IMPACT OF MEMBERSHIP OF COOPERATIVE SOCIETY ON SMALLHOLDER FARMERS' INCOME IN KWARA STATE, NIGERIA

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ABSTRACT
Smallholder farmers are characterized by low income, low resource utilization, small farm holdings and inadequate access to efficient post-harvest technology. They find it difficult to pool their resources in order to raise their farm income and substantially improve their living conditions. This study focused on the impact of cooperative society on income of smallholder farmers in Kwara State, Nigeria. A multi-stage sampling technique was used to select 181 respondents involved in the study. Data collected were analysed using descriptive and inferential statistics. The results showed that mean income of farmers who were members of cooperative society, non-members of cooperative society and control group stood at ₦15,090±₦3,828, ₦17,686±₦18,306 and ₦11,020±₦2,378 respectively. The Kruskal Wallis statistic and Jonckeere Terpstra tests for significance of mean incomes for the various categories of farmers were significant ($p<0.01$).Analysis of variance (ANOVA) test also indicated that there is a significant difference between the mean income levels of the three categories of farmers ($p<0.01$). Furthermore, the results of the Post Hoc test for differences/equality among the various categories showed that mean income of the control group is significantly different from that of the non-cooperative and cooperative groups. Based on this, encouraging farmers in the study area to join cooperative societies becomes imperative.
KEYWORDS: Impact, cooperative society, income level, smallholder farmers, Kwara State

INTRODUCTION
The agricultural sector in Nigeria is the next important economic activity after oil, and the single largest employer of labour force, employing about 70% of the country's workforce (USDA, 2013; NBS, 2014). It contributed about 40.07% in 2010 and 22% in 2014 of Gross Domestic Product (GDP) (pre and post debasing respectively) (NBS, 2014). The roles of the agricultural sector,according to the Nigerian Agricultural Policy document (FDA/MARD, 2001), include the provision of food for the growing population, provision of foreign exchange earnings, employment of a significant labour force, and provision of income for the farming households.Agricultural enterprises provide the basic source of livelihood upon which rural life depends, providing food and income for sustenance. The sector is made up of various sub-sectors, namely: crop production, livestock, forestry, fishing and processing of agricultural produce (value addition). There is new emphasis by most organizations as well as governments to focus on all the stages from production to markets, thereby making agriculture a business. Also, recent studies and research points to the need to add value to agricultural produce to create more jobs and for farmers to maximize their benefits in the process (Pravakar *et al.*, 2010).

However, agricultural systems in Nigeria, like most developing nations, are characterized by a number of hindrances which include: technical, financial, institutional and infrastructural support. These adversely affect the economic wellbeing of owners of agricultural enterprises

who are mainly smallholder farmers. The hindrances are characterized by low income, low resource utilization, small farm holdings and poor access to post-harvest technologywhich makes smallholder farmers find it difficult to pool their resources together in order to raise their income and substantially improve their living conditions. In view of the low financial capacity, an individual farmer cannot achieve the desires for large-scale production. It is therefore in the farmers' interest that resources are pulled together so as to gain a tremendous collective advantage and thus widening the industrial base of the economy and the management techniques (Epetimehin, 2006). Challenges observed in the development of agriculture in Nigeria have resulted in the evolution of intervention programmes and social organizations. Prominent among the social organizations are cooperative societies.

The International Cooperative Alliance (ICA) (2010) defines a cooperative as an autonomous association of persons unified voluntarily to meet their common economic, social and cultural needs through a jointly owned and democratically controlled enterprise. Cooperatives are formed to meet people's mutual needs and are based on the idea that together, a group of people can achieve a goal that none of them could achieve alone. Cooperative organizations offer the best machinery for reaching the critical mass of smallholder farmers in Nigeria (Bello, 2005). It occupies a key position in agricultural development with support in resource and input use, harvesting of water resources, marketing channels, storage facilities, distribution channels, value addition, market information and a regular monitoring network system. Cooperatives have inherent advantages in tackling the problems of poverty alleviation, food security and employment generation. Cooperatives provide the opportunity for agribusiness owners to raise their incomes.

The literature documents successes and failures of contemporaneous agricultural cooperatives. There are recent examples from all over the world of a positive impact of cooperative membership on specific aspects of smallholder farm performance. Ito *et al.*, (2012) show that membership in a cooperative has a strong positive effect on the income of watermelon farmers in China. Vandeplas, et al., (2013) find that dairy farmers in India are more efficient and have higher profits when organized in a cooperative. Holloway et al., (2000) show that cooperatives increase market participation among dairy farmers in Ethiopia. Fisher and Qaim (2012) find that cooperative membership leads to higher prices and higher farm incomes among banana farmers in Kenya. Despite all these benefits, there is evidence of a lack of success of cooperatives to improve farm performance. Hellin,*et al.*, (2009) conclude that producer cooperative organizations in the maize sector in Mexico are not successful because the cost of the organization is not compensated by an increased income from sales. This study focused on the impact of membership of cooperative society on income of agribusiness owners in Kwara State.

