Effect of Cooperative on Farmers Output in Awka South Local Government Area, Anambra State, Nigeria

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Abstract: **- This paper was undertaken to examine the effect of cooperative on farmers' output in Awka South Local Government Area, Anambra State, Nigeri. The study used a descriptive and inferential statistics to analyze data that were obtained from one hundred and twenty-six (126) respondents. Findings revealed that before joining cooperatives that farmers do have access to improved seedlings and fertilizer while they do not have adequate access to agric credit, emerging markets, and extension services. However, after joining there was an improvement in their access to agric credit, improved seedlings, fertilizer and emerging markets, but there was limited access to extension services. T-test result shows that there is a significant difference on the mean difference between services received by members before and after belonging to farmers cooperative. Regression results also show that farmers membership of cooperative has a significant and positive effect on the farmers output. Based on the findings of the study, the following recommendations were made: The Anambra State government should encourage research, development and extension of adequate extension services to cooperative farmers through the Ministry in charge of cooperative in the state. The extension education of the farmers will help them have knowledge of emerging markets. Non cooperative farmers should be encouraged to join cooperative to enable them have access to various agricultural services. The government should as well provide adequate funding for farmers co-operative societies to acquire all the needed human and material inputs to ensure efficiency in its performance. The management of farmers co-operative societies must ensure that the members of the societies are properly enlightened through cooperative education so as to embrace the positive contributions which the activities of the co-operative would avail them and also the government should exert a sound agricultural extension policy because it is indispensable to achieve success in transferring knowledge to farmers.**

Key words: **Farmers Output, Cooperative, Credit, Seedlings, Fertilizer, market access, Extension services**

I. INTRODUCTION

Cooperative is one of the organizational forms for conducting legitimate business in a marketing economy like Nigeria. According to International Cooperative Alliance(1995) as cited by Nwankwo (2007), a cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and domestically-controlled enterprise. Nwankwo went further to state that 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. Cooperatives in Nigeria have been regarded as a strategic tool increasing agricultural output by for mobilizing farmers in various regions of the country. The farmers come together in groups thus enjoying the economy of through synergy. Farmers who operate on the platform of cooperative arguably, tend to enhance their socio- economic status. Incidentally, not many farmers have actually embraced the organizational form to make it work for them. This could be partly because they have not discovered the potential and the real essence of cooperative. Cooperative is perceived all over the over the world as instrument of social and economic transformation and poverty reduction (Ijere, 1992; Nwankwo, 2008; Anigbogu, Agbasi & Okoli, 2015). Accordingly, Ofuebe (1992) wrote that "cooperative" is one of the effective vehicles for organizing modernized rural production which has become one of the most important preconditions for efficient mobilization of production resources and accelerated rural progress. Uchendu (1998) also posited that the original impetus for the introduction of cooperative in Nigeria came from agriculture, or more precisely the marketing of cash crops for export. This development no doubt could be as a result of the inherent potential in cooperative as observed in other parts of the world. It was in consideration of the impact of cooperation society in agricultural production in most developed economies that farmers in developing countries had been encouraged to organize themselves into cooperative societies to achieve similar result (Oladeji & Oyesola, 2000).

Not many farmers have embraced cooperative as a platform for increased agricultural output. That is why the organizational form seems not to have worked for them. Yet the advantages of belonging to farmers cooperative abound. According to Chambo (2009), agricultural cooperative create the ability for the supply of required agricultural inputs so that production of commodities is done timely to enhance productivity. They also provide an assured market for commodities produced by isolated small farmers in the rural areas. Perceptibly and arguably not cooperative can through collective action capture the benefits of value added, because

of bulking and take advantages of introducing grades and standards thereby allowing agro processing value addition for the members. They can stimulate the poor farmers and make them food sufficient and also lift them out form the shackles of poverty. The many benefits farmers could get by belonging to cooperatives were examined in this study.

