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ANALYSIS OF THE SOCIOECONOMIC IMPLICATIONS OF FARMERS ASSOCIATIONS' INITIATIVES ON SMALLHOLDER CROP FARMERS IN BAYELSA STATE, NIGERIA.

***Ologidi P.O. and Amaegberi H.**

Department of Agricultural Economics and Extension,
University of Africa, Toru Orua,Sagbama, Bayelsa State

***Corresponding Author; Email:** p_ologidi@yahoo.co.uk**; Phone +2348033762978**

ABSTRACT

This study explores the socioeconomic effects of farmers associations' initiatives on smallholder crop farmers in Bayelsa State, Nigeria, focusing on both members and non-members of the Maize Association of Nigeria (MAAN). A two-stage sampling method was employed to select 300 participants from three local government areas noted for significant maize-related activities. Descriptive statistics were used to detail the socioeconomic characteristics of the participants. The mean age was 46.11 years for non-members and 42.73 years for members. MAAN members were predominantly male (56.67%), and over 80% of both members and non-members were married. The mean years of education were 8.38 for non-members and 12.32 for members. Farming experience averaged 15.23 years for non-members and 11.69 years for members, with total incomes of N362,160 and N375,280, respectively. Ordinary Least Squares (OLS) regression analysis was conducted to assess the impact of various factors on farmers' income levels. The results indicate that age (coefficient: 8433.522, p-value: 0.028) and farm size (coefficient: 751439, p-value: 0.000) significantly influence farmer income at the 5% significance level. However, factors such as farming experience, household size, gender, association membership, and credit access did not significantly affect income. To ensure sustained effectiveness and inclusivity, it is crucial to address the concerns and challenges raised by minority members. Smallholder farmers are strongly encouraged to join farmers' associations due to the potential benefits to their wellbeing. Stakeholders—including policymakers, consumers, retailers, farm workers, regulators, suppliers, researchers, the government, and others—are urged to support farmers' associations.

Keywords: Socioeconomic, Smallholder, Regression, Income, Education

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1.0 INTRODUCTION

Andrade (2016) noted that the identity of the Smallholder Farmer (SHF) contrast within and without continents and counties and that the disparities are typically on the divides of the resources (agricultural) used, the amount of family labour available for use and their living standard. A farm that operates at a scale of 2 hectares and less and at the sustenance level is categorised as a smallholding (Rapsomanikis, 2015 and Food and Agriculture Organisation, 2012).Lowder *et al*. (2021) and Fanzo (2017) estimates that of the over 600million farmlands worldwide, about 480 million of the operated farmlands are less than 2 hectares.

Smallholder crop farming is the backbone of agricultural production in Nigeria, particularly in rural areas where the majority of the population resides (Ogbonna and Obinne, 2019). Smallholder crop farming plays a crucial role in the economy of Nigeria, where agriculture serves as a primary source of livelihood, health and education for a significant portion of the population (Anderson *et al.*, 2017 and Apata*et al.*,2018).

Smallholder crop farmers confront unique challenges that stem from the region's environmental, socio-economic, and institutional dynamics (Ogidiolu*et al.*,2018). Limited access to arable land (Kanyenji*et al.* (2014), weather patterns Yamba*et al.*, (2017), poor market access Osmani and Hossain (2016). and inadequate infrastructure, inadequate training, research and rudimentary equipment use Akano*et al.* (2018), erratic prices of agricultural inputs and output Ajah and Idu (2022) pose significant constraints to agricultural productivity in the country.

Farmers associations have been identified as an authentic way out of the constraints vitiating their efforts and they are pivotal in providing support and resources to smallholder farmers, aiming to enhance productivity, improve livelihoods, and contribute to food security (Okafor and Onyenweaku, 2016). Farmers associations play a vital role in supporting smallholder farmers by providing access to credit, inputs, technical assistance, and market opportunities (Adewole*et al.*, 2017). However, studies abound chronicling the challenges faced by farmers associations in effectively fulfilling their mandate (ability to maximize their agricultural potential and socio-economic well-being).

