Commercialization Levels of Rural Women Farmers

Kirsten, Mapil, Okello, and De (2012) propose a categorization framework for rural women farmers based on their levels of commercialization. The entities can be categorized into three distinct groups, specifically subsistence (with HCI values less than or equal to 0.5), semi-commercial (with HCI values ranging between 0.5 and 0.75), and commercial (with HCI values greater than 0.75). The findings depicted in Figure 2 illustrate the levels of commercialization among rural women farmers. The data reveals that a significant number (60.1%) of rural women farmers exhibited a high degree of commercialization. Additionally, 27.1% of these farmers were classified as slightly or semi-commercialized, while 12.8% demonstrated low levels of commercialization or subsistence farming.

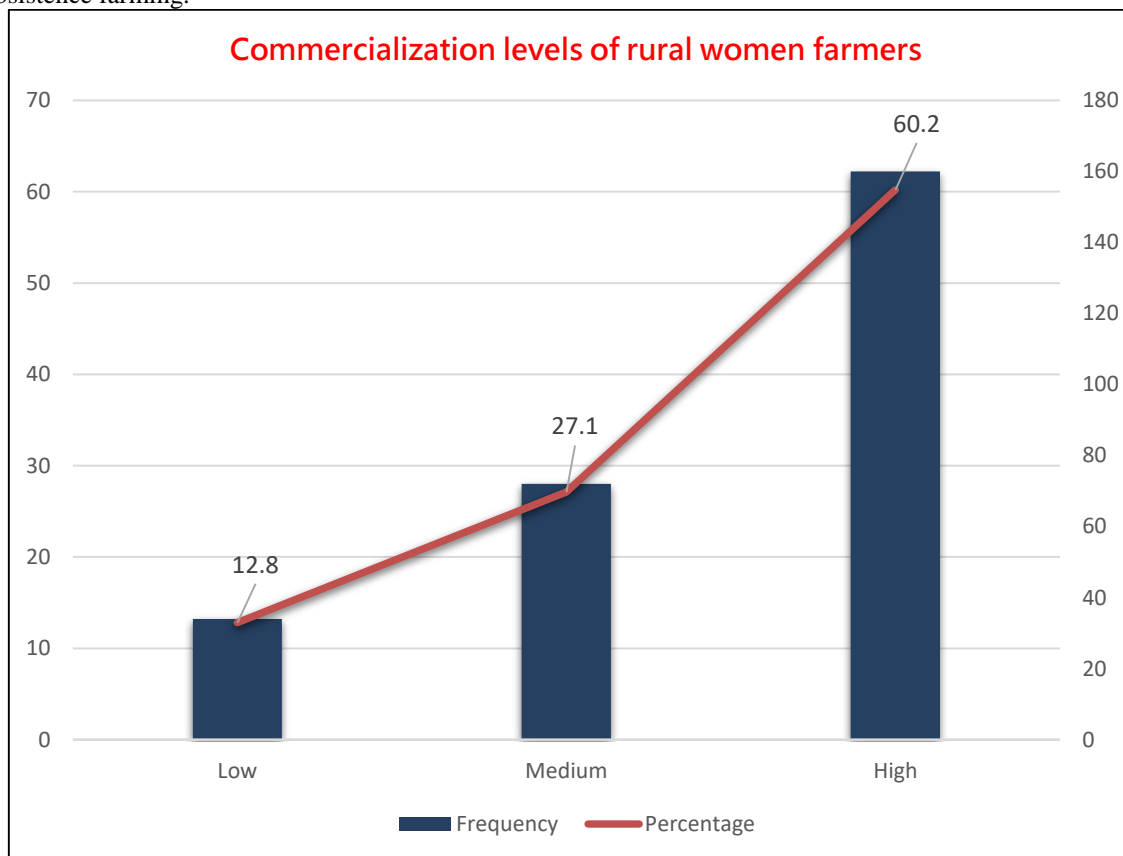


Figure 2: Commercialization Levels of Rural Women Farmers; Source: Field Survey Data, 2023.