Statement of the Problem

The cooperative has been touted as the appropriate vehicle for harnessing and polling the resources of millions of desperate producers together to enjoy the benefit of large-scale production (Ibe, 2002). Despite the touted popularity of increased farm output by farmers membership of cooperative societies, there is still a perceived low farmers membership of cooperative societies particularly in the rural areas where most farming activities take place and the farmers' output and productivity arguably remain predominantly low thus making the business to be less attractive among the youths. Some of the major characteristics of the Nigeria farmers are poverty, small farm holding and their inability to increase their output and income above the subsistence level. These characteristics among others have been identified as one of the factors militating against food production in Nigeria. Obinyan (2000) noted that the farm holdings of the average farmers in Nigeria are usually small, most often less than 2 hectares and are characterized by low productivity which leads to low income and low capital investment. Extant literature also stated that given the current high food demand in the country and the rapid population growth, there is an increasing need for agricultural business development so as to help bridge the gap between the demand and supply of food by providing sufficient quantity and quality of food for all (Abdulrahaman, 2013; Ijere & Mbanasor, 2000). This problem situation suggests the need to ascertain the effect of farmers membership of cooperative societies on their output.

Objectives of the Study

The main objective of this work is to examine the effect of cooperative on farmers' output in Awka South Local Government Area, Anambra State, Nigeria. Specifically, the study intends to: Identify the extent of the farmers' access to agricultural services before and after belonging to cooperative; and Identify challenges militating against cooperatives in rendering these services to cooperative farmers.

Empirical Literature

Available and related literature on the effect of cooperative on farmers' output have been reviewed, it was observed that researchers explored this subject area from different standpoints. For example, Adekunle (2018) examined the effect of membership of group-farming cooperatives on farmers food production and poverty status in Nigeria using probit regression model estimate to analyze the decision to join group-farming cooperatives and the effect of membership of group farming cooperatives on poverty status and ordinary least square is employed to examine the effect of membership of group-farming cooperatives on food production and productivity of farmers. Findings revealed that group-farming cooperatives have positive and statistically significant effect on food production at 5% level of significance; prevalence of poverty is higher among non-members of group-farming cooperatives. Being a member of other forms of cooperative also helps to reduce poverty among the farming households. Hun, Ito, Isoda and Amekawa (2018) examined the impacts of agricultural cooperatives on farmers' revenues in Cambodia: A case study of Tram Kak District, Takeo Province probit model and propensity score matching were employed to achieve the objectives. The results show that farmers who sold their paddy and had been contacted by extension workers from the government agency and non-governmental organizations (NGOs) are more likely to join the cooperatives while male-headed household farmers and farmers who have high off-farm income are less likely to become members of the cooperatives. Moreover, the results of propensity score matching reveal that agricultural cooperatives have no impact on paddy yields and paddy revenue due to the fact that agricultural cooperatives do not provide sufficient training to their members, and members did not actively attend those trainings provided. Also, the cooperatives have failed to provide members better prices for their paddy. There are positive impacts on their livestock and farm revenues through increasing livestock and other crop production when agricultural cooperatives provide livestock and other crop training to their members. However, there is no impact on non-members if they join the cooperatives as they have higher off-farm income, less paddy land size and fewer laborers that are not favorable to taking on other farming activities. Ahmed and Mesfin (2017) evaluated the impact of agricultural cooperative membership on the wellbeing of smallholder farmers using cross-sectional data collected from the eastern part of Ethiopia. Using consumption per adult equivalent as a wellbeing indicator and regression estimation techniques. findings revealed that both estimation methods indicate that joining agricultural cooperatives has a positive impact on the wellbeing of smallholder farmers. Furthermore, the analysis also indicates that agricultural cooperative membership has a heterogeneous impact on wellbeing among its members. Ma and Abdulai (2017) examined the impacts of agricultural cooperative membership on output price, gross income, farm profit, and return on investment (ROI) utilizing a recent household survey data of 481 apple producers in China. the study employed a treatment effects model to account for potential selection bias that arises from the fact that cooperative members and nonmembers are systematically different in terms of both observable and unobservable factors. The study found that cooperative membership has a positive and statistically significant impact on apple price, gross income, farm profit, and ROI. They also found that the highest profit effect of cooperative membership does not in fact result in the highest ROI effect of the membership, revealing differences in farm income and profitability of investment. Akerele (2016) examined the effects of cooperative credit on cassava production in yewa division,

Ogun State. The study employed descriptive statistics and multiple regressions (exponential form) toquantitatively determine the factors influencing the level of loan repayment among small scale farmers in the study area. The result showed that 63.3%% of the respondents were more than 60years old and 76.7% of them were males. Findings also revealed that average number of these farmers had farming experience falling between 5-10 years being married, operating with less than 5 hectares. The result of the repayment function postulated for the respondents in the study area showed that 89.7% of the regression was explained by the regressors. The result obtained in this study also revealed that the farming experience, credit use, interest rate charged, total expenditure on production, and loan repayment period were the major significant farm socio-economic variables determining loan repayment in the study area.

