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ASSESSMENT OF THE INFLUENCE OF COOPERATIVE MEMBERSHIP ON FARM BUSINESS SUSTAINABILITY AND FOOD SECURITY IN ANAMBRA STATE

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Abstract

This study investigated the influence of agricultural cooperative membership on farm business sustainability and food security in Anambra State, Nigeria. Agriculture is the backbone of the Nigerian economy because it produces food, creates jobs, supplies industrial raw materials, exports goods for foreign exchange profits, contributes to GDP, and gives farmers a source of income. Agricultural cooperative by default seeks to do same. As such it is pertinent to assess the influence of agricultural cooperative membership on farm business sustainability and food security. A survey was conducted among 221 cooperative members, revealing that the majority were male (67.7%) with some form of tertiary education (55.7%). Most respondents (73.6%) were directly involved in farming. The analysis found a significant positive impact of cooperative membership on both productivity and food security. Compared to non-members, cooperative members experienced a 1.279 unit increase in productivity and a 0.699 unit increase in food security. Based on these findings, the study recommends promoting cooperative membership, particularly among women and individuals with lower education levels. Additionally, enhanced support for cooperatives, targeted training programs for members, and government initiatives are suggested to further improve productivity and food security. The study also encourages increased investment in research and best practices within agricultural cooperatives.

Keywords: Cooperative Membership, Farm Business, Sustainability, Food Security, Anambra State

Introduction

Ezeokafor, Nwankwo, Ekwere, and Nduka (2019), observed that agriculture is the backbone of the Nigerian economy because it produces food, creates jobs, supplies industrial raw materials, exports goods for foreign exchange profits, contributes to GDP, and gives farmers a source of income. More people in Nigeria's rural areas—where around 70% of the country's population resides—than in its cities are experiencing extreme poverty.

The lack of social and economic infrastructure in comparison to urban areas, the migration of educated workers to urban areas, low productivity as a result of restricted credit availability, the scarcity of essential farm inputs, the inadequate provision of extension services, and the use of contemporary technology for agricultural production and preservation are some of the factors contributing to the difference (Nwankwo, Opeyemi, and Salamatu, 2018). Many nations around the world, especially emerging ones, rely heavily on agriculture for their economic success.

Nigerians make up about 70% of the country's population, and agriculture provides a living for many, especially for those living in rural areas who engage in a variety of agriculturally related activities to produce food and maintain food security (Oke, Kareem, Bamigbade-Sanni, Akerele, and Oose, 2023)

Food security is a broad notion that encompasses four main ideas: food availability, affordability, accessibility, and use. Food availability refers to a household's capacity to consistently and reliably obtain enough nutrient-dense food, either through local production or purchasing, in sufficient quantities. Food affordability and accessibility among households refer to unrestricted physical and financial access to wholesome food in the right quantity that satisfies their needs.

The term "food utilization" describes the process of consuming wholesome food that satisfies each household member's needs for both macro and micronutrients. Considering the aforementioned, it is clear that if people's access to food is not adequately handled, food security may not be achieved. This suggests that combating food insecurity issues requires addressing peoples' physical and financial access to food.

International development agencies, national governments, and agricultural policy makers view cooperatives as crucial instruments for improving food security and elevating human well-being. It is impossible to overstate the significance of agricultural cooperatives as a result. It is now a crucial component of development initiatives and objectives meant to lower food

More importantly, agricultural cooperatives have a significant impact on food production, distribution, and security through their channels: farm supply cooperatives (which provide farmers with fertilizer, pesticides, and herbicides); agricultural marketing cooperatives; and agricultural service cooperatives (which provide credit facilities, extension services, and storage facilities). Similar to this, cooperatives aid in reducing poverty, increasing income, and generating constructive employment (Adegoke, Ojiagu, and Ariyo,2023).

It has been said that cooperatives, specifically agricultural cooperatives, are a useful tool for raising farmer income and productivity. The government and donor organizations, among other stakeholders, have made repeated attempts to raise agricultural production on the cooperative platform.

