

Determinants of Farmers' Inclination towards Cooperative Membership in Anambra State, Nigeria

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1. INTRODUCTION

Agriculture has been described as the mainstay of Nigeria's economy apart from oil. In the literature of agricultural production, researchers have been an incongruity in asserting that agriculture remains the mainstay of the Nigerian economy and it also plays a crucial role in a nation's socio-economic transformation (Anigbogu, Okoli and Anyanwu, 2013; Anyanwuocha, 2006). Greater proportions of the population depend on the agricultural sector for their livelihood and the rural economy is still basically agricultural (Mike, 1998). It is asserted in the literature (Ogen, 2007; CBN, 2005; Anigbogu, et al 2013) that the first decade after independence in 1960 showed significant growth and contribution of the agricultural sector to the Nigerian economy. In the 60s, Nigeria was among the world's top exporters of palm fruit, groundnut, cocoa, cotton, rubber, among other cash crops. The sector accounted for over 60%, on average, to the GDP, 70% of her total export, and a substantial part of the country's foreign exchange earnings. However, the decade after Nigeria's independence was not favorable for the sector as it shed-off a significant part of its prominence in the economy (Anigbogu, et al 2013). This situation prompted governments at all levels in Nigeria into frantic efforts at reviving the sector. But unfortunately, Nigeria's agricultural sector is predominantly practiced in a near subsistence small-scale. According to Obinyan (2000), farmers' holdings are small, most often less than two hectares and are characterized by low productivity. This leads to low incomes and low capital investment; thus,

ABSTRACT

The study evaluated the determinants of farmers' inclination towards membership of cooperative societies in Anambra State, Nigeria. Specifically, the study determined the influence of farmer socio-economic background; the influence of farmer awareness of agricultural cooperative benefits; and influence of farm input, credit, and marketed farm produce on cooperative membership inclination. Primary data were obtained from a sample of 368 farmers from four communities in the four agricultural zones of Anambra State. Descriptive statistics such as frequency distribution tables, percentages, mean and standard deviation were employed to present data. Multiple regression analysis was adopted in the analysts and tests of three formulated hypotheses. The study outcome revealed that: farmer's socio-economic background had a significant influence on cooperative membership inclination (F ratio of 28.502 was Significant@ 0.000); farmer's awareness of benefits of agricultural cooperatives constitutes significant influence on cooperative membership inclination (F ratio of 900.231 was Significant@ 0.000); quantum of farm input, credit, and marketed farm crops by farmer constitutes significant influence on cooperative membership inclination (F ratio of 5.354 was Significant @ 0.001). The study recommends, among others, that government can improve the awareness about the benefits of agricultural cooperatives in the area region by giving more focus to knowledge- and awareness-based instruments like education, information center, rural associations, communication services and roads.

KEYWORDS: agricultural cooperative, membership, inputs, credit socio-economic characteristics, regression

making it near impossible for the farmers to enjoy the economy of large scale production; without external intervention.

Presently, farmers' interest organizations around the world have been promoting a new agenda for rural development and the development of farmer-owned organizations and enterprises. Indeed, developments in recent decades have shown that, although cooperatives have been affected by many problems, they are still the most relevant organizational form for small and medium-scale farmers (Allred, 2013). Cooperatives have shown resilience in periods of crisis. Cooperatives have resisted the negative impacts of a rapidly changing environment. Cooperatives have been a privileged forum for discussing and finding solutions to common problems. Many new initiatives give hope for a renewed, member-owned, community-committed and independent agricultural cooperative movement.

In Nigeria, several researchers have described agricultural cooperative as an effective instrument for improving productivity as well as the income of the farmers (Uchedu, 1998, Oboh, Lawal and Agada, 2008). Various stakeholders including the government and donor agencies have tried at one time or the other to improve agricultural productivity on the platform of the cooperative. According to Uzoka (2008), one method through which the government has been attempting to remedy this dilemma (low agricultural

productivity) has been through a campaign of encouragement and enlightenment for the smallholder (farm) owners to join or form cooperative societies. But incidentally, the membership strength of most of the cooperative societies is relatively low. Cooperative as an organizational form is an effective mechanism and platform for mobilizing the resources of disparate, small scale farmers to enjoy the benefits of large scale production. As averred by Okuneye and Igben (1981), cooperative societies are voluntary associations of people who by pooling their physical, functional and human resources together, aim at improving their living standard. Farmers living in the rural areas can increase their income through increased agricultural productivity by forming themselves into cooperative groups. Agbo (1999), (cited in Oboh, et al. 2008) identified specific benefits accruable to farmers if they are members of cooperative societies: a strong bargaining power for loans and other services; a favourable atmosphere for a more effective government aid scheme, improved marketing opportunities for members; provision of services for members at highly reduced costs' mobilization of funds for farm business; improved dissemination of extension services through the group approach; self-reliance and motivation for members; increased access to improved skills, exchange of ideas and educational opportunities through adult education and literacy programmes; and creation of avenues for members democracy and assume collective responsibility.