Anigbogu, Agbasi and Okoli (2015) investigated the influence of socioeconomic characteristics of the cooperative farmers on agricultural production as proxied by the farmers output levels in Anambra State, Nigeria using a regression model of the ordinary least square. Findings revealed that eight (Age, Educational Qualification, Farming Experience, Farm Size, Income, Seedling Obtain, Fertilizer Obtain and Fertility of the land) out of the fourteen coefficients of the variables included in the model are significant. Twelve of the coefficients have positive relationship with the cooperative farmers output. While four of the coefficients have inverse relationship with cooperative farmers output. The joint effect of the explanatory variable in the model account for 95.9% of the variations in the factors affecting the cooperative farmers output. Anigbogu, Onugu, Igboka and Okoli (2015) examined factors affecting cooperative farmers' access to agricultural credit from micro-finance banks in Awka North L.G.A of Anambra state, Nigeria. The study employed descriptive statistics and regression model of the Ordinary Least Square (OLS). findings revealed that there is a significant difference between the amount of loan applied for and the amount disbursed by the microfinance banks to the cooperative farmers. The joint effect of the explanatory variable in the model account for 96.1% of the variations in the socioeconomic factors influencing cooperative farmers access to agric credit from Microfinance banks; Institutional factors of the cooperative farmers have significant influence in the accessing of agric credit from Microfinance banks. Using household survey data from Ethiopia Abate, Francesconi and Getnet (2014) evaluated the impact of agricultural cooperatives on smallholders' technical efficiency. they used propensity score matching to compare the average difference in technical efficiency between cooperative member farmers and similar independent farmers. The results show that agricultural cooperatives are effective in providing support services that significantly contribute to members' technical efficiency. Their results are found to be insensitive to hidden bias and consistent with the idea that agricultural cooperatives enhance members' efficiency by easing access to productive inputs and facilitating extension linkages. According to the findings, increased participation in agricultural cooperatives should further enhance efficiency gains among smallholder farmers. Using household survey data from Ethiopia, Abate, Francesconi and Getnet (2013) evaluated the impact of agricultural cooperatives on smallholders' technical efficiency. the study utilized propensity score matching to compare the average difference in technical efficiency between cooperative farmers and similar independent farmers. The results show that agricultural cooperatives are effective in providing support services that significantly contribute to members' technical efficiency. These results are found to be insensitive to hidden bias and consistent with the idea that agricultural cooperatives enhance members' efficiency by easing access to productive inputs and facilitating extension linkages. Agbola, Adenaike and Babalola (2010) analyzed factors that determine farming households' access to output markets. It also assesses the effects of the determinant factors of access of farming households to output markets on income of the farmers in Ikenne local government area of Ogun State. using descriptive statistical analysis, logit regression and multiple regression technique. The result of the logit regression analysis revealed that cost of transportation, distance of farms to the market, access to market information and influence of cooperative societies were all factors which determined the sale of a farmer. From the linear regression results, the distance of the farm to the output markets, the cost of transportation, the medium of sales of farm produce, access to market information and impact of cooperatives on sales of farm produce have significant impacts on the income accruable to the farming households. Olujenyo (2008) examined the determinants of agricultural production and profitability with special reference to maize production in Akoko North East and South West Local Government Areas of Ondo-State. The study used descriptive statistics, gross margin analysis and production function analysis of the Ordinary Least Square (OLS) criterion to estimate the parameters of the production function. Results showed that majority of the farmers were ageing and quite experienced in maize farming. Also there was high level of illiteracy as about 65% of total respondents had no formal education while 25, 6 and 4% had primary, secondary and technical education respectively. Farming was majorly on subsistence level as the mean farm size was 0.39 hectares. Maize farming was profitable in the study area with gross margin and net returns of N2,637.80 and N2,141.00 respectively. Results showed that farm operation was in stage II of the production function with RTS estimated as 0.62 and factors of production were efficiently allocated with elasticities that were positive but less than one. Results further showed that age, education, labour and cost of non-labour inputs were positively related to output while farm size and years of experience carried negative signs. However, only labour input has significant influence on output.