One of the organizations that offers microfinance services to the impoverished in rural areas is cooperatives, which makes it easier for them to get the money they need to expand their farming operations and standard of living. Otaokpukpu, Ogbu, and Okonkwo (2017) observed that membership of cooperatives performs a critical role in the measurement of the change of the financial and nonfinancial outcomes of the cooperative organization which on decisions by members of the organization.

Globally, cooperatives have played and still play a significant role in reducing poverty by making it easier to provide financing for agriculture, spurring economic expansion, and promoting social development. As a result, cooperatives are among the only means by which rural farmers may survive in an increasingly linked and concentrated global agricultural economy. Salamatu, Opeyemi, and Nwankwo (2018) "Cooperatives and Sustainable Development Goals" outlines the positive effects that cooperative businesses are having on the environment as well as their potential to do even more, such as improving gender equality and employment opportunities, supplying clean energy and financial inclusion, guaranteeing food security and extending social protection. (Okonkwo, Onyeze, and Mbaogu, 2022) More sustainable agriculture products should be more readily available in the future as a result of government initiatives and growing consumer awareness. Farmers are expected to produce in this context in a way that balances the environmental and social aspects of sustainability. As a result, cooperatives comprise a sizable portion of the agricultural industry and may be able to enhance farm sustainability. Agricultural cooperatives may play a significant role

in supply chains to assist farmers in changing their farming methods and encouraging the adoption of more sustainable practices because of their close ties to farmers (Candemir and Duvaleix, 2021).

Cooperatives are distinguished from other business forms by their distinctive identity, which suggests that they possess particular organizational qualities. These characteristics include democratic decision-making, equality, and solidarity (ICA, 2020).

Statement of the Problem

Undoubtedly, cooperative membership has made it easier for members to receive certain benefits that would have been challenging for them to achieve as non-members. According to earlier studies, prosperous cooperatives have been successful in fostering the agricultural industry and meeting the technical and financial demands of their member farmers. They have also been successful in consolidating land and distributing agricultural inputs. When considering the prospects and development problems that the field of development will encounter over the next several decades, cooperatives will prove to be more relevant than ever.

Therefore, these groups have the power to end hunger and poverty, provide income for the underprivileged, and, most importantly, bring about global prosperity (Okonkwo, Onyeze, and Mbaogu, 2022).

Access to agricultural supplies, financial options, output markets, and chances to participate in more varied, higher-value cooperative production can all be made possible with the support of cooperatives. An agricultural cooperative is a group of farmers who pool their resources for a variety of purposes, most notably to increase farm productivity. As a result, through its channels, the cooperative can actively contribute to the improvement of food security, which benefits farmers financially.

Since it is extremely difficult for humans to exist without enough food, food has come to represent both national strength and life (Adegoke, Ojiagu, and Ariyo, 2023).

The issue of household food insecurity in Nigeria is concerning, as over 70% of the population still subsists on less than $1 per day, over 50% experiences food insecurity, and most even consume less than the recommended daily allowance (Oke, Kareem, Bamigbade-Sanni, Akerele and Oose, 2023)

A significant section of the population is already vulnerable to food insecurity; potential shocks and strains to family food security are expected to have a detrimental effect on this population, exacerbating hunger and malnutrition. A lack of purchasing power, poor nutrition, a weak institutional support network, and a weak food emergency management system are some of the ways that people become caught in the cycle of food insecurity for many households, particularly in Nigeria. The degree to which a household in Nigeria has access to sufficient and nourishing food is demonstrated by the state of household food security.

The state of food security in Nigerian households can be found by looking at the key elements of food security in the country. These elements consist of food usage, accessibility, stability, and availability. Consequently, a society can attain food security if there is food available to the general public and they can obtain wholesome food whenever they need it. (Ojiagu, Ariyo, and Adegoke, 2023).

There are limited empirical research on the Assessment of the Influence of Cooperative Membership on Farm Business Sustainability and Food Security in Anambra State. It is on this background that the study investigated the Assessment of the Influence of Cooperative Membership on Farm Business Sustainability and Food Security in Anambra State and, specifically to examine the effect of farm supply inputs, and cooperative credit facilities in promoting food security in Anambra State, Nigeria.