Suggestions assert cooperative could be the needed leeway to improve Nigerian agriculture (Zarafshani and Rostamitaba, 2010; Oboh, et al 2008; Agbo 1999). The various authors have noted that farmers living in rural areas can increase their income through increased agricultural productivity by forming themselves into cooperative groups. But membership strength of most of the societies in Nigeria is incidentally low, thereby, eluding the farmers of the opportunity of jointly pooling resources in order to enjoy the benefit of large scale production; and other benefits that accrue as a result of cooperative membership (Aforka, 2002). Indeed, cooperative growth and development in Nigeria have not been impressive and membership has continued to dwindle and thus inhibiting agricultural growth. According to Umebali (2006) efforts expended to improve agricultural production through vibrant cooperative memberships in Nigeria have yielded less than the desired results. This then negates the original impetus for the introduction of cooperative in the country. Indeed, the modern rural cooperatives were formed in response to low prices, for farm produce, high prices for farm inputs, wide marketing margins in disfavor of the farmers, high transportation costs and farmers low bargaining power (Uchedu, 1998; Oboh, et al, 2008). Yet, most cooperative fail to translate their group potential into increased agricultural production. As identified by Ijere in Oboh, et al. (2008), most cooperative fail because of low membership strength, poor fund mobilization and poor leadership. It is believed that if the membership strength of cooperatives is improved, members of the societies will have better access to various agricultural production and promotion facilities. If farmers inclination towards cooperative is high then the prospects of membership will be very bright.

There are many farmers in rural Nigeria who are not members of cooperative, despite the different technical and financial support from the government. Cooperatives are member-based organizations and attract members from

diverse backgrounds. Hence, understanding what drives farmers' inclination in collective action is important for cooperatives' survival and growth since a critical factor in cooperative success is membership. Thus, Knowledge of the influence of their socio-economic characteristics and other factors on the inclination towards cooperative could provide an important impetus on ways to encourage farmers to become members. Extant literature of cooperative studies in the local government area or elsewhere in the state has not addressed this issue, which is now the focus of the present investigation.

The broad objective of the present study is to ascertain the determinants of farmers' inclination towards membership of cooperative societies in Anambra State, Nigeria. Specifically, the study set out to determine the influence of farmer socioeconomic background on cooperative membership inclination; examine the influence of farmer awareness of agricultural cooperative benefits on cooperative membership inclination; and determine the influence of farm input, credit, and marketed farm produce on cooperative membership inclination of farmers.

Hypotheses for the study (null forms)

- A. Ho: Farmer socio-economic background does not have a significant influence on cooperative membership inclination.
- B. Ho: Farmer awareness of the benefits of agricultural cooperatives does not constitute a significant influence on cooperative membership inclination.
- C. Ho: Quantum of farm input, credit, and marketed farm crops by farmer do not constitute significant influence on cooperative membership

2. LITERATURE REVIEW

Conceptual Review

Cooperative has been variously described by scholars and regulatory agencies. International Cooperative Alliance (1995) in Nwankwo (2007) defines a cooperative as an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise. University of Wisconsin Center for cooperative also captured the essence of cooperative in their definition. The center has two perspectives to the definition: "a cooperative is a business voluntarily owned and controlled by its member patrons and operated for them and by them on a non-profit or cost basis. It is owned by the people who use it." It also viewed it as "a user-owned and democratically-controlled enterprise, in which benefit is received according to use." As observed from the definitions, a key element of the definitions is the members' dual nature—they are owners and users, investors and patrons. It is the dual nature that differentiates the cooperative from other organizations. According to Nwankwo (2007), a cooperative is an independent enterprise, promoted, owned, and controlled by members to meet their needs. As an enterprise, cooperatives are active in markets locally nationally and worldwide.

An agricultural cooperative, on the other hand, is a cooperative where a group of farmers pools their resources together in a certain area of activity to facilitate optimal production through efficient use of these resources (Msimango and Oladele, 2013). This pooling of resources include joint purchase of farm inputs like seed, farm

machinery, aiding members morally and financially during cultivation and seeking marketing channels for farm products to ensure better and fair prices. The purpose of forming cooperatives is to create a secure environment in terms of food security and the improvement of the standard of living among other members of the community. Agricultural co-operatives play an important role in the development of agriculture in industrialized countries as suppliers of farming requisite, marketers of agricultural commodities and providing services such as storage and transport.

Collective action is the core resource of agricultural cooperatives. Cooperatives create social relations that enable individuals to achieve goals that they may not otherwise be able to achieve by themselves. For example, cooperatives can help farmers benefit from economies of scale to lower their costs of acquiring inputs or hiring services such as storage and transport. Agricultural cooperatives also enable farmers to improve product and service quality and reduce risks. They may also empower their members economically and socially by involving them in decision-making processes that create additional rural employment opportunities or enable them to become more resilient to economic and environmental shocks (Agriculture for Impact, 2019).

Benefits of Agricultural Cooperative Membership

According to ICA (2012), agricultural cooperatives play an important role in supporting small agricultural producers and marginalized groups such as young people and women. They empower their members economically and socially and create sustainable rural employment through business models that are resilient to economic and environmental shocks. Cooperatives offer small agricultural producers opportunities and a wide range of services, including improved access to markets, natural resources, information, communications, technologies, credit, training and warehouses. They also facilitate smallholder producers' participation in decision-making at all levels, support them in securing land-use rights, and negotiate better terms for engagement in contract farming and lower prices for agricultural inputs such as seeds, fertilizer and equipment. Through this support, smallholder producers can secure their livelihoods and play a greater role in meeting the growing demand for food on local, national and international markets, thus contributing to poverty alleviation, food security and the eradication of hunger.

In many developing countries, policymakers and community developers are keen to develop cooperatives as a business alternative which could address local needs and promote local economic growth. Indeed cooperatives have been considered to be one of the good channels of organizing rural people in order to overcome poverty, improve living standards and foster development (Gasana, 2011). The cooperative, according to the United Nations (2009), continues to play significant social-economic roles in many countries. For example, they create employment and provide income, they produce and supply safe and quality food and services to their members, and they promote solidarity and tolerance and promote the rights of each individual.