Despite the existence of farmers associations in Nigeria, smallholder crop farmers continue to face numerous obstacles that limit their productivity and economic prosperity. These challenges include inadequate access to credit facilities, lack of appropriate agricultural inputs, poor market linkages, limited extension services, and vulnerability to climate change impacts. Understanding and addressing these challenges are essential for enhancing the resilience and sustainability of smallholder crop farming in Nigeria and ensuring the overall development of the agricultural sector. Although there are a smorgasbord of studies on smallholder farmers in the country, this study seeks to investigate the impact farmers associations have on it members compared to non-members in Bayelsa State.

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2.0 MATERIALS AND METHODS

2.1 Study Area

This research was conducted in Bayelsa State, which has a population of 2,394,725 (NPC, 2020), encompassing the three Senatorial Districts of the State. Central Senatorial District - Yenagoa, Southern Ijaw, and Kolokuma-Opokuma local government areas, East Senatorial District - Brass, Ogbia, and Nembe local government areas and West Senatorial District - Sagbama and Ekeremor local government areas.

Bayelsa State shares borders with Rivers state to the East and Delta state to the West, while its Southern borders are dominated by the waters of the Atlantic Ocean. Yenagoa, situated at coordinates 4°55′29″N, 6°15′51″E, serves as both a Local Government Area and the capital city of Bayelsa State, Southern Nigeria. Covering an area mass of 706km², it had a population of 352,285 according to the 2006 census. Notable towns within Yenagoa include Ovom, Onopa, Amarata, Biogbolo, Opolo, Agudama, and Igbogene.

Sagbama, located in the West Senatorial District, serves as another significant Local Government Area, with Sagbama town as its headquarters situated at coordinates (5°9'8.06"N, 6°11'32.92"E). It had a population of about 188,000 and covered an area of 945km² according to a 2006 survey. Major towns within Sagbama include Sagbama town, Angalabiri, Toru Orua, Ebedebiri, Ofoni, Agbere, Okumbiri, and Toru Ebeni.

Ogbia Local Government Area, one of the three within the Bayelsa East Senatorial District, features Ogbia Town as its main hub, located at coordinates 4°39′00″N 6°16′00″E. With a population of approximately 180,000 and covering an area of 695km² according to the 2006 survey, Ogbia is renowned for its historical significance in the Nigerian oil industry. Notable towns within Ogbia include Oloibiri, Otuoke, Emeyal, Imiringi, Emakalkala, Kolo, Otuasega, and Ogbia town. Refer to Figure 2 for a map of Bayelsa state, illustrating its eight (8) local Government Areas.

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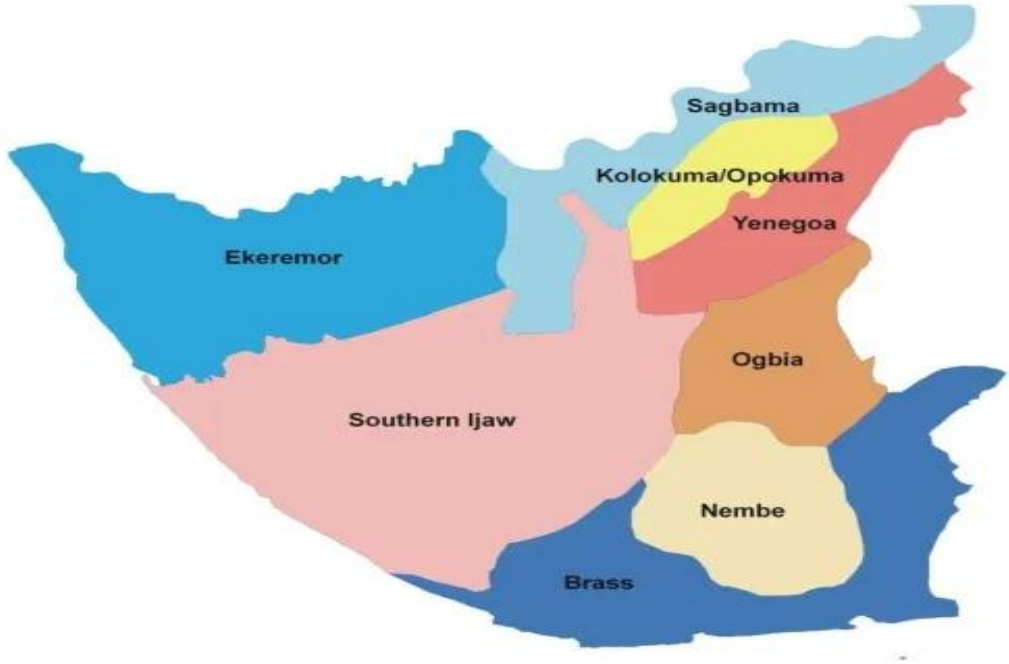

