



Analysis of the Involvement of Agricultural Cooperatives in Agricultural Value Chain

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Abstract

This study analyzes the involvement of agricultural cooperatives in agricultural value chain. A survey method was used for the study. 90 respondents (65 male and 25 females) were included in the study. They were members of Abakpa Agricultural cooperative society Ltd, Kaduna. A 22-item questionnaire was used for the study. The questionnaire was based on likert 5-point scale. The research questions that were developed to guide the study were: What are the primary objectives of agricultural cooperatives in enhancing agricultural development? What are the activities of agricultural cooperatives in agricultural value chain process? What are the benefits accruing to members from the involvement of agricultural cooperatives in agricultural value chain? What are the challenges associated with the involvement of agricultural cooperatives in agricultural value chain? Frequencies and mean were used as statistical analysis. Research findings show that the primary objectives of agricultural cooperatives towards enhancing agricultural development are numerous and that the activities of agricultural cooperatives in agricultural value chain process are equally numerous. Besides, there are so many benefits accruing to members from the involvement of agricultural cooperatives in agricultural value chain and also that different challenges are associated with the involvement of agricultural cooperatives in agricultural value chain. It was recommended among others

that the Federal Government of Nigeria through the Cooperative Federation of (FCN), should play greater roles by providing more initiatives and incentives to the cooperative movement for them to be more effectively involved in the supply chain and also that the national, regional and international cooperative movement should play their roles as the coordinators and monitors in the networks of agriculture movement when the trading is made between the same nations, or between regional and in the global arena. .

Introduction

Agricultural cooperatives, which are commonly formed by smallholder farmers, aim at boosting the production capacity of the members. Based on their main activity, agricultural cooperatives can be classified into three broad categories namely; Agricultural marketing cooperatives which bargain for better prices for the members' produce. They handle, store/preserve, or process and sell members' farm produce; Farm supply cooperatives which may purchase in volume, manufacture, process and distribute farm supplies and inputs such as seedlings, fertilizer, feeds, chemicals, farm equipment, hardware, and building supplies to the members and Service cooperatives which provide services such as trucking, storage, grinding, drying, artificial insemination, irrigation, credit, utilities, and insurance. These

categories of Agricultural cooperatives usually vary greatly with regard to functions performed and the size. Most of the Agricultural cooperatives are relatively small businesses (Banishree, Nirod & Kumar 2016).

Agricultural cooperatives consist of all the cooperatives found in all the sub sectors of agriculture. Agricultural cooperatives have been recognized as vital instrument for socio-economic development and food production. In its supply chain activities, agricultural cooperatives deliver agricultural inputs and other services to a multitude of rural dwellers scattered over wide geographical expanse of land. This is why agricultural cooperatives are known all over the world as the best agencies for dealing with land reform, improved storage, processing and marketing, transfer of agricultural technology and further

ensuring of food production in rural areas. This will enhance the living standard and promote the income of the rural dwellers.

Considering the drive of Nigeria to revitalize the agricultural sector, it becomes critical to ensure an efficient supply-chain management for agricultural products, especially by the Nigerian smallholder farmers who face so many challenges. An alternative pathway for farmers to increase their income is through their involvement in the cooperative movement, particularly agricultural cooperatives. Worldwide, cooperatives have demonstrated their contribution to economic growth, food security and community development. Cooperative movement in agriculture has economic and cultural benefits for farmers as well as consumers (Dimitri, Athina, Vasiliki, & Maro, 2011). The sector increases the income of farmers and the consumption of agricultural products by consumers, thus helping to strengthen rural-urban relationships. The thrust of this study thus is to analyze the extent to which agricultural cooperatives get involved in agricultural value chain in order to ensure effective agricultural production among cooperative farmers.