Membership of cooperative no doubt helps members gain access to certain benefits which otherwise would have been difficult to obtain by the members if they were non-

members. Previous research have indicated that successful cooperatives, have been effective in satisfying economic and technical needs of member-producers land consolidation distribution of agricultural inputs and promoting agriculture-related industry (Zarafshani and Rostamitaba, 2010; Ghanbari and Barghi, 2010; Masoomi, 1988; Rouhani, 1997; Nasiri, 2010; Niazi, Hosseini and Akbari 1975; Shore and Agahi, 2010).

Agbo (1999) identified specific benefits accruable to farmers if they are members of cooperative societies as get a strong bargaining power for loans and other services; a favourable atmosphere for a more effective government aid scheme; improved marketing opportunities for members; provision of services for members at highly reduced costs; mobilization of funds for farm business; improved dissemination of extension service through the group approach; self-reliance and motivation for members; increased access to improved skills, exchange of ideas and educational opportunities through adult education and literacy programmes; and creation of avenues for members democracy and assume collective responsibility. According to the United Nations (2009) cooperative – play a meaningful role in uplifting the socio-economic conditions of their members and local communities. Despite the much-touted benefits associated with the cooperatives, some dairy farmers are still reluctant to join. According to Gasana (2011), this raises a lot of questions: for example (i) why do some farmers join? (ii) why do other farmers refuse to join? (iii) are cooperatives really useful to their members?

Review of Empirical Literature

A study on factors that affect the participation of Shirvan-Chardavol township's farmers in agricultural cooperative activities in Ilam Province in Iran was conducted by Bagher (2011). The stepwise multiple regressions were used to evaluate the collective role of the independent variables on the level of participation of agricultural cooperatives activities. The results of the study showed that membership history, income, amount of agricultural land, socio-cultural factors, the members' economical features, managerial factors, and members' psychological and communicational-cum-informational factors have a direct impact on their level of participation in agricultural cooperatives.

Thomas and Fanaye (2012) adopted a Tobit model to analyze the determinants of the proportion of women in the membership of agricultural cooperatives and logit model to study the determinants of women membership in agricultural cooperatives in Ethiopia. The results from Tobit regressions show that the functions are undertaken and the way the cooperatives are organized significantly affect women's proportion in cooperatives membership. The results from logit regression show that age and household size are likely to influence women's participation in the cooperative.

Jensen, Clark, English, and Menard (2011) analyzed the factors that influence farmers' interest in marketing switchgrass through contracts and/or joining a cooperative that harvests, transports, stores, and markets their switchgrass in twelve southeastern USA using a probit model. They found that the interest in joining a cooperative is positively influenced by farm size, on-farm 13 storage and off-farm income. The study found that the farmers who are interested in growing switchgrass as a biomass feedstock are

generally willing to grow it under a cooperative that harvest, transports, stores, and markets switchgrass. This willingness to engage in these alternative marketing arrangements was greater among the farmers, who farmed more acres of land, had facilities in which they could store switchgrass, and had substantial off-farm income.

Othman, Kari, Jani, and Hamdan, (2012) analyzed the factors that influence cooperative membership and increment in shares in Malaysian Cooperatives using a logit model. The results of that study showed that age, occupation, annual general meeting attendance and membership duration are important predictors in the model. Gender negatively influenced cooperative membership and that people in the older age group are more likely to become cooperative members. These insights are considered useful in the current study.

Mensah, Karantininis, Adégbidi, and Okello (2012) estimated a two-stage model of commitment to cooperatives by cashew nut farmers in the Benin Republic. In the first stage, they used data on 109 nonmembers and 168 members and estimated a binary Logit model of farmer's discrete choice with respect to committing to membership. In the second stage, they used the members' data to estimate a Tobit model of the proportion of produce delivered to the cooperative, after controlling for the endogeneity of the proportion of pre-sales. Results revealed that the commitment to membership depends on the assessment of prices offered by the marketing channels, the farmer's preferences for the specific attributes of the channels, the total farm size, and some psycho-sociological factors; the commitment to business depends on prices and transaction costs in the channels. To improve member commitment, they called on cooperatives to always consider the subjective and economic reasoning of the farmers, and setting formal contracts between members and their organization.

Awotide (2012) examined the level of participation of women in cooperative organization and its determinants in Yewa North Local Government Area of Ogun State, South-West zone of Nigeria in 2011 using two-stage sampling techniques to select 180 respondents. Descriptive statistics and Logit regression analysis was used to analyze the data generated. The results showed that pressure from the household head, insufficient fund and low membership were found to be the major problems militating against women participation in cooperatives. Logit regression analysis revealed positive and significant relationships between variables such as education, years of business experience and forms of cooperative (producers and credit and thrift), and these variables were the major determinants of participation in a cooperative society. Based on the findings of this study, it is recommended that any policy that will further increase the level of education of women would increase their participation in a cooperative society.

Wang and Awokose (2011) investigated the determinants of farmers' perception and their decision to participate in cooperatives, using a unique dataset from recently collected survey data of farming households in China's Jilin Province. The empirical results from probit and logit regression models suggest that educational attainment, risk comfort level, farm expansion, operational costs, geographic location and crop types are significant factors that influence

producers' perception of cooperatives, as well as their participation behaviour.

Gasana (2011), investigated why some dairy farmers join cooperatives while others are reluctant to join or drop out, in spite of the perception that cooperatives help in eradicating poverty. The study used the survey methods to extract primary data from the respondents who included dairy farmers both within and outside the cooperatives and key government agents. According to the findings, farmers join cooperatives because of various reasons. Among the prominent reasons are the need to access markets and agro-vet services and access training opportunities and the need to work with others. The study established that some farmers have not yet joined because; they could not afford membership fees and because of the poor performance of the cooperatives and lack of awareness about cooperatives.