Figure 2: Map of Bayelsa State Showing the Eight (8) Local Government Areas. Source: https://reliefweb.int/organization/ocha

2.2 Procedure

The study focuses on both members and non-members of the Maize Association of Nigeria in Bayelsa State. The sampling frame consists of the roster of Maize Association of Nigeria members from the Yenagoa Branch. Using a two-stage sampling method, three local government areas—Ogbia, Sagbama, and Yenagoa—were purposively selected due to their significant maize-related activities. Subsequently, fifty members and fifty non-members were randomly sampled from each of these areas, resulting in a total of one hundred (100) participants per local government and three hundred (300)\ participants overall for the study.

2.3 Descriptive Statistics

Descriptive statistics were employed to outline the socio-economic attributes of both Maize Association of Nigeria farmers and non-members in Bayelsa State.

2.3.1 Ordinary Least Squares

The Ordinary Least Squares (OLS) regression model was utilized to examine the impact of various socio-economic factors on the income levels of small-scale farmers, including members of the Maize Association of Nigeria and non-members (Ademiluyi, 2014 and Eze and Nwibo, 2014). The model equation is represented as follows:

$$Y = \alpha + \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + e$$

Where:

(Y) represents farmers' incomes (in Naira)

(Bo) denotes the intercept

(B) coefficients (from 1 to 9) represent estimated effects

(X1) signifies age (in years)

(X2) represents farming experience (in years)

(X3) indicates farm size (in hectares)

(X4) stands for household size (number of individuals)

(X5) represents gender (with male coded as 1 and female as 0)

(X6) signifies education (in years)

(X7) indicates membership in the association (with yes coded as 1 and no as 0)

(X8) represents access to credit through the association (with yes coded as 1 and no as 0)

(X9) stands for access to credit (with yes coded as 1 and no as 0)

(e) represents the error term

3.0 RESULTS AND DISCUSSION

Table 1.1presents the socioeconomic characteristics, specifically age distribution, of smallholder crop farmers who are both non-members and members of the Maize Association of Nigeria. Age (years) 8 non-members (5.33% of the total) aged less than 31 years, 45 (30%) aged between 31 and 40 years. Members 18 members (12% of the total) aged less than 31 years, 60 (40%) aged between 31 and 40 years. The Mean age or non-members is 46.11 years, and for members, it is 42.73 years. The above findings closely mirror those of Ominikari*et al.* (2017), whose study in Bayelsa State reported an average farmer age of 42.6 years. The aging trend observed among smallholder farmers in Bayelsa State suggests potential challenges for the agricultural sector, highlighting the necessity for targeted interventions to address the unique needs of an aging population. Additionally, it underscores the importance of encouraging youth participation in agriculture and implementing strategies for succession planning to ensure the longevity of smallholder farming practices. Farmers' associations can play a vital role in facilitating knowledge exchange and collaboration among different age groups within the farming community.