### Financial Inclusion Factors affecting Commercialization Levels of Rural Women Farmers

Table 2 presents financial inclusion factors affecting commercialization levels of rural women farmers in South east Nigeria. The result of the ordinal Probit regression model gave a log likelihood of -237.0175 and was significant at the 1% level of probability, an indication that the explanatory variables included in the model jointly explained the variations in commercialization levels of rural women farmers in the study area.

Table 2 Ordinal Probit Regression of Financial Inclusion Factors Affecting Commercialization Levels of Rural Women Farmers

Variables	Coefficient	Std. Error	z-Statistic	Prob.	Marginal effect
Frequency of Bank mobile application usage	-0.178833	0.451706	-0.395906	0.6922	-0.0352341
Ownership of account with commercial banks	0.108731	0.242249	0.448840	0.6535	0.0214787
Amount saved in the past 12 months	-7.73E-07	6.35E-07	-1.217570	0.2234	-1.52e-07
Means of Saving	-0.058438	0.171983	-0.339787	0.7340	-0.0116918
Farm Income	-1.82E-06	1.63E-06	-1.117126	0.2639	-3.59e-07
Professional advice on finance management	0.277963***	0.345320	-0.804944	0.0009	0.0547647
Transport cost to financial institutions in a month	0.039848	0.159192	0.250316	0.8023	0.0077954
Level of savings with bank in the last 12 months	0.002761	0.174346	0.015839	0.9874	0.0005436
Proportion of Credit utilized	0.913455	0.497937	1.834481	0.0666	0.1799705

Access to Insurance Policy	0.491930***	0.289538	-1.699019	0.0093	0.1219194
Cut 1	-1.061105	0.309912	-3.423896	0.0006	
Cut 2	-0.141298	0.304202	-0.464488	0.6423	
Pseudo R-squared	0.34025	Akaike info criterion		1.872312	
Schwarz criterion	2.033974	Log likelihood		-237.0175	
Hannan-Quinn criterion	1.937258	Restricted log likelihood		-245.3660	
LR statistic	16.69696	Avg. log likelihood		-0.891043	
Prob (LR statistic)	0.001344				

*Source: Field Survey Data, 2023*

The Pseudo R squared score of 0.34025 suggests that the model exhibits a satisfactory level of fit. The cut points can be interpreted in relation to Z-scores for rural women farmers, indicating whether the observation is situated above or below the mean. A Z-score of zero is equivalent to the arithmetic mean. A z-score of +2 denotes that the observed value is positioned two standard deviations above the mean, whereas a z-score of -2 shows that the observed value is positioned two standard deviations below the mean. The research on the commercialization levels of rural women farmers revealed that cut 1 and cut 2 exhibited Z-scores below 2 standard deviations from the mean, specifically -1.06 and -0.14, respectively.

### Hypothesis and Post estimation test

The hypothesis posited that there is no statistically significant impact of financial considerations on the levels of commercialization observed among rural women farmers in the designated study region. The investigation revealed that financial variables exerted a substantial impact on the degree of commercialization among rural women farmers. The statistical significance of the chi-square statistic (chi2) of the ordinal Probit regression model was determined by the Prob > Chi2 value. Both the chi2 statistic and the Prob > Chi2 value were found to be statistically significant at the 1% level of significance (P<0.05). Hence, the null hypothesis was refuted, and the alternative hypothesis, which posits a considerable influence of financial considerations on the commercialization levels of rural women farmers, was accepted. Among the 10 explanatory factors incorporated in the model, it was determined that two of these variables exhibited statistical significance at different levels of probability for rural women farmers. There are two noteworthy variables that have been identified in this study. The first variable is expert advice on financial management, which has a coefficient of 0.277963. The second variable is access to insurance policy, which has a coefficient of 0.491930. Both of these variables have demonstrated a positive and statistically significant link with the possibility of commercialization levels. The following is a concise analysis of the independent variables employed in the ordinal Probit regression model, along with their a priori expectations on the impact on degrees of commercialization. The coefficient representing access to insurance policy (0.4919) exhibited a positive and statistically significant relationship at a significance level of 1%. This suggests that as the proportion of credit utilized, which is accessible through insurance policies, grows by one unit, there will be a commensurate increase in the commercialization levels of rural women farmers by 0.4919. In relation to the marginal effect, a one-unit increase in the availability to insurance policies for rural women farmers results in a corresponding 12.2% increase in their levels of commercialization. Alawode, Abegunde, and Abdullahi (2018) argue that insurance serves as a valuable tool for rural women farmers in mitigating the various risks inherent in agricultural activities, including crop failure, natural calamities, and market volatilities. The implementation of this measure can offer a protective mechanism for farmers, so enhancing their ability to make investments in their agricultural activities with more assurance. According to the research conducted by Dahiru, Govereh, and Nyoro (2020), it has been observed that insurance can play a significant role in facilitating access to credit for rural women farmers. This is achieved by enabling them to utilize insurance policies as collateral for obtaining loans. This can facilitate farmers in making investments in their agricultural operations through the acquisition of superior inputs, the enhancement of their equipment, and the adoption of contemporary farming methodologies. This can assist individuals in enhancing their productivity and efficiency, resulting in increased yields and improved profitability, hence indicating higher levels of commercialization. The act of obtaining insurance by rural women farmers can serve as a means for them to establish their creditworthiness with banks and other financial institutions. Farmers have the option to utilize their insurance policies as collateral in order to get loans for the purpose of acquiring inputs, equipment, and other essential resources that are crucial for the expansion of their agricultural activities.