HYPOTHESES OF THE STUDY

Ho: there is no significant influence of Cooperative Membership on farm business sustainability in the area.

Ho: there is no significant influence of Cooperative Membership on food security in the area.

CONCEPTUAL FRAMEWORK

Agricultural Cooperatives

Agricultural cooperatives are groups of farmers who pool their resources for a variety of purposes, most notably increasing farm productivity. Through these channels, agricultural cooperatives can actively contribute to increased food security while also offering farmers significant financial benefits. As food is essential to human survival and has come to represent national power, it is also a matter of life and death for humans. Increasing production and distribution of farm inputs by agricultural cooperatives has been extensively documented.

These include consumer goods, marketing, processing, the provision of agricultural inputs (seeds, fertilizers, pesticides, and contemporary farm implements), banking and credit, insurance,

warehousing, farm extension, and other support services like publications and research. (Ojiagu, Ariyo, and Adegoke, 2023).

Agricultural cooperatives are crucial in helping marginalized populations including women and youth as well as small-scale farmers. By using business models that are resilient to shocks to the economy and environment, they enable their members on an economic and social level and generate long-term job opportunities in rural areas.

In addition to a host of other services, they provide chances for small-scale farmers and better access to markets, information, communications, technologies, credit, training, and warehousing. They also assist smallholder farmers in obtaining land-use rights, improved conditions for contract farming, and reduced costs for agricultural inputs like seeds, fertilizer, and equipment. Finally, they enable smallholder producers to participate in decision-making at all levels. (Ifa and Guyalo, 2023).

Food Security

In developing African nations, where population growth rates far outpace the amount and quality of food needed to feed the populace, food insecurity is a significant problem. 204 million of the 814 million undernourished individuals that live in developing nations are in sub-Saharan Africa. The main contributors of hunger are inadequate food distribution and poverty. Growing global population demands will only make the already severe issues with food security worse.

According to United Nations predictions, sub-Saharan Africa will be home to 86% of the world's extreme poor by 2050. And present food production levels will need to be boosted by at least 70% to guarantee food security in the future.

The state in which all individuals, at all times, have physical, social, and economic access to enough, safe, and nutritious food that satisfies their dietary needs and food choices for an active and healthy life is known as food security. Rather than being divided into four "pillars," food security is best understood as a causal, linked pathway that spans multiple domains and goes from production to consumption, via distribution to processing.

Due to the tremendous volatility of agricultural commodity prices as well as the turbulence in the currency and energy markets at the time, the concept of food security initially centered on guaranteeing food availability and the price stability of basic foods in the early 1970s, a period of global food crises. "Ensuring that all people at all times have both physical and economic access to the basic food that they need" has become the new definition of food security. (Peng and Berry, 2019)

Four dimensions of food security have been identified which includes:

Food Availability: This is when all people have sufficient quantities of food available on a consistence basis. This is determined by food production and trade. On the other hand, it is the amount of food that is physically present in a country or area through all forms of domestic production, stocks, commercial imports and food aid. This is making sure that food produced locally and abroad are made available to consumers. (Adegoke, Ojiagu, and Ariyo,2023).

Food Accessibility: The food can reach the consumer (transportation infrastructure) and the latter has enough money for purchase. To such physical and economic accessibility is added socio-cultural access to ensure that the food is culturally acceptable and that social protection nets exist to help the less fortunate. (Peng and Berry, 2019).

Food Utilization: The individual must be able to eat adequate amounts both in quantity and quality in order to live a healthy and full life to realize his or her potential. Food and water must be safe and clean, and thus adequate water and sanitation are also involved at this level. A person must also be physically healthy to be able to digest and utilize the food consumed. (Peng and Berry, 2019).