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Table 1.1 Socioeconomic Characteristics (Age) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Age (years)						
<31	8	5.33	5.33	18	12	12
31 – 40	45	30	35.33	60	40	52
41 – 50	51	34	69.33	36	24	76
51 -60	31	20.67	90	25	16.67	92.67
60+	15	10	100	11	7.33	100
Mean		**46.11**			**42.73**	

Source: Computed from Field Survey Data, 2023

Table 1.2 depicts that for non-members, 63.3% of farmers are female, while 36.67% are male. This indicates a higher proportion of female farmers among non-members. In contrast, among members of the Maize Association, the gender distribution skews towards male farmers, with 56.67% being male and 43.33% female. The data suggests that male farmers are more inclined to become members of the Maize Association compared to female farmers. This indicates a potential gender disparity in membership, with males being more actively involved. The importance of considering gender dynamics in agricultural development initiatives, particularly concerning association membership among smallholder farmers in Nigeria (MulumeBonnke*et al*.,2022).

Table 1.2 :Socioeconomic Characteristics (Gender) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Gender						
Male	55	36.67	36.67	85	56.67	56.67
Female	95	63.3	100	65	43.33	100

Source: Computed from field survey data, 2023

Table 1.3 shows that among non-members, the majority, 89.33%, are married, followed by singles at 7.33%, and a small percentage of widows/widowers and individuals aged 51-60. For members of the Maize Association, the highest proportion, 81.33%, are married, followed by singles at 13.33%, and a smaller percentage of widows/widowers and individuals aged 51-60. Both non-members and members have a significant proportion of married individuals, indicating that marital status doesn't significantly differ between the two groups. The proportion of single individuals is slightly higher among members compared to non-members, suggesting a potential trend of higher participation among unmarried individuals in the association. This aligns with the approximate 80% threshold reported by the significant prevalence of marriage among smallholder farmers Uhuegbulem*et al*., (2016). This could potentially influence household dynamics, stability, and support networks.

Table 1.3: Socioeconomic Characteristics (Marital Status) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Marital status						
Single	11	7.33	7.33	23	13.33	13.33
Married	134	89.33	96.67	122	81.33	96.67
Widow/Widower	2	1.33	98.6	4	2.67	99.33
51 -60	3	2	100	1	0.67	100

Source: Computed from Field Survey Data, 2023

Table 1.4 revealed that among non-members, the majority (72.67%) have completed 6 to 12 years of education (equivalent to primary and secondary education). A smaller proportion have less than 6 years of education (10.67%), while some have 13 to 15 years (8.6%) or more than 15 years (8%). In contrast, among members of the Maize Association, there is greater diversity in educational attainment. While a significant portion (46.67%) have completed 6 to 12 years of education, a notable proportion have 13 to 15 years (17.33%) or more than 15 years (33.33%) of education. The mean educational level among non-members is 8.38 years, indicating an average between completing primary and secondary education. Among members, the mean educational level is higher at 12.32 years, suggesting a tendency towards higher levels of education within this group. Overall, the table suggests that members of the Maize Association tend to have higher levels of education compared to non-members. This difference in educational attainment could have implications for access to information, decision-making abilities, and adoption of modern agricultural practices among smallholder crop farmers in Nigeria.

Table 1.4: Socioeconomic Characteristics (Educational level) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Educational Level (years)						
< 6	16	10.67	10.67	4	2.67	2.67
6 – 12	109	72.67	83.33	70	46.67	49.33
13 – 15	13	8.6	92	26	17.33	66.67
15+	12	8	100	50	33.33	100
Mean		**8.38**			**12.32**	

Source: Computed from Field Survey Data, 2023

The data in Table 1.5 shows that the average household size for non-members is 5.86 persons, while for members of the Maize Association of Nigeria, it is 5.25 persons. Among non-members, 38.67% have households with fewer than 5 persons, 53.33% have 5-10 persons, 6.67% have 11-15 persons, and 1.33% have more than 16 persons. In contrast, for members of the Maize Association of Nigeria, 40% have households with fewer than 5 persons, 56% have 5-10 persons, and 4% have 11-15 persons. Uhuegbulem *et al.* (2016) support these findings with an average

family size of 6.The differences in household sizes between non-members and members of the Maize Association of Nigeria have important implications for resource management, labor availability, and the overall well-being of smallholder farmers.