The study done by Stefano (2010) found that, in a more agriculture-oriented area, the presence of a cooperative is more likely to attract farmers' membership, probably due to cultural and socio-political reasons and due to local cooperative market or economic power. Farms with more assets are slightly less inclined to be members of a cooperative, but if they join a cooperative they are more likely to participate in cooperative activities. The results from Stefano (2010) confirm that both agricultural and social related networking has a significant positive impact on membership decisions.

Nwankwo, Peters, and Bokelmann (2009) studied the effects of cooperative membership and participation on the adoption decision of agricultural innovations in the states of Kaduna and Borno in Nigeria. A semi-structured questionnaire was used to obtain empirical data from 1,120 respondents. Results revealed that the majority of farmers belonged to cooperative organizations due to several reasons, including the need for information and social capital. Participation in cooperative activities was frequent and information disseminated was adjudged relevant to members' needs. The level of trust ascribed to information from cooperative activities was higher than other sources. Farmers became aware of recently adopted innovations through cooperatives. Willingness to adopt biotechnology was higher if disseminated through cooperatives than other channels. Intuitively, disseminating biotech information through cooperatives will ensure increased awareness levels in less time than other approaches.

A study by Saharkhiz (2009) used a probit model to evaluate the mechanisms of attracting popular participation in the cooperative entities, especially multi-purpose cooperatives, from the perspective of cooperative sector and the relevant organizations' executive directors. The results of that study showed that the government's supportive policies regarding the cooperative sector (especially in multi-purpose cooperative entities framework) played the most important and influential role in attracting popular participation. Promoting the scientific and technical capabilities of the cooperatives' managers and increasing the people's awareness of the cooperative sector were the next crucial factors in this regard.

Karh, Bilgi and Elik (2006), examined farmers' decision and perceptions to be a member of agricultural cooperatives in the South Eastern Anatolian Region. Turkey. Factors

affecting the probability of joining the cooperatives were determined using a binary logit model. The model released that most of the variables such as education, high communication, a log of gross income, farm size, medium and high technology variables play important roles in determining the probability of entrance. Small farmers are likely expected to join the agricultural cooperatives than the wealthier farmers are. Small farmers may wish to benefit cash at hand, input subsidies, and services provided by the agricultural cooperatives since the risks associated with intensive high-returning crops are high. Some important factors playing pole role in the decision of farmers towards agricultural cooperatives are gross income and some social status variables. In addition, conservative or orthodox farmers are less likely to join agricultural cooperatives than moderate farmers. They also found that the direct government farm credit programs mainly should be objected to providing farmers to better access to capital markets and creating the opportunity to use with the allocation of capital inputs via using modern technology.

Jenson (1990) evaluated the factors that influence the decision by dairy farmers to join cooperatives in milk marketing in Tennessee. The study found that the provision of quality services was the main criteria for choosing between membership and non-membership in a dairy cooperative. The study also found that factors such as better price and an assured market were also significant in influencing cooperative membership.

From the above, it is seen that reviewed work in the extant empirical literature focused majorly on existing members of cooperatives and their motivations for joining cooperative in many countries. There was little or no attempt to investigate farmers' inclination toward participation in cooperative activities. Clearly, evidence from the reviewed research works did not show any attempt to examine the factors influencing the willingness of the farmer (irrespective of their affiliations to member-based organizations) to join cooperatives or participate in cooperative activities, especially with regards to their socio-economic profiles, perceptions of benefits and quantum of production resources. In Anambra State in particular, there are no known studies on the subject matter. Thus, a gap in knowledge was established. This present research is therefore important since it will contribute to the filling of this gap in the literature.

3. METHODOLOGY

Research design

The study is a descriptive survey which aims to ascertain the determinants of farmers' inclination towards membership of cooperative societies in Anambra State, Nigeria. Survey research consists of asking questions, collecting and analyzing data from supposedly representative members of the population at a single point in time with a view to determining the current situation of that population with respect to one or more variable under investigation.

Area of Study

The area of the study is Anambra State. Anambra state is located in South-East Nigeria and was carved out of the old Anambra State in August 1991. It has a population of 4,055,038 (2006 census), with the density of 846/km² (2,200/sqm) and a total landmass of 4,854km². Anambra is rich in natural gas, crude oil bauxite, ceramic and has an

almost 100 percent arable soil. The capital and the seat of Government is Awka. Onitsha and Nnewi are the biggest commercial and industrial cities. The boundaries are by Delta State to West, Imo and Rivers State to the South, Enugu State to the East and Kogi to the North. The main occupations in Anambra State are farming, fishery, trading and civil service. The major crops grown in the area includes cassava, yam, maize, cocoyam, rice, vegetables etc. There are four agricultural zones in Anambra state namely: Aguata, Anambra, Awka and Onitsha.

Population, sample and sampling techniques

The population of the study is made up of all farmers in the four agricultural zones of Anambra State (Awka, Onitsha, Anambra and Aguata), who are registered with Anambra State Agricultural Development Programme (ASADEP). Sources at ASADEP headquarters in Awka gave the number of these registered farmers as 4,782 as at 31st December 2018. Thus, the population of the study is 4,782. The Taro Yamani formula for determining the sample size was employed to determine the sample size of 368.

The multistage and proportional sampling techniques were adopted in the selection of the sample. In stage one, one LGA was purposively selected from each zone based on the intensity of agricultural cultivation in the area. Thus, Awka North, Nnewi South, Ogbaru and Orumba South were chosen. In stage two, one community was also purposively selected from each chosen LGA. This was also based on the intensity of agricultural cultivation in the community. Finally, the researcher picked 92 farmers from each of the four selected communities at random, from the list of farmers obtained from ASADEP, to give a total of 368 respondents. Three hundred and sixty-eight copies of the research questionnaire produced and distributed. All the distributed copies were retrieved and adjudged properly filled; thus were processed for further analysis.

