

Comparative Study of Economic Potentials of Cooperative and Non Cooperative Members in Cassava Processing and Marketing in Agricultural Zones of Anambra State

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ABSTRACT

Cassava processing greatly influences the price value of cassava produce; but processing and marketing through group approach will increase the value addition. Consequently, farmers' income will definitely increase, there will also be increase in savings habit. The study broad objective was to compare the economic potentials of cooperative and non cooperative members in cassava processing and marketing in agricultural zones of Anambra State. The farmers are poor and cannot access the needed agricultural facilities and technologies to enhance their productivity individually, that is why the rationale to compare their economic potentials through group approach becomes vital. Multistage sampling technique was used to determine the sample size of 287 for cassava farmers that were cooperative members and 294 sample size was equally determined for cassava farmers that were not cooperative members. Data obtained were analyzed with both descriptive statistics and inferential statistics. Evidence from the study revealed that; majority of the both respondents were females. The findings also revealed that the cooperative farmers earned more income from cassava processing and marketing more than those cassava farmers that were not cooperative members. In order to enhance the cooperative approach of cassava processing and marketing among the farmers, the farmers should be encouraged to expand their cassava production capacity. As a matter of necessity, the farmers should be provided with micro production loan and credit. The cooperative society should adopt more innovative processing technologies. Also, the cooperative society should be more informed with current market information and seek for alternative access from other markets to dispose processed cassava.

KEYWORDS: Cassava, processing, marketing, cooperatives and small scale farmers

INTRODUCTION

Background of the study

Smallholder agricultural systems in Nigeria, like most developing nations, are characterized by a number of drawbacks including technical, financial, institutional and infrastructural support, which adversely affect the economic wellbeing of farmer households and results in the continued marginalization of the rural space in which farming takes place (Oluwemimo, 2010). In Anambra state and mostly south eastern state of Nigeria, cassava is mostly cultivated by smallholder farmers as a food reserve crop. It is a dependable crop to poor families who use it to prevent starvation when seasonal harvests run out or when other food crops do not survive during dry season and natural disasters. (Adebayo, 2008)

Abubakar (2003) noted that the current trend in cassava processing and marketing showed that cassava production capacity is increasing globally and that growing of cassava is expanding to the semi-arid areas where cassava was not cultivated 30 years ago. Cassava can be a powerful poverty fighter in as it is capable of boosting farmers' income,

facilitating savings habit among the farmers as well as enhancing their household standard of living. The cash income from cassava proves more egalitarian than the other major staples because of cassava's low cash input cost (Nweke 2004). According to the CBN (2011), report has it that, Nigeria has been consistently ranked as the world's largest producer of cassava, producing around 45 million tonnes in 2009, almost 19% of total world production and Anambra state is one of the contributory states in Nigeria. Cassava grows well on Anambra soil, resistant to drought and survives in a variety of soils.

Cassava is a very versatile commodity with numerous uses and by - products. The leaves may be consumed as a vegetable, or cooked as a soup ingredient or dried and fed to livestock as a protein feed supplement. The stem is used for plant propagation and grafting. The roots are typically processed and market for human and industrial consumption. Cassava root is a good source of carbohydrates. The plant is used to make a local starchy food

called gari, akpu, starch, tapioca, and it is also a source for bio-fuel as well as animal feed.

Africa already produces 42 percent of world cassava output with Nigeria and Ghana as leading producers, but who can only process 16 percent of the root tuber for home industrial uses and export (Ayoade and Adeola, 2009; Knipscheer, Henk., Ezedinma, , Kormawa, Asumugha, Kakinde, Okechukwu, and Dixon, 2007; Nweke, 2004). Cassava processing marketing at household level is an important income generator for the small scale farmers who do not possess enough resources for the large quantity of cassava. Several studies suggest that cassava has good potential to contribute to economic diversity and could create many opportunities for the development of other processing industries (Kaine, 2011; Sanni et al., 2009; Odebode, 2008).

In Anambra state, cassava is a basic food staple and a major source of farm income for the people (Enete, 2008). It contributes about 40% of the food calories consumed with economic benefits for both rich and poor farmers as they often derive more cash income from cassava than any other crop or income earning activity. Hence, efficiency in cassava processing and marketing is an important determinant of both consumers' living cost and producers' income. Moreover, as the process of urbanization progresses, an increasing share of national food consumption takes place at locations other than where food is produced. The marketing system must develop well to provide necessary services as producers sell in markets distant from where consumers buy their food. Yet, compared with cassava production, cassava processing and marketing has received much less than sufficient attention (Enete, 2008).