Andrade (2016) highlights the significance of labor availability and the share of family labor in determining the operational size of a farm. Obayelu, *et al*. (2019) noted that increasing population and decreasing arable land are affecting farm size, food production, and sufficiency. Apata (2016) adds that land fragmentation in Nigeria's agricultural sector is further impacting farm sizes.

Table1.5: Socioeconomic Characteristics (Household Size) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Household size (Number of persons)						
< 5	58	38.67	38.67	60	40	40
5 -10	80	53.33	92	84	56	96
11 – 15	10	6.67	98.67	6	4	100
15+	2	1.33	100			
Mean		**5.86**			**5.25**	

Source: Computed from field survey data, 2023

The results in Table 1.6 highlight the primary occupations of non-members and members of the Maize Association of Nigeria. For non-members, 82.67% are engaged in farming, 12% in trading, 4.67% as civil/public servants, and 0.76% as artisans. In contrast, among members of the Maize Association of Nigeria, 76% are involved in farming, 9.33% in trading, 11.33% as civil/public servants, and 3.33% as artisans. This data suggests that farming is the predominant livelihood for smallholder farmers in Bayelsa State. However, there is a notable level of occupational diversification, particularly in trading, civil/public service, and artisan activities. The influence of association membership on this diversification highlights the potential impact of collective organizations on the economic activities of smallholder farmers.

Regarding secondary occupations, non-members are engaged in farming (53.33%), trading (22%), civil/public service (17.33%), and artisan work (7.33%). For members of the Maize Association of Nigeria, the secondary occupations are farming (52.67%), trading (24%), civil/public service (10%), and artisan work (13.33%). The quest for additional income outside farming to improve agricultural sustainability and enhance household income and well-being is noted by *Igwe et al*.(2020).These percentages provide insights into the diversity of secondary occupations among both non-members and members of the Maize Association of Nigeria, highlighting the occupational distribution within the sampled population in Bayelsa State. Furthermore, the influence of farmers' associations on members' secondary occupations underscores the potential benefits of such collective organizations in promoting economic diversification among smallholder farmers.

Table 1.6: Socioeconomic Characteristics (Primary and Secondary Occupation) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Primary Occupation						
Farming	124	82.67	82.67	114	76	76
Trading	18	12	94.67	14	9.33	85.33
Civil/Public servant	7	4.67	99.33	14	11.33	96.67
Artisans	1	0.67	100	5	3.33	100
Secondary Occupation						
Farming	80	53.33	53.33	79	52.67	52.67
Trading	33	22	75.33	36	24	86.67
Civil/Public servant	26	17.33	82.67	15	10	86.67
Artisans	11	7.33	100	20	13.33	100

Source: Computed from field survey data, 2023

Table1.7 shows that the average landholding for non-member crop farmers is 1.083 hectares, while for members of the Maize Association of Nigeria, it is 1.05 hectares. Among non-members, 85.33% have farm sizes ranging from 1-1.49 hectares and 14.67% have sizes from 1.5-2 hectares. For members of the Maize Association of Nigeria, 90.67% have farm sizes between 1-1.5 hectares, and 9.33% have sizes from 1.5-2 hectares. These figures align closely with the average farm size of 0.9 hectares reported by Ominikari *et al*. (2017).Farm sizes in Bayelsa State, Nigeria, are influenced by factors such as labor availability, population growth, land fragmentation, and farmers' association membership. Understanding these dynamics is crucial for policymakers, researchers, and farmers to address challenges and develop effective strategies for sustainable agriculture in the region.