Sources of data

The researchers explored two sources of data which were the primary and secondary data. The primary data were obtained from selected respondents from selected communities in the four agricultural zones of Anambra State. The secondary data were obtained from existing literature in the field of study which was available to the researcher such as financial records of farmers, journals, textbooks, internet materials, unpublished write-ups etc.

The instrument used for data collection was the questionnaire form which was designed and administered to farmers in the study area. The questionnaire was divided into three sections dealing with the various core areas of investigation. The first section collected data on the socio-economic characteristics of farmers, the second collected information on the awareness or otherwise of the farmer of the benefits of membership of the agricultural cooperative. Likert scale type questions comprising of five response ratings of strongly agree (5) agree (4), undecided (3), disagree (2), strongly disagree was adopted here. The third section collected data on farm inputs used, credit obtained and farm products marketed in 2018.

Tools and methods of data analysis

Descriptive analytical methods were used to investigate the outlined objectives. They include descriptive statistics such as frequency distribution tables, percentages, mean and

standard deviation. A Five-point (5-point) Likert scale questionnaire was also used to ascertain the perception of the farmers on the effect of economic and social activities of cooperative on agricultural output. A theoretical mean value of 3 will be taken as a criterion to judge the means for a response to items in the questionnaire. Therefore, any item in the instrument which has a mean equal to or higher than 3 was regarded as agreeing while items with less than 3 were regarded as disagree. For the tests of hypotheses, inferential statistics such as multiple linear regression analysis was adopted to analyze and to test each of the formulated hypotheses.

In order to ascertain the effect of farmer socio-economic characteristics on farmer inclination towards participation in cooperative (objective one); effect of farmer awareness of agricultural cooperative benefits on farmer inclination towards participation in cooperative (objective two); effect of quantum of farm inputs, credit and marketed crops on farmer inclination towards participation in cooperative (objective three), multiple regression analysis was adopted. The estimation technique involved the classical linear regression technique using the ordinary least square (OLS) approach. The implicit specification of these models is as follows:

$$\begin{aligned}
 \text{CMD} &= f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8) & (1) \\
 \text{CMD} &= f(X_9, X_{10}, X_{11}, X_{12}, X_{13}, X_{14}) & (2) \\
 \text{CMD} &= f(X_{15}, X_{16}, X_{17}) & (3)
 \end{aligned}$$

Where:

CMD = Farmer inclination to join agricultural cooperative (mean rating through Likert scale).

Where

- X₁ = Gender (dummy: 1 for male, otherwise 0)
- X₂ = age in years
- X₃ = marital status (dummy: 1 for married, otherwise 0)
- X₄ = size of household of farmer (number of persons)

4. RESULTS.

A. The socio-economic characteristics of the respondents.

Table1 Socio-Economic characteristics (n=368)

	Item	Respondents	Percentage
1	Gender		
	Male	186	50.54
	Female	182	49.46
	Total	368	100.00
2	Age distribution		
	20-29	31	8.42
	30-39	126	34.24
	40-49	83	22.55
	50-59	102	27.72
	60-69	26	7.07
	Total	368	100.00
3	Marital status		
	Single	43	11.68
	Married	245	66.58
	Widowed/divorced	80	21.74
	Total	368	100.00
4	Family size		
	0-5	57	15.49
	6-10	219	59.51
	11-15	84	22.83
	16-20	8	2.17
		Total	368

- X₅ = farm size of farmer in hectares.
- X₆ = farming experience (years)
- X₇ = educational level attained (years of formal education)
- X₈ = annual income of respondents in 2018 in Naira
- X₉ = economies of scale to lower cost of production (mean rating by the farmer in number)
- X₁₀ = easier procurement of pesticides and seed material at more favorable negotiated prices (mean rating by the farmer in number)
- X₁₁ = assists farmers to gain access to favorable agricultural credit (mean rating by the farmer in number)
- X₁₂ = helps to improve product and service quality of farmers (mean rating by the farmer in number)
- X₁₃ = risk reduction in farming operations (mean rating by the farmer in number)
- X₁₄ = assists members in grading, packing and storage of products for marketing purposes (mean rating by the farmer in number)
- X₁₅ = farm inputs used in 2018 in Naira
- X₁₆ = credit obtained in 2018 in Naira
- X₁₇ = marketed farm produce in 2018 in Naira

While the explicit specifications are expressed as:

$$\begin{aligned}
 \text{CMB} &= \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + e. & (4) \\
 \text{CMB} &= \alpha + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + e. & (5) \\
 \text{CMB} &= \alpha + \beta_{15} X_{15} + \beta_{16} X_{16} + \beta_{17} X_{17} + e. & (6)
 \end{aligned}$$

where α is an intercept term showing the value of Y when each of the values of the independent variables is zero. That is, the value of the dependent variable in each of the equations is predicted to have when all the independent variables are equal to zero. β_1 to β_{17} are the coefficients or multipliers that describe the size of the effect the independent variables are having on the dependent variables; es denote the error terms.

5	Education level		
	Not been to school	30	8.15
	Primary school	120	32.61
	Secondary	198	53.81
	Tertiary institution	20	5.43
	Total	368	100.00
6	Income (N'000)		
	100-200	120	32.61
	200-300	150	40.76
	300-400	60	16.31
	400-500	30	8.15
	500 and above	8	2.17
	Total	368	100.00
7	Farming experience (years)		
	0-3	81	22.01
	4-7	99	26.90
	8-11	188	51.09
	Total	368	100.00
8	Farm size in (Ha)		
	1-2	218	59.24
	3-4	120	32.61
	5 and above	30	8.15
	Total	368	100.00

Source: Survey data, 2018.