Small scale farmers are often unable to process harvested cassava due to lack of resources of individual farmer capacity. As result of this, the individual farmers have to market their unprocessed cassava crop at a very low price to middlemen who are willing to add value to the cassava and sell it to retailers and consumers at high price with much profit margin. But with cooperative approach, the small scale farmers can organize them self in to a collective group where their resources will be pooled together to process (value chain Addition) and market their cassava produce. The collective actions on cassava processing and marketing through the Cooperative approach will enable the small scale farmers to eliminate the middle men with much economic benefits to the farmers.

Cooperative effects and approach is the key to achieve efficiency in cassava processing and marketing in Anambra state. Since most farmers are small holders, they may not necessarily have the resources or the financial chest to acquire the required inputs to process the cassava and being a member of cooperative society will provide them economic benefits from processing and marketing of cassava through their cooperative society. Cooperative society have the capacity to collectively procure the necessary equipment needed for the processing of the cassava which will automatically add value to cassava and add more profits to the farmers pockets. Collective action is an intrinsic value of cooperative societies, with this collective action; the cooperative members enjoy collective bargaining power in marketing cassava produce in available markets.

Objective of the Study

The broad objective of the study is to compare the economic potential of cooperative and non cooperative members in cassava processing and marketing in Anambra state

The specific objectives of the study are to:

1. examine the socio economic background of the cooperative and non cooperative members that are involved in cassava processing and marketing
2. assess the cooperative effect of cassava processing and marketing on the cooperative and non cooperative members income level.
3. assess the effect of cooperative approach of cassava processing and marketing on the savings capacity of cooperative and non cooperative members.

Hypotheses of the Study

Ho₁: There is no significant difference on the level of income earned by cooperative members (experimented group) and non cooperative members (control group) from cassava processing and marketing.

Ho₂: Amount of money saved by the cooperative members from income earned from cassava processing and marketing is not significantly higher than the amount of money saved by the non cooperative members.

Review of Related Literature

Cassava Product

Agriculture is the most assured engine of growth and development and or reliable key to industrialization. Nigeria is the largest producer of cassava in the world (Ogbe et al, 2003). Cassava is grown throughout the tropic and could be regarded as the most important root crop in terms of area cultivated and total production (Ano, 2003). It is a very important staple food consumed in different forms by millions of Nigerians. Cassava roots are rich in energy, containing mainly starch and soluble carbohydrates, but are poor in protein. Cassava is a very versatile commodity with numerous uses and by products. Each component of the plant is valuable to its cultivator. The leaves may be consumed as a vegetable, or cooked as a soup ingredient or dried and fed to livestock as a protein feed supplement. The stem is used for plant propagation and grafting. The roots are typically processed for human and industrial consumption.

Cassava is a crop of the poor, and occupies mainly agriculturally mineral environments. These and other features endowed it with a special capacity to bridge the gap in food security, poverty alleviation and environmental protection (Clair et al, 2000). In Nigeria, Cassava is generally believed to be cultivated by small scaled farmers with low resources (Ezebuio et al, 2008). It also plays a major role in the effort to alleviate the food crisis in Africa, the food and agricultural organization of the United Nation (FAO, 2004) estimated cassava production in Nigeria as at 2002 to be 34 million tones. Cassava is one of the most important food crops of Africa. It is a food security and income generation crop for many millions of people and has traditionally been a subsistence crop of predominantly low-income families in rural and urban areas, but now it is increasingly becoming a valued crop with the emergence of its uses in various commercial applications.

The crop's high resilience and adaptability to a wide range of ecological conditions has sustained its production through many generations in sub-Saharan Africa since its introduction. It is consumed in various different traditional forms varying from country to country and across communities in a country. Of all tropical Africa root and tuber crops, cassava covers the largest area. Through sales of fresh roots and processed products, it provides: increased income for farming households; increased employment opportunities; potential to target development benefits to women; potential lower food prices for consumers; competitively priced raw materials and more convenience e.g. improved traditional products. (Adabeyo, Richard, and Andrew, 2008)

Sanni, Oyewole, Adebawale, and Adebayo (2003) classified the products of cassava postharvest system to include:

Fresh cassava - Raw cassava is occasionally consumed in parts of Central, East and southern Africa, but it is rarely consumed raw in West Africa.

