

ANALYSIS OF PERFORMANCE OF COOPERATIVE CASSAVA FARMERS IN UYO LOCAL GOVERNMENT AREA OF AKWA IBOM STATE, NIGERIA

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ABSTRACT.

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The study analyzed the performance of cooperative cassava farmers in Uyo Local Government Area of Akwa Ibom State, Nigeria. Primary data were utilized using a well structured questionnaire which was administered to ninety (90) respondents. A multiple regression analysis was employed and the lead equation was double log model. The result however showed that age, level of education, labour, capital inputs, fertilizer as well as household size were statistically significant variables which implied that they made positive contribution to improve the sector in the study area. The adjusted R² value indicates that variation in output was not due to the socio economic variables included in the model. The cost and return analysis of farmers showed that total cost was ₦41,922.63 per hectare and total variable cost was ₦25,598.69 per hectare while total revenue was ₦54,603.69 per hectare and the total profit realized was ₦12,741,06 per hectare. However, constraints identified were insufficient capital as well as inadequate farm land. The study therefore concludes that cooperative societies had improved farming economy since their members enjoyed higher profit. In essence, performance of cooperative cassava farmers in the study area was commendable and as such government, group and individual support to farmer's cooperative societies should be highly recommended and encouraged.

INTRODUCTION

It is imperative to stress that cooperative societies have been an invaluable tool in promoting and enhancing rural development in many communities especially by the less privilege with common interest. Akpan (2005) however emphasized that cooperative societies are formed by people of limited means to achieve a common goal. The organisation of cassava cooperative farmers has in recent years become one of the most important pre-conditions for effective mobilization of production resources as well as accelerate farmer's progress. Fayese (2009) however emphasized that one of the most effective vehicles for organizing modernized cassava farmers production therefore is the "cooperative". Chambo (2009) however pointed out that cooperative activities explain the best methods by which peasant farmers can take part in economic advancement and gain valuable experience of democratic procedure and business management. It is suffice to say that Nigerian agricultural production is dominated by small scale farmers who live mostly in rural setting and they operate more or less at subsistence level. Cooperative as a strategy for economic development has been used by people of different ideological persuasions since the movement started in Rochdale – England about 150 years ago. It was until 1935 that the British colonial Government brought the cooperative enterprise to Nigeria through the cooperative ordinance which came into effect in February, 1936. In essence, Western Region started with cocoa cooperatives Eastern region started with thrift and credit cooperatives. It is on record that the first thrift and credit cooperative society which was nicknamed "Ikot Ebido cooperative" was established in Uyo in 1936 soon after the cooperative ordinance came into effect. Marketing unions existed as a form of cooperative in the Eastern, Northern and Western Regions with the sole aim of buying agricultural produce at reasonable price and export as well. These unions were transformed into state marketing boards and by 1975 they were replaced by the Nigerian Produce Marketing Company Limited (Umoren, 2012).

There are two broad categories of cooperative in Uyo Local Government Area of Akwa Ibom State. One is the ordinary single purpose society in which person seek to improve or consolidate their individual economic or social needs (Hoddinott, 2004), by voluntarily coming together and decide on collective action. The second category is the multi purpose society in which the society undertakes two or more functions. For instance, members from a farming community may belong to a thrift and credit and agree to establish voluntarily a marketing society to market the produce for members. On this note, the need to look at the performance of cooperatives to determine if they are fulfilling the purpose in which they were formed.

However, the study objectives are to:

- identify the socio economic characteristics of the members of cooperative cassava farmers in the study area,
- identify factors influencing cassava production by members,
- determine the profitability level of cooperative cassava farmers,
- identify the constraints faced by members and make recommendations based on findings.

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Agricultural cooperative denotes the principles and concepts that guide the formation, operation and sustainable management of cooperative movement in agriculture. Hartley, (2003) stressed that it is concerned with such issues of cooperative financing, management and taxation of cooperatives. An agricultural cooperative society is a business enterprise which is jointly formed, owned, capitalized, patronized and democratically controlled by farmers. Fishermen and other operator in agricultural sector in order to meet their pressing needs, as such needs may be to mop up financial resources to acquire farm supplies and make the supplies available to farmers at reduced rate. Apart from satisfying these common needs, agricultural cooperative also share the risk and profit of the cooperative among the members according to the volume of business done with cooperatives. However, Mai-Lafia *et al.*, (2009) stressed that agricultural cooperative may be primary, secondary or tertiary cooperative. In terms of variability, agricultural cooperative vary in size, volume of business and composition of the work force. In essence, an ideal cooperative should have a board of director with board officers, committees, auditor, legal practitioner to direct the operation as well as activities of staff responsible for the running of the cooperatives. Its main function should include motivating, protecting the members, enhancing membership education, providing members with means of production, marketing, processing as well as other beneficial services depending on their economic needs,