Food Stability: This deals with the ability of the nation/ community/(household) person to withstand shocks to the food chain system whether caused by natural disasters (climate, earthquakes) or those that are man-made (wars, economic crises). Thus, it may be seen that food security exists at a number of levels. Availability - National; Accessibility – Household; Utilization – Individual; Stability – may be considered as a time dimension that affects all the levels. All four of these dimensions must be intact for full food security. (Peng and Berry, 2019).

Farm input supply and Food Security

The resources used in agricultural production, such as chemicals, machinery, feed, seed, and energy, are referred to as farm inputs. Farmers' access to contemporary agricultural inputs is the foundation of any agricultural revolution. Inputs into agriculture play a major role in determining yields in all forms of agricultural production. Agriculture has grown very active in the modern world, which has led to an improvement in the inputs used in the industry today. There are many different types of farm inputs, starting with the most popular ones, which are manure, farm chemicals, machinery, seeds, and water.

These agricultural inputs include machinery, irrigation, knowledge, and improved seeds, fertilizers, and crop protection chemicals (Sahel, 2019). Cooperatives should supply farmers with farm inputs because they are essential to increasing their output. Cooperatives help members obtain input and assets both directly and indirectly (in kind or in cash). Purchasing assets is a physical form of economic development. Members who have fulfilled their basic needs and then bought assets do so in order to boost their income and productivity. Due to increased use of fertilizers, biocides, better seeds, mechanization, and other technology, the agricultural sector's financial needs have increased significantly in recent decades (Kehinde & Adeyemo, 2022).

In order to increase their earnings by acquiring materials and services at a cheaper rate than they could elsewhere, the majority of farmers established cooperatives. According to Kumar, Wankhede, and Gena's (2015) research, cooperatives help members become more profitable by enhancing crop productivity and the efficiency of various agricultural inputs. They also help members improve the situation of food security and increase income.

Cooperative credit and Food Security

The majority of individuals in rural areas are subsistence farmers, and their families hardly make ends meet with the money from their fields. Food security and the general welfare of households are severely harmed by this. Household credit support could be used as a measure in policy to reduce food poverty. Credit enables low-income people to make investments and take part in income-generating activities to enhance their standard of living. The government has implemented several programs, one of which is the creation of cooperatives, in an attempt to provide credit services to rural households. Reducing rural poverty and boosting food security are major goals of cooperatives.

Low-income rural households pool their resources to create cooperatives in an effort to increase revenue. Cooperatives combine many resources, including labor, credit, and knowledge, to produce large quantities of goods, buy food, and meet other essential needs for their members. As a result, they are crucial to maintaining long-term food security. Because cooperative loan access relieves the households' cash restriction, it may enhance the food security of rural households

Cooperative Membership on Farm Business Sustainability and Food Security

More sustainable agriculture products should be more readily available in the future as a result of government initiatives and growing consumer awareness. Farmers are expected to produce in this context in a way that balances the economic, environmental, and social aspects of sustainability. The empirical literature is replete with evaluations of farm sustainability and the underlying causes. Cooperatives make up a sizable portion of the agricultural sector, thus they might contribute to the improvement of farm sustainability. Nevertheless, the function of supply chain organization has not received enough attention up to this point, particularly in relation to environmental and social sustainability.

Agricultural cooperatives can play a significant role in supply chains by assisting farmers in adopting more sustainable practices and by influencing farmers to modify their farming methods due to their intimate ties with farmers. Cooperative solidarity encourages investment by allowing farmers to share fixed costs and helps them manage market risks. Agriculture cooperatives can take on a wide range of activities because its members are also their owners, investors, and users. Through the services they offer, their improved market position, and the pooling of capital that leads to cost sharing among members, they can create incentives to urge farmers to change their methods. In addition to lowering perceived risks for farmers, cooperatives can facilitate investment and encourage the adoption of these practices.

Theoretical Framework – Resource Dependence Theory (RDT)

The Resource Dependence Theory (RDT) was primarily proposed by Jeffrey Pfeffer and Gerald Salancik in the 1970s. RDT posits that organizations (such as agricultural cooperatives) depend on external resources to survive and thrive. These resources include information, capital, technology, and social networks.