Traditional food products - There is a great variety of traditional cassava products. These products include: boiled cassava, pounded cassava, *fufu*, *gari*, *lafun* (in Angola, it is known as *Bomboor makessa*; in Congo it is called *Lukuor cossettes*; in Zambia it is called *Nshima*; in Ghana it is known as *Ezidzi* and in Malawi it is called *Makaka*; *Kanyanga*, *Mapangaor* *Maphumu*.

Animal feed - Following the pioneering activity by a private company in developing an export led industry in cassava chips in 1993 (Antwi, 1994), interests have become active in the marketing of cassava chips and working to access the export market, and exploring the utilization of cassava chips in livestock feed and in alcohol production. Though in general decline the European Union (EU) livestock feed market for cassava chips of about 6 million mt per annum gives Ghana.

Starch - The local market for starch in Ghana alone is about 5,000 mt per annum. In the context of annual cassava production of about 7 million metric tonnes, the industrial starch market offers relatively little potential to expand the market for cassava. Although the starch market in Ghana is very small, major opportunities for starch lie in the sub-regional and regional exports. In South Africa, the annual consumption of starch is about 300,000 mt per annum with an annual growth rate of 12,000 mt.

Sugar syrups - The crop is also processed to alcohol, yeast, and as a waste material, it can be processed to biogas.

High quality cassava flour (HQCF) - Recent studies have indicated that there is a significant market potential for high quality unfermented cassava flour as partial or total replacement for wheat in food products and for use in the manufacturing of plywood and paperboard (Day *et al.*, 1996). In spite of considerable research on bread making and the use of composite flours, there has been little impact on commercial practice (except where government controls wheat imports, as in Nigeria and has supportive policies). Amongst the most promising food products for HQCF use are as wheat flour replacements in pies/pastries, cakes, biscuits and doughnuts.

Cooperative Approach of Processing and Marketing of Cassava on the Savings Capacity of Small Scale Farmers

Processing reduces food losses and stabilizes seasonal fluctuations in the supply of the crop. Cassava can be processed into gari, fufu, cassava flour, cassava flakes, pupuru etc. Income can be generated from all cassava processed product. Also after cassava has been processed into various products as listed above, its waste can also be sold. For instance cassava peel can be sundry and then be sold to people who will utilize it as livestock feeds and this can also serve as a source of income (Manyong *et al.*, 2005). Contract farming has been instrumental in providing farmers access to supply chains with market and price stability, as well as technical assistance. Production input and farm investment on credit are often provided by firms to resource-poor farmers while in return, contractors expect delivery of goods in specified quantities, quality and set prices. Market and price certainty for both parties and integrated farm-processing enhance the country's competitiveness through improved quality of products and an efficient supply chain (Sriboonchitta and Wiboonpoongse, 2008). Contract farming in developing countries has successfully enabled small-scale farmers to commercialize their farming operations through the creation of domestic and international market linkages (Masakure and Henson, 2005). It was further stated that, well coordinated contract farming systems assist development in less privileged farming sectors (Sriboonchitta and Wiboonpoongse, 2008). For example, countries like Thailand has diversified her agricultural production from mainly rice to include various cash crops such as cassava of which contract farming has been instrumental in providing farmers access to supply chains with market and price stability, as well as technical assistance

METHODOLOGY

Area of the Study

The area of the study is Anambra state. Anambra state is one of the 36 states in Nigeria and lies on the eastern part of Nigeria with its capital at Awka. The state is located between latitude 60 45' and 50 44' and longitude 60 36' and 70 29' E. It has an estimated population of 4,182, 032, (National population commission (NPC 2006). Anambra state has 21 local government area; they are Awka south, Awka North, Orumba south, Orumba north, Ihiala, Nnewi south, Nnewi north, Njikoka, Dunukofia, Anambra East, Anambra west, Ayamelu, Idemili north, Idemili south, Onitsha south, Onitsha north, oyi, Ogbaru, Ekwusigo, Aguata, and Anaocha. The state is blessed with fertile soil and favourable climate which makes it possible for agricultural activities, engaging more than 70% of the rural population, (Anambra state Economic Empowerment Development Strategy (SEED), 2006). Anambra state has the largest commercial and industrial city in the south-eastern Nigeria, making it possible for agricultural products to be marketed. Onitsha and Nnewi are the biggest commercial and industrial cities respectively. The state theme is "light of the nation. The economic activities in the state are mostly agriculture, commerce, industrialization and civil service. The administrative structures of agricultural development in the state are four agricultural zones. They are: Aguata, Awka, Anambra and Onitsha Agricultural Zone: The study population is divided into category of experimented group and control group. The experimented groups comprises of small scale cassava farmers that are members of cooperative society, involved in cassava processing and marketing while the control group