In the final analysis, available literature in the study area are rife with robust and insightful findings, but none of the studies in the region where this study is been conducted.

The only related studies that were reviewed were the studies carried out by Anigbogu, Agbasi and Okoli (2015) investigated the influence of socioeconomic characteristics of the cooperative farmers on agricultural production as proxied by the farmers output levels in Anambra State, Nigeria and also the study by Anigbogu, Onugu, Igboka and Okoli (2015) that examined factors affecting cooperative farmers' access to agricultural credit from micro-finance banks in Awka North L.G.A of Anambra state, Nigeria. These studies did not investigate the effect of cooperative on farmers' output. This therefore create a literature and knowledge gap to be filled in this study.

II. METHODOLOGY

Area of Study

This study was carried out in Awka south L.G.A of Anambra State. Awka south is in Anambra central senatorial zone and it also houses the state capital. Again, it is one of the hubs of economic activities in the state. The area is made up of the following communities: Okpuno, Amawbia, Awka, Isiagu, Ezinato, Mbaukwu, Nibo, Nise and Umuawulu. Apart from Awka, other communities are replete with various forms of agricultural activities. The major occupation of the inhabitants of the area is farming. Although they have other occupational engagements like: trading (especially in Awka municipal), craft, teaching in schools and colleges, civil service etc. the area has a good number of farmers' cooperative societies.

Population of the Study

The population of this study is comprised of all the registered farmers' cooperative societies in the area of study. Investigation from the cooperative department in the Ministry of commerce and industry revealed that Awka south has 141 registered farmers cooperative societies with a membership strength of 2,902.

Sample size

Out of the 141 farmers cooperative societies, one society each was randomly selected from the communities that make up Awka south local government area and they have membership strength of 184.

To determine the sample size, the Yaro Yamani formular was used. The formula is stated thus:

$$n = \frac{N}{1 + n(e)^2}$$

Where: n = Sample size

N = Population

e = Error term

1 = Constant

Substituting from t he above formula

$$n = \frac{184}{1 + 184(0.05)^2}$$

$$n = \frac{184}{1 + 184(0.0025)}$$

$$n = \frac{184}{1 + 0.46}$$

$$n = \frac{184}{1 + 0.46}$$

$$n = 126.07$$

$$n = 126$$

Source of Data

The study explored mainly the primary source of data that was obtained from the 126 members of farmers' cooperative societies using a structured questionnaire that was administered to them.

Model Specification

The data were analyzed using the t-test statistics and the regression model. The formula for the t-test that was used to test the null hypothesis Ho_1 is stated thus:

$$t = \frac{X_1 - x}{SD_x}$$

Where SD_x = Standard error of difference between means

But $SD_x = \frac{S^2_1}{n_1} + \frac{S^2_2}{n_2}$

Where:

X_1 = Mean of the service received by members before belonging to farmer cooperative.

X_2 = Mean of the service received by members after belonging to farmer cooperative.

n_1 = Sample size of the service received by members before belonging to farmer cooperative.

n_2 =Sample size of the service received by members after belonging to farmer cooperative.

S^2_1 = Variance or standard deviation of the service received by members before belonging to farmer cooperative.

S^2_2 = Variance or standard deviation of the service received by members after belonging to farmer cooperative.

The regression model is specified thus: $Y = f(x_1, x_2, x_3, x_4, x_5)$……(1)

Where: Y = Output of farmers in 2018

x_1 = credit obtained (in naira)

x_2 = Seedlings (in kg)

x_3 = Fertilizer (in kg)

x_4 = Gain market access

x_5 = Extension services received (Number of times)

The above model is specified explicitly thus:

$Y = \beta o + \beta_1 + \beta_2 \text{ INC} + \beta_3 + \beta_4 + \beta_5$ ……..2

Where β_0 = intercept term showing values of Y when variable x_1 to x_5 are zero. That is the value Y is predicted to have when all the independent variables are equal to zero.