Statement of the Problem

The importance agricultural cooperatives in the supply chain of agricultural products cannot be over emphasized particularly in an agrarian society like Nigeria's. Agricultural cooperative plays an important role in socio-economic development. It ensures that production gets to those in the rural areas through cooperative production chain. Chukwu (1990) mentions that in order to increase the availability of agricultural products to the rural dwellers, it is important that the rural dwellers are form or join agricultural cooperatives in their various localities. This is made effective through involvement in the value chain process. Unfortunately, some agricultural cooperative societies appear to still find it difficult engage in all the segments of agricultural value chain thereby making it difficult for agricultural products to reach the final consumers. Even if they reach the final consumers, they may not be in good quality and quantity. During planting season, some of the cooperative farmers in the area still clamour for agricultural inputs such as fertilizer and insecticides. They complain that they are either delayed, in short supply or are exorbitant. Some even decry the cumbersome bureaucratic processes in accessing the needed credit and production inputs. For instance, Okechukwu (2001) laments that most agricultural cooperative societies find it difficult to effectively involve

themselves in the supply chain of agricultural products. This calls to question the extent to which agricultural cooperatives in the area under study involve in agricultural supply chain.

Research Questions

The following research questions guided the study:

1. What are the activities of agricultural cooperatives in agricultural value chain process?
2. What are the benefits accruing to members from the involvement of agricultural cooperatives in agricultural value chain?
3. What are the challenges associated with the involvement of agricultural cooperatives in agricultural value chain?

Literature Review

Conceptual Framework

The Concept of Cooperatives

Cooperative derives its origin from the idea of mutual understanding, respect and dependence. It is derived from a Latin word meaning working together. The major emphasis in cooperative is on self-help. Thus people cooperate because they realize that it is extremely difficult to achieve some goals by working alone. In the same vein, the International Cooperative Alliance (ICA, 1995) defines cooperatives 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”. This definition captures the essence of cooperatives and thus is the most widely accepted definition of cooperatives all over the world.

The Concept of Agricultural Cooperatives

According to Onoh (2007), agricultural cooperatives are cooperative societies that specialize in the production, processing, marketing and distribution of the agricultural products of their members. This type of cooperative societies is engaged in the agricultural sector of the economy.

The Meaning of Agricultural Supply Chain

In general, supply chain is a flow of products from suppliers to end users, and linked by a network of organizations such as producers or farmers, collectors, big wholesalers, small wholesalers and retailers. It is a set of organizations directly linked by one or more upstream and downstream flows of products, services, finance, or information from a source to customers (Jacoby & David, 2019).

Agricultural supply chain encompasses all the input supply, production, post-harvest, storage, processing, marketing and distribution, along the “farm-to-fork” continuum for agricultural products (Rao & Punwar, 2004). The underlying objective of agricultural supply-chain management is to provide the right products (quantity and quality), in the right amounts, to the right place, at the right time, and at a competitive cost.

Activities of Agricultural Cooperatives in Agricultural Value Chain Process

According to Umehali (2006), the specific activities of agricultural cooperative in this respect, according to Umehali include the following:

- i. Activities aimed at protecting the agricultural cooperative members from the exploitation of middlemen in ensuring food production for their members.
- ii. Assisting in the acquisition of agricultural inputs including machinery, improved seedling and chemicals for members in ensuring food production in rural areas.
- iii. Agricultural cooperatives take advantage of economy of scale in production, processing and marketing of agricultural products.
- iv. Mobilizing resources within the cooperative society for agricultural operations or obtain credit for both production and marketing from financial institutions (e.g. from Bank of Agriculture) for members for their farming purposes.

Relevance of Agricultural Cooperatives in the Supply Chain of Agricultural Products

The relevance of Agricultural cooperatives in the supply chain of agricultural products can be seen in the following specific ways according to Dimitiri (2011):

- i) Farmers can achieve economies of scale from concerted efforts in the production, logistics and marketing of their agricultural products.
- ii) An agricultural cooperative, which is a combination of farmers, can enhance their bargaining power when they want to purchase their agricultural inputs or to get services.
- iii) They also have a bigger power when dealing with the intermediaries such as collectors, wholesalers and marketing agents.
- iv) An agricultural cooperative society is generally served by professionals who have unique academic qualification and experience. They will deal with the sellers and buyers on behalf of farmers. This situation reduces the burden of farmers and allows them to manage their time more efficiently.
- v) Agricultural Cooperative transportation systems integrate the resources of the cooperating companies to optimize the economic benefits. The main benefits of the techniques are (i) properly increasing delivery trip loads; (ii) reducing unnecessary trips, as well as pollution and costs; (iii) reducing service area overlaps; (iv) increasing service quality and company profits.
- vi) The consumer co-operative has the objective to provide basic and essential household products at higher quality and at reasonable price to its members. Table 2 Benefits of Agricultural cooperatives in the supply chain of agricultural products in:

Challenges associated with Agricultural Cooperatives in Agricultural Supply Chain

Generally, some of the issues and challenges of the traditional agricultural supply chain, according to Sarah et al (2014) are as follows:

- i) Inefficiency in the whole supply chain coupled with small farm size which results in a long chain of intermediaries, multiple handling, loses in quality and increase in the gap between producers and consumer prices.
- ii) The agricultural supply chain requires support services such as financial and technical services that can assist farmers in entering the local and global markets.

- iii) The agricultural supply chain needs adequate logistics and transportation services. The higher cost of transportation reduces the farmers' profit margin.

Methodology

The design for this study was a descriptive survey design. The population was made up of all the members of Abakpa Agricultural Cooperative Society Limited, Kaduna. Out of a total population of 200 members of the cooperative society under study, 90 members participated in the study. Krejcie and Morgan sample size table cited in Ogbu (2010) was used to determine the representativeness of the sample size. Stratified sampling method was first used to select proportional samples from the male and female members, while simple random sampling method was used to systematically select the participants from each sex stratum according to the proportional samples required. The instrument used for this study was the questionnaire. It was a researcher-made questionnaire based on five-point Likert scale method of strongly agree, agree, undecided, disagree and strongly disagree. In scoring the items in the questionnaire, respondents had a possible total score ranging from 5 to 1 which represented respondent's opinion. The higher the score the more influenced the respondents is by the scale. The sections and the items are patterned in line with the research questions. Simple percentages and mean were equally used to analyze the data based on the research questions.

Results

Research Question 1:What are the activities of agricultural cooperatives in agricultural value chain process?

Table1:Activities of Agricultural Cooperatives in Agricultural Value Chain Process

S/No.	Statement	SA	A	U	SD	D	X	Remark
1	Supply of agricultural inputs such as seeds, fertilizer and chemicals.	35	25	-	20	10	3.61	Agree
2	Production of agricultural products by	45	20	-	16	9	3.84	Agree

	small and large scale farmers.							
3	Processing of agricultural products such as sorting, packaging and storing.	50	15	-	18	12	3.97	Agree
4	Pre-harvest contractors going to farmers to buy their agricultural products.	40	35	-	9	6	4.0	Agree
5	Transporting the products to the markets.	5	5	-	60	20	1.28	Disagree
6	Marketing the agricultural products at domestic and global markets.	6	4	-	50	30	1.26	Disagree

Source: Field work (2021)

Grand mean = 4.0

Key: SA (strongly Agree), A (Agree), U (undecided) SD (strongly disagree), D (disagree).

Table 1 shows the respondents' responses as regards the activities of agricultural cooperatives in agricultural value chain process. The respondents agreed in item 1 that one of the activities is supply of agricultural inputs such as seeds, fertilizer and chemicals (N= 90; \bar{x} = 3.61) and that Agricultural cooperatives engage in production of agricultural products by small and large scale farmers as shown in item 2 (N = 90; \bar{x} = 3.84). They also agreed in item 3 that Agricultural cooperatives process agricultural products such as sorting, packaging and storing (N= 90; \bar{x} = 3.97) and that Agricultural cooperatives are pre-harvest contractors going to farmers to buy their agricultural products (N= 90; \bar{x} = 4.0) as shown in item 4. In item 5, the respondents disagreed that Agricultural cooperatives engage in transporting the products to the markets (N= 90; \bar{x} = 1.28). They also disagreed in item 6 that Agricultural cooperatives market the agricultural products at domestic and global markets in agricultural value chain process (N= 90; \bar{x} = 1.26). The grand mean (\bar{x} = 4.0) shows that the

activities of agricultural cooperatives in agricultural value chain process are numerous in the study area.