are those small scale farmers that are not members of any cooperative. There are 1,204 Farmers Multipurpose cooperative societies (FMCS) with total membership of 15,990 that constitute the population, (Ministry of commerce and industry, Anambra state) while the control group is unknown because exact number of small scale farmers that involved in cassava processing and marketing that cut across 4 agricultural zones of Anambra state will be difficult to ascertain. Stated here under is the spread of the study population across the four agricultural zones in Anambra state. Multistage sampling technique was adopted to determine the sample size for this study. Taro Yamane formula was used to determine the manageable sample size for the study which is 356 respondents. Therefore 356 questionnaires were designed and randomly distributed amongst the experimented respondents (**Cooperators**) but 287 valid responses were obtained while 400 control respondents (**Non-Cooperators**) were randomly selected from the area of study, but 294 valid responses were

obtained Data were collected from basically primary sources. However relevant secondary information was elicited from texts, journals, learned articles and websites of reputable institutions. The data for this study were analyzed with both descriptive statistics and inferential statistics. The descriptive statistics was used to analyze the set objectives for this study. Objective one was analyzed with frequency table, simple percentage, as well as average mean. Objectives 2, 3, 4 and 5 were equally analyzed with 5 points Likert scale with conventional threshold of 3.0 where any variable equal or greater than 3.0 is considered positive (strong) while less than the 3.0 is negative (weak).

The inferential statistics were used to test the 3 formulated hypotheses of the study. Hypothesis one (H_{01}) was tested with T test statistics analysis. This was done so as to determine the difference between the income levels of the respondents. As such the results were presented as follows

DATA ANALYSIS AND PRESENTATION

The Socio Economic Nature of the Small Scale Farmers That Are Involved In Cassava Processing and Marketing

Table 1: Distribution of Responses on the Socioeconomic Characteristics of the Respondents

Socio-Economic Indicators	Cooperative Farmers (Members) Experimented Group (287)					Non Cooperative Farmers (Members) Control Group (294)				
	Freq	%	Minimum	Maximum	\bar{X}	Freq	%	Minimum	Maximum	\bar{X}
Sex: Male	106	36.9	-	-	-	128	43.5	-	-	-
Female	181	63.3	-	-	-	166	56.5	-	-	-
Age:	-	-	≥20yrs	<61yrs	48.6yrs	-	-	≥20yrs	<61yrs	53.7yrs
Marital Status: Single	74	25.7	-	-	-	26	8.84	-	-	-
Married	213	74.3	-	-	-	268	91.2	-	-	-
Years of Formal Education:	-	-	0yr	<17yrs	14.8yrs	-	-	0yr	<17yrs	8.59yrs
Alternative Occupation										
-Full time farmer	209	72.8	-	-	-	106	36.1	-	-	-
-Part time farmer	78	27.2	-	-	-	188	63.9	-	-	-
Cassava Farm Size	-	-	≥1hec	<20hec	3.16hec	-	-	≥1hec	<20hec	1.9hec
Farm Land Acquisition										
-Outright Purchase	32	11.2	-	-	-	08	2.72	-	-	-
-Inheritance	197	68.6	-	-	-	269	91.5	-	-	-
-Lease/Rent	58	20.2	-	-	-	17	5.78	-	-	-
Distance of Farm	-	-	≥ 1Km	<10Km	3.86km	-	-	≥ 1Km	<10Km	1.73km
Household Size	-	-	2 pers	<20pers	4.84prs	-	-	2 pers	<20pers	8.54prs
Capital Invested	-	-	≥ 100,000	<2million	302,734.7	-	-	≥ 100,000	<2million	84,398.20
Farming Experience	-	-	≥1yr	<21yrs	14.2yrs	-	-	≥1yr	<21yrs	8.64yrs
Coop. Mem. Experience	-	-	≥1yr	<21yrs	8.33yrs	-	-	≥1yr	<21yrs	0.82yrs
Processing Equipments										
-Peeling Machine	146	50.8*	-	-	-	12	4.08*	-	-	-
-Grinding & Blending	287	100*	-	-	-	125	42.5*	-	-	-
-Grater Machine	205	71.4*	-	-	-	23	7.82*	-	-	-
-Sieve	248	86.4*	-	-	-	244	82.9*	-	-	-
-Compressing	211	73.5*	-	-	-	98	33.3*	-	-	-
Cassava Produce										
-Garri	287	100*	-	-	-	287	100*	-	-	-
-Akpu/fufu	186	64.8*	-	-	-	58	19.7*	-	-	-
-Starch	92	32.1*	-	-	-	21	7.14*	-	-	-
-Cassava Flour	129	44.9*	-	-	-	44	14.9*	-	-	-
-Abacha (African Salad)	106	36.9*	-	-	-	67	22.7*	-	-	-
-Tapioca	12	4.12*	-	-	-	00	00	-	-	-
-Ethanol	00	000	-	-	-	00	00	-	-	-
-Chips	03	1.04*	-	-	-	00	00	-	-	-
-Animal Feed	109	37.9*	-	-	-	88	29.9*	-	-	-