β_1 to β_5 = the coefficients or multipliers that describe the size of the effect the independent variable (x_1 to x_5) are having on the dependent variable Y. The econometric form of the model becomes more realistic with the introduction of the random or scholastic term. $\sum$:

The econometric form of the model is express thus:

$Y = \beta_0 + \beta_1, x_1 + \beta_2 x_2 + \ldots + \beta_n x_n + \sum$.....3

Analytical Tools

Descriptive and inferential statistics were used in the study. Descriptive statistical tools such as mean, percentages table and linkert scale rating method were used in analyzing the objective. The linkert scale comprise four response rating of strongly agree (4), Agree (3), Disagree (2), and strong disagree (1) respectively. A theoretical mean value of 2.5 was determined as a criterion to judge the means of the items in the questionnaire. Any item which has a mean equal to or higher than 2.5 was regarded as agree while items with less than 2.5 will be regarded as disagree. The regression analysis was run using SPSS 23 so as to determine the order of importance of the explanatory variables in explaining the variations observed in the dependent variable. The t-test was performed to test the significance of each of the explanatory variables at alpha level of 5%. Multiple regression analysis was used to test the hypothesis. Thus, the main aim here is to establish a causal relationship between the dependent variable and the independent variable in the model. The functional form adopted is the linear regression model of the Ordinary Least Square (OLS) to estimate the parameters of the model. This is because with the normality assumption for $\sum$; the OLS estimators are normally distributed and they are said to be best unbiased estimator (BLUE) (Gugarati, 2008).

IV. PRESENTATION OF EMPIRICAL RESULTS

The socio-economic characteristics of the farmers comprise their age, sex, educational attainment, marital status, family size, farming experience and income. These are shown in table 1

Table1: Distribution according to the socio-economic characteristics of the farmers

Age	**Frequency**	**Percentage (%)**
Less than 20	-	-
21-30	-	-
31-40	32	25.4
41-50	56	44.4
Greater than 50	38	30.2
Total	**126**	**100**
Sex		
Male	52	41.3
Female	74	58.7
Total	**126**	**100**
Educational Qualification		
Primary	64	50.7
Secondary	46	36.5
Tertiary	16	12.8
Total	**126**	**100**
Marital Status		
Married	98	77.8
Single	16	12.7
Divorce	-	-
Widow/widower	12	9.5
Total	**126**	**100**
Farm Size (Hectares)		
Less than 1	61	48.4
1-3	47	37.3
4-6	18	14.3
Greater than 6	-	-
Total	**126**	**100**
Farming Experience (in Years)		
Less than 1	-	-
1 – 5	-	-
6 – 10	39	31.0
Greater than 10	87	69.0
Total	**126**	**100**
Income (Monthly)		
< #10,000	-	-
#10,000-#20,000	53	42.1
#21,000-#30,000	50	39.7
> #30,000	23	18.3
Total	**126**	**100**

Source: Field survey, 2018.

Table 1. shows the socio economic characteristics of the respondents with respect to age, sex, educational qualification, marital status, farm size, farming experience and income. The result show that majority 44.4% (56) of the farmers are between 41-50 years of age. 25.4% (32) of the respondents are between 41-50 years. While 30.2% (38) of the respondents are between 31-40 years of age. From the analysis we can see that non of the respondents is less than 31 years of age indicating that young people that is the youths are no longer participating in agricultural production. As shown in table, 41.3% (52) of the respondents are male while 58.7% (74) of the respondents are females showing that there are more male participation in cooperative than female in the area. It also shows that majority 50.7% (64) of the farmers had primary education, 36.5% (46) of the farmers had secondary education while 12.8% (16) of the farmers had tertiary education. The education of the farmers has great effect on their business activities especially banking transaction and the rate of adoption of new technology.77.8% (98) of the farmers are married, 12.7% (16) are single. While 9.5% (12) of the farmers are divorced. The marital status showed that very few people are still single indicating that there are more responsible people with families in the societies. From the table 48.4% (61) of the farmers have less than 1 hectare of land. 37.3% (47) have between 1-3 hectares of land while 14.3% (18) of the farmers have between 4-6 hectares of land. This indicate that most of the farmers are small farm holders who still operate at subsistence level or a level a little above the subsistence level. For the farming experience of the respondents 31% (39) have between 6-10 years of farming experience while majority 69% (87) have above 10 years of farming experience. The income levels of the farmers were shown in the table. 42.1% (53) have monthly income of between #10,000-#20,000, 37.7% (50) have between #21,000-#30,000 as monthly income, while 18.3% (23) of the farmers have above #30,000 as monthly income.