Table 1.7: Socioeconomic Characteristics (Farm Size in Ha) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
1 – 1.49	1228	85.33	85.33	136	90.67	90.67
1.5 – 2	22	14.67	100	14	9.33	100
Mean		**1.08**			**1.05**	

Source: Computed from field survey data, 2023

As shown in Table 1.8, non-member crop farmers have an average of 15.23 years of farming experience, while members of the Maize Association of Nigeria (MAAN) have an average of 11.69 years. Among non-members, 44.67% have less than 11 years of experience, 28% have 11-20 years, 22.67% have 21-30 years, and 4.67% have 31-40 years. In contrast, among MAAN members, 68% have less than 11 years of experience, 19.33% have 11-20 years, 8.67% have 21-30 years, 3.33% have 31-40 years, and 0.67% have over 40 years. Maliwichi*et al.* (2014) reported that years of

farming experience positively influence gross margins in tomato production, and the extensive farming experience of these farmers is supported by Ominikari *et al.* (2017).

While non-members generally have more farming experience, MAAN members tend to be less experienced on average, suggesting a potentially younger membership base. This diversity presents opportunities for knowledge exchange, mentorship, and targeted support programs to enhance the overall capacity and success of smallholder crop farmers in Bayelsa State.

Table 1.8: Socioeconomic characteristics (Farming Experience in Years) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Farming Experience (years)						
< 11	67	44.67	44.67	102	68	68
11 – 20	42	28	72.67	29	19.37	97.33
21 – 30	34	22.67	95.33	13	8.67	96
31- 40	7	4.67	100	5	3.33	99.33
41 +				1	0.67	100
Mean		**15.23**			**11.69**	

Source: Computed from field survey data, 2023

The income distribution for non-members and members of the Maize Association of Nigeria (MAAN), as detailed in Table1.9, shows that non-members have an average primary income of N 218,026.7 and secondary income of N 145,000, while MAAN members have an average primary income of N 277,713.3 and secondary income of N 100,900. For non-members, the primary income brackets are: less than N 101,000 (33.33%), N 101,000 - N 500,000 (57.33%), N 501,000 - N 1,000,000 (6.67%), and above N 1,000,000 (2.67%).

The income distribution among smallholder crop farmers in Bayelsa State highlights the need for targeted interventions to address the diverse financial situations within the farming community. Understanding these disparities can help in developing inclusive and effective strategies to support the economic empowerment of all farmers, regardless of their income levels.

The secondary income brackets for non-members: less than N 101,000 (66%), N 101,000 - N 500,000 (24.67%), N 501,000 - N 1,000,000 (5.33%), and above N 1,000,000 (4%). For MAAN members, the primary income brackets are: less than N 101,000 (14.67%), N 101,000 - N 500,000 (72%), N 501,000 - N 1,000,000 (10%), and above N 1,000,000 (3.3%). Their secondary income brackets are: less than N 101,000 (77.33%), N 101,000 - N 500,000 (20%), and N 501,000 - N 1,000,000 (5.33%).

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Table 1.9: Socioeconomic Characteristics (Annual Primary and Secondary Income in Naira) of Smallholder Crop Farmers; Non-Members and Members of Maize Association of Nigeria.

Variables	Non-members (n=150)			Members (n=150)		
	Freq	%	Cumm.	Freq	%	Cumm.
Primary Income (Naira)						
< 100,000	50	33.33	33.33	22	14.67	14.67
101,000 -500,000	86	57.33	90.67	108	72	86.67
501,000 – 1,000,000	10	6.66	97.33	15	10	96.67
1,000,000+	4	2.67	100	5	3.33	100
Mean		**218,026.70**			**277,713.30**	
Secondary income (Naira)						
< 100,000	99	66	66	116	75.33	75.33
101,000 -500,000	37	24.67	90.67	30	20	97.33
501,000 – 1,000,000	8	5.33	96	4	2.6	100
1,000,000+	6	4	100			
Mean		**145,000.00**			**100,000.00**	

Source: Computed from field survey data, 2023

Table 2.1 explains the results of the OLS regression: The age of crop farmers (both members and non-members), years of farming experience, farm size, household size, gender of the household head, years of schooling (education), association membership, credit accessed through the association, and overall credit access are the variables of interest.