Cassava Marketing			-	-	-			-	-	-
-Through coop society	287	100*	-	-	-	00	00	-	-	-
-Direct to consumers	00	00*	-	-	-	196	66.6*	-	-	-
-Through wholesaler	00	00*	-	-	-	203	69.1*	-	-	-
-through Up-Takers	109	37.1*	-	-	-	272	92.5*	-	-	-
-through manufacturers	00	00	-	-	-	104	35.4*	-	-	-
-through export	00	00	-	-	-	00	00	-	-	-

Source: Field Survey, Nov. 2018

*Multiple Responses

The table 1 above displayed the socioeconomic characteristics of both respondents that are cooperative members and non cooperative members. Evidence from the result table revealed that majority of the respondent are female (Experimented group = 63.3% while control group= 56.5). The responses obtained from experimented group showed that most (74.3%) of them are married while 91.2% of control group are also married. Evidence has is that, farmers that are cooperative members (experimented group) are more ($x=14.8$ yrs) educated than those farmers that are not cooperative members (control group ($x=14.8$ yrs)), that is, the experimented group spent more years in schools than the control group and this indicated that the experimented have more than SSCE educational qualification while the majority of the control group have FSLC qualifications. The result also affirmed that the farmers (Experimented group ($x=3.16$ hectares) while control group ($x=1.9$ hectares)) are operating on a small scale capacity. Similarly, the result on farm land acquisition indicated that majority of respondents acquired their farm land through inheritance while very few of them purchase and lease. Result revealed that non cooperative members' (Control group) cassava farms are much closer ($x= 1.73$ Km) to their households while the cooperative members (experimented group) cassava farms is somehow far from their households with average of 3.86Km. On the average, the experimented group has invested ₦ 302.734.7 as capital on cassava production while the control group invested average of ₦84.398.20. Cooperative members have more ($x= 14.2$ yrs) years of farming experience than non cooperative members ($x= 8.64$ yrs). Evidence from the result table revealed that, garri and akpu are most processed cassava produce among the cooperative and non cooperative farmers. Finally, on the result table, almost all the cooperative members sell their cassava through the cooperative society while non cooperative members sell direct to up-takers.

The Extent the Cooperative Approach of Cassava processing and Marketing has Influenced Small Scale farmers' Income Level during Farming Season

Table 2: Distributions of Responses Based on the Estimated Amount of Income Earned from Processed & Marketed Cassava during a Farming Season

Estimated Amount of Income Earned During Farming Season	Cooperative Farmers (Experimented Group)		Non Cooperative Farmers (Control Group)	
	Freq=287	Percentage (%)	Freq=294	Percentage (%)
Less than ₦ 50,001	24	8.36	92	31.29
₦ 50,001 - ₦100, 000	51	17.77	129	43.8
₦ 100,001 - ₦ 200, 000	83	28.91	58	19.72
₦200, 001 – ₦500, 000	109	37.9	07	2.38
₦500, 001 – ₦700, 000	17	5.92	01	0.34
₦700, 001 – ₦1million	03	1.04	00	00
N1.1million – ₦2million	00	00	00	00
₦2.1million and above	00	00	00	00

Source: Field Survey, Nov. 2018

*Average (x) for Experimented Group = ₦383, 904.73

*Average (x) for Control Group = ₦80, 771.58

The above result in table 2, indicated that the cooperative farmers (experimented group) earned more income from cassava processing and marketing more than those cassava farmers that are not cooperative members. From the result table, majority (37.9%) of the cooperative farmers earned in between ₦200, 001 to ₦500, 000 from cassava processing and marketing during a farming season on the average they earned ₦383, 904.73 which is far higher than average amount of ₦80, 771.58 earned by those farmers that are not cooperative members and majority (43.8%) of these non cooperative members earned in between ₦ 50,001 to ₦100, 000 from cassava processing and marketing during farming season.