The findings also provide evidence that women tend to be more engaged in marketing as a means of earning a living, whereas their male counterparts are more active in production and processing activities. This discovery provides support for the research conducted by Elupe and Nalukenge (2007), who emphasized that rural women farmers who possess educational qualifications are more likely to have access to insurance policies. This access to insurance is believed to enhance their exposure and knowledge, leading to higher levels of

commercialization. The study findings indicate that the coefficient of professional assistance on financial management (0.277963) had a statistically significant and favourable impact on the levels of commercialization among rural women farmers in the designated research location. This implies that rural women farmers who receive greater professional guidance on financial management are anticipated to exhibit a higher degree of commercialization. This aligns with earlier expectations. In relation to the marginal effect, an incremental unit increase in professional guidance obtained by rural women farmers is associated with a corresponding increase of 5.4% in their degree of commercialization.

Financial consultants with expertise in rural agriculture can provide valuable assistance to women farmers in developing a complete financial strategy that encompasses their income, costs, and long-term objectives. This can assist agricultural practitioners in making well-informed judgments regarding their investments and enhancing their financial management capabilities. Financial advisers have the capacity to facilitate the provision of financial services, including loans, insurance, and savings products, to women farmers residing in rural areas. This approach has the potential to assist farmers in mitigating risks inherent in agricultural practices and allocating resources to their farming enterprises. Additionally, it can facilitate the dissemination of knowledge and skills pertaining to financial management among farmers, empowering them to make well-informed choices regarding their economic affairs. This tool facilitates the comprehension of financial concepts, including interest rates, inflation, and investment risks, among farmers. As a result, it enhances farmers' commercialization by enhancing their financial planning capabilities, granting them access to financial services, augmenting their financial literacy, and refining their record-keeping practices. A comparable outcome has also been achieved by Komarek (2020) as well as by Obi, Pote, and Chianu (2020).

## CONCLUSION AND RECOMMENDATIONS

The research findings indicate that rural women farmers have a low mean financial inclusion index, implying a high level of financial exclusion at 67%. This exclusion is primarily due to the limited availability, adequacy, awareness, affordability, and accessibility of financial services. This study examined the financial inclusion factors that influence the degree of commercialization among rural women farmers in the South-East region of Nigeria. The findings revealed that receiving expert guidance on financial management and having access to insurance policies were positively and significantly associated with higher levels of commercialization. The study recommends that the National Root Crops Research Institute, the International Institute of Tropical Agriculture, and local development groups provide support in the form of production inputs, financial advisory services, and awareness creation on insurance policies to enhance the commercialization efforts of rural women farmers. Furthermore, rural women farmers should be provided with enhanced support through training and extension programs. They should also receive assistance in contract negotiations to facilitate the marketing of their agricultural products and ultimately increase their financial returns.

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