Table 1 presents the socio-economic characteristics of the responding farmers. It was revealed that 50.54% of the respondents were male, while the rest were female. This indicates that there was no gender disparity in farming in the area. All the farmers cut across the entire age ranges, with the majority of them falling within the ages of 30-39 (34.24%), 40-49 (22.55%) and 50-59 (27.72%). These indicate that a good number of the farmers were made up of able-bodied young men and women. Almost all the farmers were either married or widowed (88.32%), which indicates that farmers marry early to raise families that will provide labor and assist them in their farm work. The family size of the respondents ranging from 6-10 (59.51%) and 11-15 (22.83%) showed that the respondents had large families.

Majority of the farmers had primary and secondary school qualification: 32.61% and 53.81% respectively, while 5.43% of them had a tertiary qualification. The income distribution of the respondents indicated that 40.76% of the respondents earn between N200,000 and N300,000 per annum, 32.61% earn between N100,000 and N200,000 annually, while only 16.31% earn N300,000 and N400,000 annually. Indeed, the income ranges indicate that the farmers' incomes are considerably low.

The farming experience distribution of the farmers showed that a majority of them (51.02%) had 8-11 years of experience, while 26.90% had 4-7 years experience while 22.01% had between 0-3 years experience. The farm size of a majority (59.24%) of the farmers ranged between 1 and 2 hectares. Nevertheless, 32.61% of the farmers had farm sizes that range from 3-4 hectares; while only 8.15% had farm sizes that are over 5 hectares. This then shows that most of the respondents are small scale farmers.

B. Indicators of farmers' inclination towards cooperative membership

Table2: Farmer's inclination towards agricultural cooperative membership. (n=368).

S/N	Item	Mean	Std Dev.	Decision
1	I purchase much of my needed farm inputs from the village cooperative store.	3.3388	.57574	Agree
2	Agricultural extension services are offered to farmers at minimal cost, irrespective of membership status	3.2612	.50115	Agree
3	Cooperative assists us to get better prices for our farm produce.	3.3306	.57339	Agree
4	It is difficult to find a non-cooperative farmer in my village	3.1967	.52335	Agree
5	I encouraged my fellow members to join cooperative	3.3469	.78278	Agree
6	I am already saving towards becoming a cooperative member	3.2857	.65911	Agree
	GRAND MEAN	3.3259	.31589	Agree

Source: survey data, 2018.

Information in Table 2 shows that the respondents exhibited a strong affinity towards the cooperative. Past business transactions and relationships with cooperatives put them in good stead of becoming members of cooperative societies. Clearly, their responses were indicative of this: I encourage my fellow members to join cooperative (3.34); I purchase much of my needed farm inputs from the village cooperative store (3.34); cooperative assists us to get better prices for our farm produce (3.33); I am already saving towards becoming cooperative member (3.29); agricultural extension services are offered to farmers at minimal cost, irrespective of membership status (3.26); and it is difficult to find a non-cooperative farmer in my village (3.19). The grand mean of the responses was also above the theoretically accepted score of 3.0.

C. Farmer awareness of the benefits of agricultural cooperative membership**Table3: Farmers awareness of the benefits of agricultural cooperative membership (n=368)**

S/N	Item	Mean	Std Dev.	Decision
1	Economies of scale to lower cost of production	3.7959	1.05930	Agree
2	Easier procurement of pesticides and seed material at more favorable negotiated prices	3.8939	1.18259	Agree
3	Assists farmers to gain access to favorable agricultural credit	3.7265	1.10639	Agree
4	Helps to improve product and service quality of farmers	3.8612	1.07368	Agree
5	Risk reduction in farming operations	3.9918	1.10138	Agree
6	Assists members in grading, packing and storage of products for marketing purposes.	3.0414	1.86361	Agree
	GRAND MEAN	3.3259	.31589	Agree

Source: survey data, 2018.

Table 3 shows that the respondents affirmed very sufficient awareness of the benefits of agricultural cooperative farmers. These benefits, according to them, included risk reduction in farming operations (3.99); easier procurement of pesticides and seed material at more favorable, negotiated prices (3.89); helps to improve product and service quality of farmers (3.86); economies of scale to lower cost of production (3.79); assists farmers to gain access to favorable agricultural credit (3.72); and assists members in grading, packing and storage of products for marketing purposes (3.04). The grand mean of the responses was 3.3.

D. Value of farm inputs, credit obtained and farm crops market in 2018.**Table4: Farm inputs, credit and marketed crops by responding farmers, 2018 (n=368).**

	Sum (Naira)	Sum (Naira)	Mean (Naira)	Std. Deviation
Seedling	330315148.00		89759.50878	39479.13426
Pesticide	4360572.00		11849.3750	2486.33608
Fertilizer	23256370.00		63196.6667	13260.45911
Farm inputs		60648398.00	164805.4294	55201.05884
Credit		64581608.00	175493.4694	194581.56608
Marketed farm crops*		59516906.00	161730.7159	40365.50521
Valid N (list wise)				

*marketed crops included yam, cassava, cocoyam and palm produce.

Source: Survey data, 2018.

The responding farmers reported spending a total sum of N60.6 million on-farm inputs. This then means that the average spending on farm inputs by the respondents was N164,805. Expenditures on-farm inputs were made to purchase seedlings (N89,759), pesticide (N11,849), and fertilizer (N63,197). The respondents obtained a total credit of N64,581,608 or an average of N175,493 per farmer. Marketed crops by the respondents were valued at N59,516,906 or average of N161,731 per farmer.