Test of Hypothesis One (H_{01})

H_{01} : There is no significant difference on the level of income earned by cooperative members (experimented group) and non cooperative members (control group) from cassava processing and marketing during a farming season

H_{a1} : There is significant difference on the level of income earned by cooperative members (experimented group) and non cooperative members (control group) from cassava processing and marketing during a farming season

T test statistics model analysis was used to determine the significant difference between the level of income earned by experimented group and control group from cassava processing and marketing during a farming season

In order affirm or reject the hypothesis, the responses from both respondents were subjected to one sample T test statistics and the result was presented in the table 2.1 below

Table 2.1: T test Statistics Result

	N	Mean	Std. Deviation	Std. Error Mean
Experimented Group	7	4.436923E0	1.8752661	.5201052
Control Group	7	3.836923E0	.2877900	.0798186

One-Sample Test

	Test Value = 0					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Experimented	4.301	7	.001	2.2369231	1.103711	3.370135
Control	41.806	7	.000	3.3369231	3.163013	3.510833

Significance @ 5% level of significance

Interpretation:

From the T test model statistics result, it can be deduced that the level of income earned by cooperative members (experimented group) and non cooperative members (control group) from cassava processing and marketing during a farming season is clearly different. Therefore, the P- value (0.000) is less than the conventional 0.05, thus, the model is significant at 5% level of significance. As such, there is existence of enough evidence to reject the null hypothesis and conclude that the level of income earned by cooperative members (experimented group) is significantly differ from what non cooperative members (control group) earned as income from cassava processing and marketing during a farming season.

The hypothesis result further strengthens the result of descriptive statistics result in table 2. The implication of this result is that cooperative approach favours the cassava farmers that are cooperative members as they earned more income from cassava processing and marketing than those farmers that are not cooperative members.

Effects of Cooperative Approach of Cassava Processing and Marketing on the Savings Capacity of Small Scale Cassava Farmers**Table 3: Distributions of responses on7 the Estimated Amount of Money Saved from Processed & Marketed Cassava during a Farming Season**

Estimated Amount of Money Saved During Farming Season	Cooperative Farmers (Experimented Group)		Non Cooperative Farmers (Control Group)	
	Freq=287	Percentage (%)	Freq=294	Percentage (%)
Less than ₦ 50,000	19	6.62	112	38.09
₦ 50,001 - ₦70, 000	45	15.67	165	56.12
₦ 70,001 - ₦ 100, 000	136	47.38	15	5.10
₦100, 001 – ₦200, 000	71	24.73	02	0.68
₦200, 001 – ₦500, 000	07	2.34	00	00
₦500, 001 – ₦800, 000	00	00	00	00
₦ 800, 001 – ₦ 1,000,000	00	00	00	00
₦ 1,000,001 and above	00	00	00	00

Source: Field Survey, Nov. 2018

*Average (x) for Experimented Group = ₦89, 103.92

*Average (x) for Experimented Group = ₦51, 080.33

Table 3 result above revealed that the cassava farmers that are cooperative members (experimented group) save more money from cassava processing and marketing more that those cassava farmers that are not cooperative members. From the result table, majority (47.38%) of the farmers that are cooperative members saved in between ₦ 70,001 to ₦ 100, 000 from cassava processing and marketing during a farming season on the average they earned ₦89, 103.92 which is higher than average amount of ₦51, 080.33 saved by those farmers that not cooperative members and majority (56.12%) of these non cooperative members saved in between ₦ 50,001 to ₦70, 000 from cassava processing and marketing during farming season.

Test of Hypothesis Two (Ho₂)

Ho₂: Amount of money saved by the cooperative members from income earned from cassava processing and marketing is not significantly higher than the amount of money saved by the non cooperative members during farming season

Ha₂: Amount of money saved by the cooperative members from income earned from cassava processing and marketing is significantly higher than the amount of money saved by the non cooperative members during farming season

Hypothesis two (**Ho₂**) was tested with analysis of variance (ANOVA). The ANOVA was used to determine difference in the opinion of the respondents on the estimated amount of money they were able to save from proceed of cassava processing and marketing.