Table2a: Distribution According to Farmers' access to agricultural services before joining cooperatives.

Options	Strongly agree	Agree	Disagree	Strongly disagree	Total	X	Decision
	4	3	2	1			
Access to Agric credit	20 (60)	20 (60)	80 (160)	6 (0)	126 (286)	2.3	Disagree
Access to improved Seedlings	65 (260)	25 (75)	8 (16)	28 (28)	126 (379)	3.0	Agree
Access to Fertilizer	73 (292)	17 (51)	7 (14)	3 (3)	126 (360)	3.6	Agree
Access to emerging markets	26 (104)	21 (63)	29 (58)	50 (50)	126 (275)	2.2	Disagree
Access to Extension services	10 (40)	21 (63)	30 (60)	65 (65)	126 (228)	1.8	Disagree
Grand mean(x)						2.6	

Source: Field Survey, 2018.

From table 3a. The cooperative farmers agreed that they have access to the following agricultural services before joining cooperatives: access to improved seedlings and access to fertilizer with weighted average of (3.0), and (3.6). They however disagree that they have access to agric credit, emerging markets, and extension services with weighted mean of (2.3), (2.2), and (1.8).

Table2b: Distribution according to farmers' access to agricultural services after joining cooperatives.

Options	Strongly agree	Agree	Disagree	Strongly disagree	Total	X	Decision
	4	3	2	1			
Access to Agric credit	80 (320)	20 (60)	26 (52)	0 (0)	126 (432)	3.4	Agree
Access to Seedlings	65 (260)	51 (153)	8 (16)	2 (2)	126 (431)	3.4	Agree
Access to improved Fertilizer	109 (436)	17 (51)	0 (0)	0 (0)	126 (487)	3.9	Agree
Access to emerging markets	19 (76)	21 (63)	50 (100)	10 (10)	126 (249)	3.0	Disagree
Access to Extension services	21 84	10 30	50 100	45 45	126 259	2.0	Disagree
Grand mean(x)						3.0	

Source: Field Survey, 2018.

As shown in table 2b. the cooperative farmers agreed that they have access to the following agricultural services after joining cooperatives: access to agric credit, access to improved seedlings and access to fertilizer with weighted average of (3.4), (3.4) and (3.9). They however disagree that they have access to emerging markets, and access to extension services with weighted mean of (2.0) and (2.0).

Table 3: Summary of t-test values on the mean difference between services received by members before and after belonging to farmers cooperative

	N	$\overline{X}$	SD	DF	SE	t-cal	t-tab	Remark
Services received by members before belonging to farmers cooperative.	126	2.6	0.7155	250	0.10	3.83	1.97	Significant
Services received by members after belonging to farmers cooperative.	126	3.0	0.8820					

Source: Field Survey, 2018.

Significance of the t-test

Table 3 is a summary of the t-test values on the mean difference between services received by members before and after belonging to farmers cooperative. The result of the test shows that t-cal = (3.38), t-tab = (1.97), and at significant level of (0.05). This implies that there is a significant difference on the mean difference between services received by members before and after belonging to farmers cooperative**.** Hence, the need to adopt cooperative as a platform for improving farmers' productivity and output in Awka South L.G.A of Anambra state.