E. Tests of Hypotheses Test of hypothesis oneHo₁: Farmer socio-economic background does not have a significant influence on cooperative membership inclination.Ha₁: Farmer socio-economic background has a significant influence on cooperative membership inclination.**Table5: Influence of socioeconomic characteristics of respondents on cooperative membership inclination.**

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	27.015	1.173	23.039	.000
Gender	2.616	.387	6.765	.000
Age	.015	.017	.895	.371
Marital Status	5.253	.380	13.813	.000
Household Size	.043	.057	.755	.451
Education	.021	.032	.644	.520
Income	5.369E-006	.000	1.435	.153
Farm Size	.124	.122	1.019	.309

Residual Standard Error: 2.52560

R²: .457; Adj. R²: .441

F Statistic: 28.502; the p-value is 0.000

Dependent Variable: membership inclination.

It is seen from Table 5 that the R² was estimated at 0.457 which means that almost 46% of the variations in cooperative membership inclination were explained by the explanatory variables included in the model. The F ratio of 28.502 was significant at 1% level. Indeed, each of the socioeconomic characteristics in the model had a positive relationship with cooperative membership inclination. However, of the seven proxy variables depicting socioeconomic characteristics, only gender and marital status were a significant relationship with cooperative membership inclination at the 1% levels.

DECISION: The regression result shows that the F ratio of 28.502 is significant at 0.00 levels. We, therefore, reject the null hypothesis one and conclude that socio-economic characteristics of farmers have a significant influence on cooperative membership inclination.

Test of hypothesis two

H_{01} : Farmer awareness of the benefits of agricultural cooperatives does not constitute significant influence on cooperative membership inclination.

H_{a1} : Farmer awareness of the benefits of agricultural cooperatives constitutes significant influence on cooperative membership inclination.

Table6: Regression Estimates (Effect of awareness of agricultural cooperative benefits on cooperative membership inclination).

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	8.088	.362		
Economies of scale to lower cost of production	.952	.256	3.718	.000
Easier procurement of pesticides and seed material at more favorable negotiated prices	.908	.092	9.883	.000
Assists farmers to gain access to favorable agricultural credit	1.057	.211	5.010	.000
Helps to improve product and service quality of farmers	2.273	.075	30.388	.000
Risk reduction in farming operations	.840	.209	4.015	.000
Assists members in grading, packing and storage of products for marketing purposes.	1.388	.127	10.955	.000

Residual Standard Error: 2.52560

R^2 : .958; Adj. R^2 : .957

F Statistic: 900.231; the p-value is 0.000

Dependent Variable: Cooperative membership inclination.

The estimate of R^2 in table 6 suggests that all the credit variables in the model collectively accounted for almost 96% of the variations in farmers' awareness of the benefits of an agricultural cooperative. The F ratio value of 900.231 was significant at less than 1% level. All the variables depicting farmers' awareness of the benefits of the agricultural cooperative had positive signs and were significant at less than 1% level.

DECISION: The F ratio as seen in table 4.7 (900.231) was significant at less than 1% level. The null hypothesis two is therefore rejected and the alternate that states that farmer awareness of benefits of agricultural cooperatives constitutes significant influence on cooperative membership inclination is accepted.

Test of hypothesis three

H_{01} : Quantum of farm input, credit, and marketed farm crops by farmer do not constitute significant influence on cooperative membership decision.

H_{a1} : Quantum of farm input, credit, and marketed farm crops by farmer constitutes significant influence on cooperative membership decision

Table7: Regression Estimates (Effects of farm input, credit and market farm produce on cooperative membership inclination).

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	33.782	1.307	25.842	.000
Farm inputs	1.693E-005	.000	3.295	.001
Credits obtained	3.573E-006	.000	.674	.501
Value of Marketed farm output	2.721E-005	.000	3.772	.000

Residual Standard Error: 1880.08473

R^2 : .048; Adj. R^2 : .044

F Statistic: 5.354; the p-value is 0.001

Dependent Variable: Inclination towards cooperative

Table 7 shows that positive and significant relationships exist between farm inputs and the value of farm crops marketed. This implies that as more farm inputs are used by the farmers; and as more produce disposed of in the market, the more the inclination of the farmer towards cooperative membership. The amount of credit obtained, though positive, was not significant at the conventional 5% level. The R^2 estimated as 0.048 shows that only 5% of variations in

membership inclination of farmer towards cooperative were explained by the explanatory variables in the model.

DECISION: The regression result shows that the F ratio of 5.354 is significant at 0.001 levels. We, therefore, reject null hypothesis three and conclude that quantum of farm input, credit, and marketed farm crops by farmer constitute significant influence on cooperative membership inclination.

F. Discussion of findings

The broad objective of the study was to evaluate the determinants of farmers' inclination towards membership of cooperative societies in Anambra State. Specifically, the study determined the influence of farmer socio-economic background; the influence of farmer awareness of agricultural cooperative benefits; and influence of farm input, credit, and marketed farm produce on cooperative membership inclination. Outcome of the investigations revealed that a majority of the farmers were quite inclined towards agricultural cooperative activities. Indeed, their mean ratings on items depicting inclination such as: "I encourage my fellow members to join cooperative; I purchase much of my needed farm inputs from the village cooperative store; cooperative assists us to get better prices for our farm produce; I am already saving towards becoming a cooperative member; agricultural extension services are offered to farmers at minimal cost, irrespective of membership status; and it is difficult to find a non-cooperative farmer in my village" are above 3.0 which is the theoretically accepted score of five-point Likert Scale. This then suggests that past business transactions and relationships with cooperatives put them in good stead of becoming members of cooperative societies.