Tenets of Resource Dependence Theory

Resource Dependence Theory (RDT) posits that organizations rely on external resources for survival. These resources, controlled by other organizations, create dependencies. Unequal exchanges in resource transactions lead to power dynamics. To reduce dependencies, organizations employ strategies like political action, diversification, and inter-organizational links. RDT emphasizes adaptation to uncertainty, where organizations adjust their approaches based on changing power relationships and resource availability.

Application to Cooperatives

Resource Acquisition: Cooperatives rely on external resources (e.g., government support, market access, knowledge) to enhance their members' well-being and achieve sustainability.
Resource Scarcity: Understanding how cooperative membership affects access to critical resources (e.g., credit, inputs, knowledge) is essential for farm sustainability.
Resource Exchange: Cooperatives act as intermediaries, facilitating resource exchange between members and external stakeholders (e.g., markets, policymakers).

Implications for Well-Being and Sustainability

Cooperative membership can enhance resource access, improve production practices, and contribute to economic, environmental, and social sustainability. By analyzing how cooperative membership influences resource availability and allocation, researchers can assess its impact on farm business sustainability and food security.

Empirical Review

Adegoke, Ojiagu, and Ariyo,2023 examined the influence of agricultural cooperative societies in enhancing food security in Ekiti state, Nigeria. The study specifically examined the relationship between agricultural cooperative and food security in Ekiti State, Nigeria and specifically to examine the effect of farm supply inputs and cooperative credit facility in enhancing food security. The study adopted field survey research design through a total population of 47, 594 cooperative members across two senatorial zones in Ekiti State, Nigeria. A total number of 397 questionnaires were distributed, and 381 copies were returned. Validity and reliability of the instrument were established and the data obtained were analysed using descriptive statistics and paired sample t-test with the aid of SPSS version 20. The perception of members of food security revealed that adequate storage facilities can help to eradicate food scarcity as revealed by the mean value of 4.39. The also agreed that food security can be enhanced through improvement on agricultural productivity by agricultural cooperative as shown by mean value of 3.59. This implies that members agreed that cooperatives contributed greatly to their financial empowerment and as well provided them with adequate farm inputs to improve their agricultural productivity.

Adegoke and Agbasi, 2022 studied the impact of agricultural cooperative societies in promoting food security in Kwara State, Nigeria. Data for this study was derived from a survey of 100 farmers in the local government area. The result indicates that the majority of the farmers (60% of the respondents) belong to one of the agricultural cooperatives which has in turn boosted their productivity. Also, the result indicated that men are more engaged in farming of one crop or the other in the area under study more than women i.e., 83% male participants compared to women with 17% participants. The study therefore recommended that the government should assist the agricultural cooperatives at all levels in order to improve their productivity and this will in turn reduce the problem of food security in the country.

Okafor, Okonkwo, and Michael (2023) studied the effects of insecurity on consumption pattern of households in Awka metropolis, Anambra State. This study seeks to investigate the effect of insecurity on consumption patterns in Awka metropolis, Anambra State. In other to achieve this, this study specifically has the objectives of determining the effect of insecurity on the income of households in the Awka Metropolis as well as examining the effects of insecurity on Feeding patterns of households in Awka Metropolis. The descriptive survey design was adopted for the study. The area of study is Awka metropolis. The population of the study consists of all households in the study area, while the sample size was 271. For this study, the primary source of data was employed. The data analysis was made using mean score as well as regression analysis using SPSS package 20.0, run at a significance level of 0.05 with the degree of freedom (df) = (n-1). The study concluded that insecurity has altered feeding pattern of respondents in Awka Metropolis in terms of being unable to have a balanced diet as well as change of desired diet option as a result of hike in prices which has invariably causes some household to adopt coping strategies like reduction in the number of times they feed in a day, going a whole day without food as well as reallocation of household resources. Therefore, the researcher recommended that government efforts need to be intensified in setting up short-term cushioning programme to ameliorate the effect of increasing pricing of food items as a result of insecurity situations. Such programmes would increase income in households, which would gradually drive the local economy of Awka Metropolis.