Table 4 Summary of regression estimates on the impact of services received by members from the farmer cooperative on their output

Variables	Regression Coefficients	Standard Error	T-value	Level of significance
Credit obtained	0.326	0.067	4.837	0.041
Seedlings	0.292	0.078	3.742	0.036
Fertilizer	0.413	0.119	3.463	0.040
Gain market access	0.015	0.003	5.353	0.000
Extension services received	0.100	0.028	3.561	0.010
R	0.873			
R^2	0.842			
Adj. R^2	0.733			
F-statistic	76.283			0.000

Source: Computation from Field Survey, 2018

Regression result

Table 4 shows the regression estimates on the impact of services received by members from the farmer cooperative on their output. It has an R^2 value of 0.842 which implies that about 84.2% of the variation in the dependent variable is caused by the independent variables included in the model while the other remaining 15.8% might be due to error in specification and exclusion of other factors in the model. The F statistics is significant at 1% which implies that the variables included adequately influenced the dependent variable. Of the five variables that were included, all were found have a significant and positive effect on the farmers output at 5%. The coefficient of credit is significant at 4% and has a direct influence on the total output of the farmers. As usual, the most critical farm input in farm production after land is capital in the foam of credit or stock available to the farmer. Therefore, credit availability influences production positively since it empowers the farmer to build up stock over time. The coefficient of seedling is significant at 3% and has positive influence the farmers output. This implies that the quality and quantity of seedlings have a direct influence on the farmers output as it increases inputs. The coefficients of Gain market access and extension services are significant at 1% and have a direct influence on the total output of the farmers in the area. Credit, fertilizer, improved seedlings, gain market access and extension services are needed more to enhance cooperative farmers' productivity in the area.

Table 5: Distribution according to challenges militating against cooperatives in rendering these services to cooperative farmers

Options	Strongly agree	Agree	Disagree	Strongly disagree	Total	X	Decision
	4	3	2	1			
Inadequate capitalization	80 (320)	46 (138)	0 (0)	0 (0)	126 (458)	3.6	Agree
High cost of obtaining farm inputs	65 (260)	51 (153)	8 (16)	2 (2)	126 (431)	3.4	Agree
Inadequate infrastructure	73 (292)	43 (129)	7 (14)	3 (3)	126 (438)	3.5	Agree
Corruption	50 (200)	47 (141)	19 (38)	10 (10)	126 (389)	3.1	Agree
High interest rate	80 (320)	46 (138)	0 (0)	0 (0)	126 (458)	3.6	Agree
Grand mean(x)						3.4	

Source: Field Survey, 2018.

As shown in table 5. The cooperative farmers agreed that the following challenges militating against cooperatives in rendering agricultural services to cooperative farmers. these include: Inadequate capitalization, high cost of obtaining farm inputs, inadequate infrastructure corruption, and high interest rate with weighted average of (3.6), (3.4) (3.5), (3.1) and (3.6) respectively.

V. CONCLUSION AND RECOMMENDATIONS

From the result of this investigation, it was revealed that before joining cooperatives that farmers do have access to improved seedlings and fertilizer while they do not have adequate access to agric credit, emerging markets, and extension services. However, after joining there was an improvement in their access to agric credit, improved seedlings, fertilizer and emerging markets, but there was limited access to extension services. T-test result shows that there is a significant difference on the mean difference between services received by members before and after belonging to farmers cooperative. Regression results also show that farmers membership of cooperative has a significant and positive effect on the farmers output. Inadequate capitalization, high cost of obtaining farm inputs, inadequate infrastructure, corruption, and high interest were identified as challenges militating cooperatives in rendering these services to cooperative farmers.

Based on the findings of the study, the following recommendations were made:

The Anambra State government should encourage research, development and extension of adequate extension services to cooperative farmers through the Ministry in charge of cooperative in the state. The extension education of the farmers will help them have knowledge of emerging markets. Non cooperative farmers should be encouraged to join cooperative to enable them have access to various agricultural services. The government should as well provide adequate funding for farmers co-operative societies to acquire all the needed human and material inputs to ensure efficiency in its performance. The management of farmers co-operative societies must ensure that the members of the societies are properly enlightened through cooperative education so as to embrace the positive contributions which the activities of the co-operative would avail them and also the government should exert a sound agricultural extension policy because it is indispensable to achieve success in transferring knowledge to farmers.

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