Socio-economic background of farmers was found to have a substantial influence on their inclination to cooperative membership. Indeed all the socioeconomic variables were found to have a positive relationship with inclination to participate in the cooperative. However, it was only gender and marital status that were found to be significant at the conventional 5% levels. The findings above appear to agree with a host of other researchers (Othman, Kari, Jani, and Hamdan, 2012; Leza & Kuma, 2016; and Thomas & Fanaye, 2012) who contend that socio-economic profiles of farmers are important determinants of cooperative membership.

The study revealed that farmer awareness of the benefits of agricultural cooperatives constitutes significant influence on cooperative membership inclination. All the items which captures benefits awareness such as: risk reduction in farming operations; economies of scale due to lower cost of production; assists farmers to gain access to favorable agricultural credit; assists members in grading, packing and storage of products for marketing purposes; easier procurement of pesticides and seed material at more favorable, negotiated prices; and helps to improve product and service quality of farmers, bore positive signs and were significant at less than 1% level. Based on this finding, it is obvious that farmers in the area may not be averse to joining cooperative.

Farm input was found to be significantly related to farmers' inclination towards cooperative membership at the conventional 5% level. This result agrees with findings of Baruwa, Owombo, Idumah and Adesina (2016) who reported a positive and significant relationship between farmers' membership of cooperatives and each of access to improved seeds/planting materials, fertilizer, agro-chemicals and credit. Farm operations cannot be successful without critical agricultural inputs such as improved seeds, fertilizers and crop protection chemicals. Seeds are critical to successful crop production and inevitably, farm productivity and profitability. Fertilizer supplies nutrients to the soil that are essential for growth. Crop protection chemicals

(pesticides, herbicides, insecticides and fungicides) on the other hand control weed species, harmful insects and plant diseases that afflict crops. It is then obvious that if cooperative as a supply channel is able to provide quality inputs to farms at affordable prices, it will not be difficult convincing them to form or join cooperative as members.

Inclination towards participation in cooperative was found to have been insignificantly affected by the size of the credit. This could be because farmers were satisfied with the amount of credit obtained from available sources in the area. Hence, the need for agricultural credit may not be a priority for them. In any case, this finding is at variance with the results of other researchers. For instance, studies by Etwire, Dogbe, Wiredu, Martey, Etwire, Owusu & Wahaga, (2013) reported a direct and significant relationship between membership desire and access to credit among farmers. The emphasis on credit suggests that the farmers will be able to take advantage of new funds to increase their scope of operation and hence enhance their income. Thus, that credit was not significant in the present study does not mean it has lost its potency as an important agricultural production resource.

Size of products marketed in the previous year by the farmer was found to be positively related to farmer's inclination towards cooperative membership. Marketing needs of the farmer was also found by Jensen, Clark, English, and Menard (2011) and Jenson (1990) to be the reason why farmers desire to associate with cooperatives. This could be due to challenges encountered when farmers individually negotiate for favorable prices in the local markets due to the small size of their produce. Indeed, the Nigerian agricultural sector uses very little or no paid marketing: crops are sold at wholesale markets in the early hours of the morning to small retailers with a stall or wheelbarrow who then resell the vegetables, fruits, spices, and other agricultural goods at a set location known to customers. This has the effect of not allowing the farmer to maximize revenue for his crops. Therefore knowing that cooperative is an effective channel for agricultural marketing, is sufficient to trigger the interest of the farmer in the agricultural cooperative.

5. CONCLUSION AND RECOMMENDATIONS

In Nigeria, a large portion of farming is done on a small scale which makes the farmer fully responsible for liabilities he may incur on his farm. Agricultural ventures in developing countries are bedeviled with risks which could lead to loss of land and even farm closures, which is detrimental to the economy. But through cooperatives, farmers would be afforded the opportunity to retain their land, pool their resources together for investment that could help them to manage risks. Interestingly, cooperative is a ubiquitous institution in Nigeria which if farmers avail themselves of their services, substantial progress will be made in improving the food and fiber needs of the citizens. The present study has confirmed that indeed, farmers' inclination towards cooperative in Anambra State Nigeria is high. It was revealed that this inclination towards cooperatives was influenced by their socio-economic characteristics, awareness of benefits of agricultural cooperatives and the quantum of farm inputs that were used in the farm, as well as the size of marketed farm produce. It is the contention of this study that efforts directed at these positive and significant variables will help in promoting

cooperative membership. Obviously, this inclination of the farmers towards cooperative membership will lead to eventual membership.

Based on the above findings, the following recommendations are made:

1. Going by their antecedents as a veritable tool for mobilizing farmers for agricultural production, the government can improve the awareness about the benefits of agricultural cooperative societies in the area region by giving more focus to the use of knowledge- and awareness-based instruments like education, information center, rural associations, and communication services farmers about cooperatives. These campaigns can attract more people to join the cooperatives and then get different economic and social advantages from the cooperatives in order to ensure household food security.
2. The government should promote policies that will enable cooperatives to be more involved in farm input supplies such as seedlings, fertilizer, and pesticides; agricultural marketing; and credit. Farm input and produce marketing were found to have a significant effect on farmer inclination towards cooperative membership; credit, though not significant had a positive sign. Therefore, enhancing cooperatives' capacity in farm input supplies, credit extension and agricultural marketing will definitely attract more farmers into their membership.
3. Finally, the need for government to step up efforts aimed at improving the socio-economic wellbeing of the people of the area is desirable. It is a well-known fact that nobody will be accepted into any cooperative society if he does not have a minimum level of income, enough to enable him participates actively in all activities of the cooperative. Cooperative practice stipulates that cooperative is not for the abject poor. Therefore uplifting the people from abject poverty definitely demands positive action on the part of the government.

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