METHODOLOGY

The study was carried out in Kwara State in the north central geopolitical zone of Nigeria. A multistage sampling technique was used in selecting the representative sample. The first stage was the purposive selection of Irepodun and Oke-Ero Local Government Areas (LGAs) out of the sixteen (LGAs) in the state. According to Kwara, State Government of Nigeria, (2010), farmers in the two selected LGAs participate in all the areas of agricultural enterprises (crop, livestock, fish, apiculture, vegetables and agro-processing)available in the state. Irepodun LGA has a fair number of farmers belonging to cooperative society (65.6%), Oke-Ero had the least (45.6%). The next stage was a purposive selection of 15 villages with high concentration of farmers who are members of cooperative societies from Irepodun LGA and 2 villages from Oke-Ero LGA where there is no record of farmers who are cooperative members. The third

and final stage was a random selection of 106 respondents who were members of cooperative societies and 95 who were not in any farmer cooperative society and were immediate neighbours of the members selected. These people might therefore benefit from spill-over effects of cooperative membership. They were chosen from the selected villages in Irepodun LGA using probability proportionate to size.At this stage also, there was random selection of 38 control group farmers from the villages selected in Oke-Ero LGA which had never had a cooperative established in the community. Finding the control group pose a lot of challenges, as it was difficult to find villages whose inhabitants specialize in all the agricultural enterprises and yet has similar condition with the first group. Thus, it was imperative to study the control group in the absence of a baseline survey. In all, 85, 76 and 30 questionnaire for cooperators, non-cooperators and control group respectively were found usable for the purpose of this research. The data collected were analysed using descriptive and inferential statistics.

RESULTS OF FINDINGS

Descriptive statistics of income level of cooperators

The results of income level of respondents who were members of cooperative society are presented on Table 1. The results indicate that the minimum income earned by farmers in this category was ₦7,900 while the maximum income was ₦25,000. Furthermore, the mean income level of cooperative farmers stood at ₦15,090 with a standard deviation of ₦3,828. The distribution of incomes is negatively skewed as revealed by the coefficient of Skewness (-0.072), the coefficient of Kurtosis is -0.528, thus showing that the excess Kurtosis is -3.528. This implies that the distribution of income is platykyrtic (flatly peaked and lightly tailed).

Table 1: Descriptive statistics of income level of cooperators

	N	Min	Max	Sum	Mean	Std Dev	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Std Err	Stat	Std Err
Cooperative Farmers	85	7900	25000	1282700	15090	3828	-0.072	0.261	-0.528	0.517

Source: Field survey, 2015

Descriptive statistics of income level of non-cooperators

The result of descriptive statistics of non-cooperators is shown on Table 2. It showed that the minimum income earned by farmers in this category stood at ₦8,200 while the maximum monthly income was ₦172,300. Furthermore, their mean income level stood at ₦17,686 with a standard deviation of ₦18306.4 The distribution of incomes is positively skewed as revealed by the coefficient of Skewness (8.234); the coefficient of Kurtosis is 70.38, thus showing that the excess Kurtosis is 67.528. This implies that the distribution of income is Leptokurtic (highly peaked and heavily tailed).

Table 2: Descriptive statistics of income level of non-cooperators

	N	Min	Max	Sum	Mean	Std Dev	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Std Err	Stat	Std Err
Non-cooperators	76	8200	172300	1344107	17686	18306.4	8.234	0.28	70.38	0.545

Source: Field survey, 2015

Descriptive statistics of income level of control group

The results of the descriptive statistics of income level of control group is shown on Table 3. The resultsindicate that the minimum income earned by farmers in this category was ₦1,305, while the maximum income was ₦11,020. Furthermore, the mean income level of the control group was ₦6383.40 with a standard deviation of ₦2377.88. The distribution of incomes is negatively skewed as revealed by the coefficient of Skewness (-0.153); the coefficient of Kurtosis is -0.226, thus showing that the excess Kurtosis is -3.336. This implies that the distribution of income is Platykurtic (lowly peaked and lightly tailed).