In Mokoro's study on "Agricultural Practices for Food Security in Kenya", the focus was on "Good Agricultural Practices (GAP)". These practices address environmental, economic, and social sustainability in on-farm processes, leading to safe and high-quality food and non-food agricultural products. GAP stands on four pillars: economic viability, environmental sustainability, social acceptability, and food safety and quality. Stakeholders, including governments, food industries, farmers, and consumers, aim to achieve specific objectives related to food safety, production efficiency, livelihood, and environmental benefits. The adoption of sustainable practices by farmers is crucial for transforming agriculture into a long-term, sustainable system. However, achieving sustainability depends on voluntary acceptance of sound land use practices, influenced by technical information, machinery availability, and input resources.

Method

The population of the study consists of members of agricultural cooperatives in Anambra state. Multi-staged sampling technique was used to determine the sample size of the study. This was carried out in four stages. The first stage was the division of the state into three senatorial zones, Anambra North Senatorial Zone, Anambra Central Senatorial Zone & Anambra South Senatorial Zone.

The second stage was a sub-sampling also called a two-stage sampling, where selection of two local governments each was done (Anambra East L.G.A, Anambra West L.G.A, Orumba North L.G.A, Orumba South L.G.A, Awka North and Idemili North L.G.A.) from the senatorial zones. In the third stage, that is three-stage sampling, the simple random sampling technique was used to select two communities each from each of the two selected local governments in the senatorial zones. In the fourth stage, the simple random sampling technique was also used to select two farmers cooperatives from each of the two communities. In all, a total of 221 farmers were selected to serve as the sample size for the study. 221 questionnaires were distributed but only 201 was dully completed and returned.

Method of Data Analysis

Data collected were analyzed using descriptive statistics like simple percentages, mean, standard deviation, and regression model.

Presentation of Empirical Findings

Table 1: Distribution according to socioeconomic characteristics of respondents

Items	Frequency	Percent	Cumulative Percent
Gender			
Female	65	32.3	32.3
Male	136	67.7	67.7
Total	201	100.0	100.0
Age			
18 – 24	50	24.9	24.9
25 – 34	56	27.9	27.9
35 – 44	75	37.3	37.3
55 and above	20	10.0	10.0
Total	201	100.0	100.0
Educational Level			
Primary education	24	11.9	11.9
Secondary education	65	32.3	32.3
Tertiary education	112	55.7	55.7
Total	201	100.0	100.0
Role in Agriculture			
Agricultural Marketer	24	11.9	11.9
Co-operative manager	29	14.4	14.4
Farmer	148	73.6	73.6
Total	201	100.0	100.0
Type of Cooperative			

Agricultural Co-operative	120	59.7	59.7
Marketing Co-operative	24	11.9	11.9
Savings and credit Cooperative	57	28.4	28.4
Total	201	100.0	100.0
Years of Membership			
1-3 years	66	32.8	32.8
4-6 years	57	28.4	28.4
7 years or more	57	28.4	28.4
Less than 1 year	21	10.4	10.4
Total	201	100.0	100.0

Source: Field survey, 2024

Socioeconomic characteristics of respondents as presented in Table 1, shows that for gender of the respondents, 67.7% (136) of the respondents are males while 32.3% (65) are females indicating that the male folks were more involved than female folk in Anambra state. The age bracket of 55 years and above accounted for 10% (20) of the respondents, 35 - 44 years 37.3% (75), 25 - 34 years 27.9% (56), 18 - 24 years 24.9% (50). Concerning educational levels, majority of the respondents had some form of tertiary education representing 55.7% (112), secondary education 32.3% (65) and primary education 11.9% (24). The role of respondent in agriculture shows that farmers are 73.6% (148), co-operative managers 14.4% (29) and agricultural marketers 11.9% (24). Concerning types of co-operative respondents belong to; agricultural co-operative 59.7% (120), marketing co-operatives 11.9% (24) and savings and credit co-operatives 28.4% (57). Majority of respondents has 1 – 3 years of membership representing 32.8% (66), 4 – 6 years of membership representing 28.4% (57), 7 years and more of membership representing 28.4% (57) and less than 1 year of membership representing 10.4% (21).