Research Question 2: What are the benefits accruing to members from the involvement of agricultural cooperatives in agricultural value chain?

Table2:Benefits Accruing to Members from the Involvement of Agricultural Cooperatives in Agricultural Value Chain

S/No.	Statement	SA	A	U	SD	D	x	Remark
1	Farmers can achieve economies of scale through joint efforts in production process.	35	25	-	20	10	3.61	Agree
2	Farmers can achieve large sales without difficulty.	45	20	-	16	9	3.84	Agree
3	Professionals who are involved in the agricultural supply chain help to reduce some burden on the farmers.	50	15	-	18	12	3.97	Agree
4	The transportation system involved in the supply chain reduces unnecessary trips for farmers.	40	35	-	9	6	4.0	Agree
5	The transportation system involved in the supply chain increases service quality.	60	20	-	5	5	4.38	Agree
6	Cooperative farmers produce variety of crops.	50	30	-	6	4	4.28	Agree

Source: Field work (2021)

Grand mean $x = 4.0$

Key: SA (strongly Agree), A (Agree), U (undecided) SD (strongly disagree), D (disagree).

Table 2 shows the result on the benefits accruing to members from involvement of agricultural cooperatives in agricultural value chain. In item 1, the respondents agreed that cooperative farmers could achieve economies of scale through joint efforts in production process (N= 90; x = 3.61) and that farmers can achieve large sales without difficulty (N = 90; x= 3.84). They also agreed in item 3 that professionals who are involved in the agricultural supply chain help to reduce some burden on the farmers (N= 90; x= 3.97) and that the transportation system involved in the supply chain reduces unnecessary trips for farmers as shown in item 4 (N= 90, X = 4.0). In item 5, the respondents agreed that the transportation system involved in the supply chain increases service quality (N= 90; x = 4.38). Finally, they agreed in item 6 that cooperative farmers produce variety of crops through the value chain process (N= 90; x = 4.28). The grand mean (x = 4.0) means that respondents agree that there are many benefits accruing to members from the involvement of agricultural cooperatives in agricultural value chain.

Research Question 3: What are the challenges associated with the involvement of agricultural cooperatives in agricultural value chain?

Table 3: Challenges associated with the Involvement of Agricultural Cooperatives in Agricultural Value Chain

S/No.	Statement	SA	A	U	SD	D	x	Remark
1	Inefficiency in some aspects of the value chain affects the involvement of agricultural cooperatives in the value chain.	45	20	-	25	10	4.0	Agree
2	High interest rates on financial services rendered by borrowers affect the involvement of agricultural	50	15	-	20	15	4.0	Agree

	cooperatives in the value chain.							
3	High risks faced by lenders due to uncertainty of agricultural production affect the involvement of agricultural cooperatives in the value chain.	30	25	-	30	5	3.61	Agree
4	Inappropriate dissemination of knowledge affects the involvement of agricultural cooperatives in the value chain.	40	10	-	32	8	3.46	Agree
5	High cost of transportation which reduces farmers' profit margin affects the involvement of agricultural cooperatives in the value chain.	60	17	-	10	3	4.34	Agree

Source: Field work (2021)

Grand mean $x = 3.88$

Key: SA (strongly Agree), A (Agree), U (undecided) SD (strongly disagree), D (disagree).

Table 3 shows the challenges associated with the involvement of agricultural cooperatives in agricultural value chain. Based on the mean scores of the responses of the respondents to the items in the table, inefficiency in some aspects of the value chain affects the involvement of agricultural cooperatives in the value chain as evident in item 1 (N= 90; $x = 4.0$). The respondents also agreed in item 2 that high interest rates on financial services rendered by borrowers affect the involvement of agricultural cooperatives in the value chain

(N= 90; x = 4.0) and that high risks faced by lenders due to uncertainty of agricultural production affect the involvement of agricultural cooperatives in the value chain as shown in item 3(N= 90; x= 3.61). In item 4, result show that inappropriate dissemination of knowledge affects the involvement of agricultural cooperatives in the value chain (N= 90; x = 3.46) and finally in item 5 that high cost of transportation which reduces farmers' profit margin affects the involvement of agricultural cooperatives in the value chain (N= 90; x= 4.34). The grand mean (x = 3.88) indicates that there are several challenges associated with the involvement of agricultural cooperatives in agricultural value chain.