The hypothesis was subjected to Analysis of Variance test and the result was presented as follows

Table3.1: Result of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Experimented Groups	.573	7	.115	.285	.004
Control Groups	2.415	7	.402		
Total	2.987	11			

Interpreting the Results

In the ANOVA table, the p-value (0.004) indicates that there is sufficient evidence that not all the means are equal when alpha is set at 0.05. To explore the differences among the means, examine the multiple comparison results.

Multiple comparison results are presented as a grouping table and a set of confidence intervals for the difference between pairs of means. Use the grouping information table to view, in a summarized format, groups of factor level means that are not significantly different. Levels that share a letter are not significantly different. Conversely, if they do not share a letter, the means are significantly different. Use the confidence intervals to determine a likely range for the difference between two means.

Decision:

Based on the evidence presented above the researcher reject null hypothesis and accept the alternate. That is, the estimated amount of money saved by the cooperative members from income earned from cassava processing and marketing is significantly higher than the amount of money saved by the non cooperative members during farming season.

This result implied that, the cooperative members were able to save more money from the income earned from the cassava processing and marketing through the cooperative society. This result aligned with result of descriptive statistics of table 2 and table as well as hypothesis 2 results.

SUMMARY OF FINDINGS, CONCLUSION AND RECOMENDATIONS

Summary of Findings and Conclusion

- The evidence from the result revealed that majority of the both respondent are female. Evidence has it that, farmers that are cooperative members are more ($x=14.8$ yrs) educated than those farmers that are not cooperative members ($x=14.8$ yrs), that is, the experimented group spent more years in schools than the control group. The result on farm land acquisition indicated that majority of respondents acquired their farm land through inheritance while very few of them purchase and lease. Findings revealed that non cooperative members' cassava farms are closer ($x=1.73$ Km) to their households while the cooperative members cassava farms is far from their households with average distance of 3.86 Km. On the average, the experimented group has invested ₦302,734.7 as capital on cassava production while the control group invested average of ₦84,398.20. Cooperative members have more ($x=14.2$ yrs) years of farming experience than non cooperative members ($x=8.64$ yrs). Evidence from the result revealed that, garri and akpu are most processed cassava produce among the cooperative and non cooperative farmers. Finally, on the result table, almost all the cooperative members sell their cassava through the cooperative society while non cooperative members sell direct to up-takers.

- The findings revealed that the cooperative farmers earned more income from cassava processing and marketing more than those cassava farmers that are not cooperative members. From the result, majority (37.9%) of the cooperative farmers earned in between ₦200,001 to ₦500,000 from cassava processing and marketing during a farming season on the average they earned **₦383,904.73** which is far higher than average amount of **₦80,771.58** earned by those farmers that are not cooperative members and majority (43.8%) of these non cooperative members earned in between ₦50,001 to ₦100,000 from cassava processing and marketing during farming season.
- Findings also revealed that the cassava farmers that are cooperative members (experimented group) save more money from cassava processing and marketing more than those cassava farmers that are not cooperative members. From the result table, majority (47.38%) of the farmers that are cooperative members saved in between ₦70,001 to ₦100,000 from cassava processing and marketing during a farming season on the average they earned **₦89,103.92** which is higher than average amount of **₦51,080.33** saved by those farmers that not cooperative members and majority (56.12%) of these non cooperative members saved in between ₦50,001 to ₦70,000 from cassava processing and marketing during farming season.

Recommendation

In order to enhance the cooperative approach of cassava processing and marketing among the small scale farmers the following recommendations are considered necessary,

- The farmers should be encouraged to expand their cassava production capacity. This equally increases the processing and marketing capacity of the cooperative society which will also boost the income, savings ability of the farmers and in turn promote their standard of living.
- As a matter of necessity, the farmers should be provided with micro production loan and credit. This will enable them to procure the necessary farm inputs that will expand the quantity of cassava they produce which is capable of boosting their income and their savings capacity
- The cooperative society should adopt more innovative processing technologies. This will help to enhance the quality of cassava they will process and market. Also, this will attract more cassava farmers to join cooperative society so as to process and market their cassava through cooperative society.

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