Table 3: Descriptive statistics of income level of control group

	N	Min	Max	Sum	Mean	Std Dev	Skewness		Kurtosis	
	Stat	Stat	Stat	Stat	Stat	Stat	Stat	Std Err	Stat	Std Err
Control Group	30	1305	11020	191503	6383.4	2377.88	-0.153	0.427	-0.226	0.833

Source: Field survey, 2015

Test for significance of the mean incomes for the various categories of respondents

Tables 4a, 4b and 5 present the results of the test for significance of the mean incomes for the various categories of farmers. The results indicate that there is a significant difference between the means of the three categories of farmers at the one percent (1%) level since the asymptotic significant probability associated with the Chi Square test for significance of the Kruskal Wallis statistic and the asymptotic significant probability Jonckeere Terpstra were 0.00, less than one percent.

Table 4a: Kruskal Wallis Test

Category of Farmers	N	Mean Rank
Cooperators	85	106.56
Non-cooperators	76	114.78
Control Group	30	18.52
Total	191	

Source: Field survey, 2015

Table 4b:Test Statistics (a and b)

	Categories of farmers
Chi square	70.855
df.	2.00
Asymp. sig	0.00

Source: Field survey, 2015

Note: 4a = Kruskal Wallis Test
4b = Grouping variable

Table 5: Jonckheere Terpstra Test

Number of Income levels	
N	3
Observed J-T Statistic	191
Observed J-T Statistic	3635.50
Mean J-T Statistic	5645.00
Standard Deviation of J-T Statistic	405.25
Standard J-T Statistic	-4.957
Asymptotic Sig. (2-tailed)	0.00

Source: Field survey, 2015

ANOVA test on the comparison of income levels of the three categories of farmers

The results of the ANOVA test on the comparison of the three income levels is presented on Table 6. The results indicate that there is a significant difference between the means of the three categories of farmers at the one percent (1%) level since the asymptotic significant probability associated with the F test is 0.00, which is less than one percent. The implication of the two results is that the incomes of the three categories of farmers (cooperators, non-cooperators and control group) are not the same.

Table 6: ANOVA Table

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	2764794299	2	1382397150	9.796	0.00
Within Groups	26529013840	188	1411117757		
Total	29293808139	190			

Source: Field survey, 2015

Multiple comparison test

The outcomes on Tables 5 and.6 necessitated the conduct of a multiple comparison test to determine where the differences lie. Table 7 presents the results of the Post Hoc test for differences/equality among the various categories of respondents. The results showed that mean income of the control group is significantly different from that of the non-cooperators and cooperators, but there is no significant difference between the mean of the cooperators and that of the non-cooperators.

Table 7:Post Hoc Tests (Homogeneous subsets)

Category of Farmers	N	Subset for $\alpha = 0.05$	
		1	2
Control Group	30	6383.4333	
Cooperators	85		15090.5882
Non-Cooperators	76		17685.6184
Significance		1.000	0.269

Source: Field survey, 2015

DISCUSSION OF FINDINGS

The mean income of the non-cooperators is slightly higher than that of the cooperators, although the difference is not significant. This may not be unconnected with the fact that the non-cooperators are immediate neighbours of the cooperators and might therefore have benefited from spill-over effects of cooperators without financial commitment to the cooperative society, while the cooperators are financially committed. This is in sharp contrast to the submission of Calkins and Ngo (2005) who reported that cooperators had higher income than non-cooperators and control group. Toluwalase and Apata (2013) also opined that average monthly income of farmers who were members of cooperative society was higher than that of non-cooperators. However, the descriptive statistics showed that the standard deviation of the cooperators' income was ₦3827.86, while that of the non-cooperators was ₦17685.62, thus indicating a higher dispersion of the non-cooperators' income. This means that distribution of incomes of the non-cooperators was more dispersed from the mean thus has more extreme values than that of the cooperators. On the average, cooperators are better off than non-cooperators, although the highest non-cooperators are richer than the highest cooperator. Nevertheless, the fact that the control group, which has no linkage with cooperative societies, had a significantly lower income than the farmers who are members of cooperative society is

an indication that agricultural cooperative societies have significantly impacted on the income of member farmers in Kwara State.

CONCLUSION AND RECOMMENDATIONS

This study examined the impact of agricultural cooperative society on income of farmers who were into various agricultural enterprises in Kwara State, Nigeria. It shows that there were significant differences in mean income levels of cooperators, non-cooperators and control group. On the average, cooperators were better off than non-cooperators and control group. The implication of this is that agricultural cooperative society significantly impacted on the income of farmers in Kwara State.Encouraging farmers in the study area to join agricultural cooperative society will go a long way to improve their level of incomes, hence, agricultural development.

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