Discussion

The study found out that the activities of agricultural cooperatives in agricultural value chain process are equally numerous. These include supply of agricultural inputs such as seeds, fertilizer and chemicals, production of agricultural products by small and large scale farmers; processing of agricultural products such as sorting, packaging and storing and being pre-harvest contractors going to farmers to buy their agricultural products. This result supports Banisheree (2006) who enumerated the activities of agricultural cooperatives in the agricultural supply chain to include supply of agricultural inputs such as seed and plant materials, fertilizers and agricultural chemicals by traders in the village or urban areas; production of agricultural products by small and large farmers; packaging and storing them in the right environment before they are purchased by wholesalers; the collectors or pre-harvest contractor plays crucial roles in collecting the agricultural products which were cultivated and scattered all over the villages and regions. Generally, farmers wait for the collectors or pre-harvest contractor to come to their farm and buy their products at the farm gate, marketing the products at domestic or global markets aims to fulfill the requirements by consumers. They are sold through wholesalers, distant retailers and retailers at village and urban areas.

It was also found out that there are so many benefits accruing to members from the involvement of agricultural cooperatives in agricultural value chain. These benefits include cooperative farmers achieving economies of scale through joint efforts in production process the farmers achieve large sales without difficulty, reducing unnecessary trips for farmers through transportation arrangement which also increases service quality. This result confirms the assertion of Dimitiri (2011) that farmers can achieve economies of scale from concerted efforts in the production, logistics and marketing of their agricultural products; an agricultural cooperative, which is a combination of farmers, can enhance their bargaining power when they want to purchase their agricultural inputs or to get services; an agricultural cooperative society is generally served by

professionals who have unique academic qualification and experience. These professionals work as managers, supervisors, consultants, marketers and agents; agricultural Cooperative transportation systems integrate the resources of the cooperating companies to optimize the economic benefits. The main benefits of the techniques are (i) properly increasing delivery trip loads; (ii) reducing unnecessary trips, as well as pollution and costs; (iii) reducing service area overlaps; (iv) increasing service quality and company profits.

Finally, results show that different challenges are associated with the involvement of agricultural cooperatives in agricultural value chain. These factors include inefficiency in some aspects of the value chain, high interest rates on financial services rendered by borrowers, high risks faced by lenders due to uncertainty of agricultural production, inappropriate dissemination of knowledge etc. This result is in agreement with Sarah, (2014) who listed the challenges of agricultural cooperatives in agricultural value chain as inefficiency in the whole supply chain coupled with small farm size which results in a long chain of intermediaries, multiple handling, loses in quality and increase in the gap between producers and consumer prices; agricultural supply chain requires support services such as financial and technical services that can assist farmers in entering the local and global markets; supply chain involves flow of physical products from producers to customers, and flow of financial and information from customers to producers. However, the factor that has attracted the most attention of policy makers has to do with the lack of appropriate information and dissemination of knowledge; the agricultural supply chain needs adequate logistics and transportation services.

Conclusion

From the discussion thus far, agricultural cooperatives can be seen as an effective and efficient marketing channel or composition of intermediaries in the supply chain of agricultural products. The performance of the supply chain is determined by the ability of the cooperative organization to deliver agricultural products to consumers at the right time and with cost effective. The real measure of supply chain success is how well activities coordinate across the supply chain to create value for customers, while increasing the profitability of every link in the supply chain. The instrumental character of agricultural cooperative organization gives it the gamut to enhance effective and efficient supply chain of agricultural products in Nigeria which is quite indispensable to agricultural development in the country.