The regression coefficient for age (8433.522) is statistically significant at the 5% level (p-value = 0.028), indicating that the age of the household head has a positive impact on income. An additional year in age increases income by N 8433.52. This finding contrasts with Mukaila*et al.* (2021), who reported a negative impact of age on income for women in cooperative associations, but aligns with Maliwichi *et al.* (2014), where age positively influenced gross margin, farm size, and years of experience.

The regression coefficient for farm size (751439) is also statistically significant at the 5% level (p-value < 0.0001), suggesting that larger farm sizes positively affect income. An increase of 1 hectare in farm size raises income by N 751,439, consistent with Lowder *et al.*(2016), who found that farmers with larger farms are more likely to increase their income.

The regression coefficient for education (14842.23) is significant at the 5% level (p-value < 0.0001), implying that education has a positive impact on income. Each additional year of education increases income by N 14,842.23. This finding agrees with Sikwela and Mushunje (2013), who reported a positive contribution of household education to income. This suggests that associations should promote continuous education and training for their members.

Other variables such as farming experience (-3565.703 and p-value = 0.410), household size (15712.14 and p-value = 0.192), gender (6870.382 and p-value = 0.908), association membership (32842.97 and p-value = 0.653), credit through association (-103769.1 and p-value = 0.349), and overall credit access (51327.78 and p-value = 0.668) were not significantly related to income. The non-significance of association membership contrasts with Ajah*et al*. (2017), who found a positive and significant relationship between income and association membership. However, it is more in line with studies by Vu*et al.*(2020), Omonona and Agoi (2017), and Oladele (2017), where association membership negatively impacted farmer income due to monopolistic practices and high administrative fees. Similarly, the finding regarding household size contrasts with Sikwela and Mushunje (2013), who found a positive contribution of household size to income. These discrepancies call for further investigation by MAAN and relevant stakeholders to understand the underlying causes of these deviations from expected norms.

Table 2.1: Estimated Ordinary Least Squares Regression Results for Income for Member of Maize Association of Nigeria

Total income	Coeff.	std. Err.	t	P >| t |
Age	8433.522	3820.726	22.21	0.028
Farming experience	-3565.703	4313.667	-0.83	0.410
Farm size	751439	167244.9	4.49	0.000
Household size	15712.14	12026.26	1.31	0.192
Gender	9870.382	59402.5	0.12	0.901
Education	14842.23	6747.816	2.2	0.29
Membership of association	32842.97	73030.49	0.45	0.653
Access through association	-103769.3	110697.3	-0.97	0.349
credit access	51327.78	119721.3	0.43	0.668
_cons	-994724.7	228673.2	-4.35	0.000
Number of obs =300				
F (7, 292) = 6.35				
R- squared = 0.1646				
Prob> 0.0000				

Note: *** denote 5% significance level

4.0 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

The findings from this study indicate that the Maize Association of Nigeria (MAAN) positively impacts members' incomes. Age, farm size, and education significantly enhance income, while farming experience, household size, gender, association membership, and access to credit through the association do not show significant effects.

4.2 Recommendations

To ensure sustained effectiveness and inclusivity, addressing concerns and challenges raised by minority members is crucial. Smallholder farmers are strongly encouraged to join farmers' associations due to the potential benefits to their wellbeing. Stakeholders—including policymakers, consumers, retailers, farm workers, regulators, suppliers, researchers, the government, and others—are urged to support farmers' associations.

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