RESULTS

Table 2: Influence of Cooperative Membership on farm business sustainability in the area.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.432a	0.187	0.183	0.732

Coefficients

Model	Unstandardized Coefficients		Standard Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.956	.171		17.292	.000
	1.279	.167	.432	7.673	.000

Membership of agricultural cooperative					

a. Predictors: (Constant), Membership of Agricultural Cooperative
b. Dependent Variable: Productivity since joining Cooperative

Source: Field survey, 2024

Interpretation
The regression analysis suggests that cooperative membership significantly predicts productivity increase since joining the cooperative ($\beta = 1.279$, $p < .001$).

Cooperative members have, on average, a 1.279 unit increase in productivity compared to non-members, controlling for other variables in the model.

This suggests that membership in agricultural cooperatives has a significant positive impact on productivity since joining the cooperative.

Therefore, the Null hypothesis that there is no significant influence of Cooperative Membership on farm business sustainability in the area, is rejected.

Table 3: Influence of Cooperative Membership on food security in the area.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.295a	0.087	0.083	0.5434

Coefficients

Model	Unstandardized Coefficients		Standard Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.025	.116		26.065	.000
Membership of agricultural cooperative	.699	.154	.295	4.549	.025

a. Predictors: (Constant), Membership of Agricultural Cooperative
b. Dependent Variable: Household food security after joining Cooperative

Source: Field survey, 2024

Interpretation:
The regression analysis suggests that cooperative membership significantly predicts food security after joining the cooperative ($\beta = 0.699$, $p < .001$).
Cooperative members have, on average, a 0.699 unit increase in food security compared to non-members, controlling for other variables in the model.
This suggests that membership in agricultural cooperatives has a significant positive impact on food security after joining the cooperative.
Therefore, the Null hypothesis that there is no significant influence of Cooperative Membership on food security in the area, is rejected.

Findings

Summary of findings indicates that;

- Majority of respondents are male representing 67.7%.
- Majority of respondents has some form of tertiary education representing 55.7%.
- Most of the respondent in the area of study are farmers representing 73.6%.
- From the analysis, the Cooperative members have, on average, a 1.279 unit increase in productivity compared to non-members, controlling for other variables in the model. This suggests that membership in agricultural cooperatives has a significant positive impact on productivity since joining the cooperative.
- Cooperative members have, on average, a 0.699 unit increase in food security compared to non-members, controlling for other variables in the model. This suggests that membership in agricultural cooperatives has a significant positive impact on food security after joining the cooperative.

Conclusion

In summary, understanding the impact of cooperative membership on farm business sustainability and food security is crucial. While cooperatives serve as valuable platforms for resource sharing and knowledge dissemination, their specific effects on individual farmers' well-being require further investigation. By exploring cooperative membership's influence on productivity, income, and access to essential resources, policymakers can make informed decisions to enhance agricultural resilience and ensure food security in Anambra State, Nigeria. Strengthening cooperative support, promoting membership, and investing in research and best practices are essential steps toward achieving sustainable agricultural outcomes.

Recommendations

Based on the analysis and findings of this study, the researchers therefore recommend that:

- Cooperative memberships be promoted, by encouraging more individuals, especially women, and those with lower educational levels, to join agricultural cooperatives to benefit from increased productivity and improved food security.

- Enhanced cooperative support be provided for cooperative members. This will provide increased support and resources to agricultural cooperatives to ensure sustainable productivity improvements and food security for members.
- Targeted training programmes be provided for cooperative members. This will foster and enhance agricultural skills and knowledge, particularly targeting cooperative members, to further boost productivity and food security.
- Government support be directed to cooperative members in the study area. Support through policy measures, financial aid, and technical assistance to strengthen agricultural cooperatives and their impact on productivity and food security.
- Increased investment in research and innovation be encouraged as well as identify and implement best practices for enhancing productivity and food security within agricultural cooperatives.

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