Recommendations

The following recommendations are made based on the research findings:

1. Realizing the importance of cooperative movement in the supply chain of agricultural products, the Federal Government of Nigeria through the Cooperative Federation of (FCN), should play greater roles by providing more initiatives and incentives to the cooperative movement for them to be more effectively involved in the supply chain.
2. The national, regional and international cooperative movement should play their roles as the coordinators and monitors in the networks of agriculture movement when the trading is made between the same nations, or between regional and in the global arena. This could be achieved through clearly articulated policies and proper monitoring and evaluation measures.
3. The negative impact of the lack of an enabling environment for cooperative movement in Nigeria cannot be overemphasized. To function well, cooperative organizations need a robust enabling environment with solid prudential regulations aimed at protecting democratic member control and ownership, autonomy, as well as voluntary and open membership. Such a framework must be simple and transparent concerning its registration, auditing and reporting processes.
4. There should be an urgent transfer of intermediaries of agricultural supply chain to the cooperative movement. This will reduce the intermediary organizations in the agricultural supply chain, and create a more efficient value chain of agricultural products. It should be noted that the cooperative movement will return the profit of every business venture in the supply chain back to its members which will contribute immensely to national economic development.
5. The value and objectives of cooperatives are solidarity, cooperation among cooperatives, free will, democratic practices, improving economic and social life, support and development of agricultural incomes. The transformation of the agricultural supply chain through the cooperative movement will remedy the problem faced by individual farmers in Nigeria such as introversion of agricultural activities, under funding, petty interest in the business venture and lack of technological infrastructure. This is because every business venture in the agricultural supply chain will be carried out by the cooperative movement and all decisions will be made by cooperative members for their benefits. This effort will benefit all parties, especially smallholder farmers in Nigeria who are the members of the agricultural cooperative movement as well as consumers.

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APPENDIX 11

QUESTIONNAIRE

ANALYSIS OF THE INVOLVEMENT OF AGRICULTURAL COOPERATIVES IN AGRICULTURAL VALUE CHAIN

Instruction: please tick the option that best represent your opinion.

Key: SA (strongly agree), A (agree), U(undecided), SD(strongly disagree) and D(disagree)

SECTION A

RESPONDENT BIO-DATA

1. **SEX** male female

2. **Age:**

25-34

35-44

45-and above

SECTION B

PRIMARY OBJECTIVES OF AGRICULTURAL COOPERATIVES AND AGRICULTURAL DEVELOPMENT

SECTION C

ACTIVITIES OF AGRICULTURAL COOPERATIVES IN AGRICULTURAL VALUE

CHAIN PROCESS

S/NO	STATEMENTS	SA	A	U	A	D	SD
9	Supply of agricultural inputs such as seeds, fertilizer and chemicals.						
10	Production of agricultural products by small and large scale farmers.						
11	Processing of agricultural products such as sorting, packaging and storing.						
12	Pre-harvest contractors going to farmers to buy their agricultural products.						
13	Transporting the products to the markets.						
14	Marketing the agricultural products at domestic and global markets.						

SECTION D

BENEFITS ACCRUING TO MEMBERS FROM THE INVOLVEMENT OF AGRICULTURAL COOPERATIVES IN AGRICULTURAL VALUE CHAIN

S/NO	STATEMENTS	SA	A	U	A	D	SD
15	Farmers can achieve economies of scale through joint efforts in production process.						
16	It enhances farmers' bargaining power as they operate in group.						
17	Professionals who are involved in the agricultural supply chain help to reduce some burden on the farmers.						
18	The transportation system involved in the supply chain reduces unnecessary trips for farmers.						
19	The transportation system involved in the supply chain increases service quality.						

SECTION E

FACTORS THAT MILITATE AGAINST THE INVOLVEMENT OF AGRICULTURAL COOPERATIVES IN AGRICULTURAL VALUE CHAIN

S/NO	STATEMENTS	SA	A	U	A	D	SD
20	Inefficiency in some aspects of the value chain affects the involvement of agricultural cooperatives in the value chain.						
21	High interest rates on financial services rendered by borrowers affect the involvement of agricultural cooperatives in the value chain.						
22	High risks faced by lenders due to uncertainty of agricultural production affect the involvement of agricultural cooperatives in the value chain.						
23	Poor information affects the involvement of agricultural cooperatives in the value chain						
24	Inappropriate dissemination of knowledge affects the involvement of agricultural cooperatives in the value chain.						
25	High cost of transportation which reduces farmers' profit margin affects the involvement of agricultural cooperatives in the value chain.						