The process under which cooperative societies operate and carry out its business are voluntary and open to membership, democratic member control, member economic participation, autonomy and independence, educating, training and information, cooperation among cooperatives, concern for the community. However, the functions and responsibilities of the management team are to plan and evolved appropriate policies for the cooperative society, set targets and priorities, ensure the successful execution of the policies, established acceptable motivating criteria, periodically evaluate the policies as well as achievements of the cooperatives society based with relevant outside organization for necessary assistance and represent reports to members periodically. (Umoren, 2012). In essence, management problems of agricultural cooperative are attributed to the structure of organization of the cooperatives, types of cooperatives, membership characteristics, hierachical nature of government agencies that act as patron to cooperative movement, non-permanent nature of government officials attached to the cooperative movement and the rapid changing socio-economic and technical environment. In order to improve management performance of agricultural cooperatives, there is need to improve the farming operations of patrons, through increased access to biological, chemical, financial and mechanical factors of production and exposed the cooperative members to relevant adult education programmes as well as periodic workshop on management.

The involvement of farmers cooperative in agricultural activities which bring about production and development cannot be ignored at this stage of development in the developing countries like ours. As a result of the growing recognition of farmers valuable contribution to agricultural development as well as rural development, this has given needs to the research of farmer's cooperatives activities in agriculture (Durosh, 2008). Besides, farmers cooperative societies procure agricultural inputs such as chemicals, equipment, seedlings and educate farmers on modern farming and management techniques, the performance of farmer's cooperative societies impact is almost if not all part of our national life can be exhausted. (Nweke *et al.*, 2005).

RESEARCH METHODOLOGY

Study Area. The study was conducted in Uyo Local Government Area of Akwa Ibom State, Nigeria. The area is located on latitude 05° 35'N and 07° 50'E. The estimated population is about 2,346,150 million people. (NPC,1991). Most inhabitants engaged primarily in farming especially in arable crops and livestock. The climatic condition is humid tropical with two distinct seasons. The mean daily temperature ranges between 25°C to 37°C with a rainfall pattern of at least 3200mm. The population of the study consists of cassava farmers in four clans in Uyo LGA who are cooperators.

Sampling procedure and method of data collection

A sampling frame which stipulates the list of cassava farmers was drawn from the State Ministry of Agriculture and ADP office in Uyo Local Government Area of Akwa Ibom State for cooperative cassava farmers. A multi stage random sampling technique was employed. To obtain primary data, a structured questionnaire was used through oral /personal interview. Secondary information was obtained using reported bulletins and published journals. In each clan, two villages were purposively selected. Altogether, ninety respondents were used for the study.

Analytical technique

The method of data analysis involved the use of descriptive statistics which looks at the socio economic characteristics as well as relevant constraints to production of cassava cooperators in the study area. Multiple

regression analysis was employed to identify factors influencing cassava production with respect to cooperators. To identify the factors influencing cassava production, the equation was implicitly stated thus:

$$Y = f(X1, X2, X3, \dots, X8 + u) \quad \text{----- (eqn. 1.0)}$$

Where:

Y = Output of cassava (₦/kg)

X1 = Age of farmers (years)

X2 = Educational Level (years of schooling)

X3 = Labour (mandays)

X4 = Capital inputs (₦)

X5 = Fertilizer employed (kg)

X6 = Farming experience (years)

X7 = Household size (number of persons in the household)

X8 = Farm size (hectares)

Four functional forms were tried using linear, semi-log, double log and exponential functions. Gross margin analysis was used to determine the profitability level of cassava cooperative farmers in the study area.

$$GM = TR - TVC$$

Where:

GM = Gross margin

TR = Total Revenue

TVC = Total Variable Cost.

RESULTS AND DISCUSSION

This section predominantly presents the results, interpretation and discussion of findings based on the data obtained on the field. It focussed on the socio economic characteristics of cassava cooperative farmers, the determinants of output of cassava production, profitability analysis as well as constraints to production in the study area.

Socio economic characteristics of cooperative cassava farmers

The table below looked into the distribution of respondents according to age of the farmer. It however indicates that the highest age category among cooperative cassava farmers was between 31 to 40 years followed by 41 to 50 years and had a percentage value of 42.70% and 33.71%.

Table 1.0: Distribution of respondents according to Age

Age (years)	Frequency	Percentage (%)
1-10	0	0
11-20	0	0
21 -30	9	10.11
31 -40	38	42.70
41 - 50	30	33.71
51 -60	11	12.36
Above 60	2	1.12
Total	90	100.00

Source: Field survey data, 2011

One salient observation from the survey was that youths of less than 20 years of age did not participate and this may be attributed to age limit placed as criteria for membership. It was also observed that cassava farmers had more matured adults than the youth on age range of between 21 to 30 years. This however reflect the long lasting believe that youth regards farming as a 'dirty job' and as such they chased white collar jobs and therefore abandon the traditional farming to the aged. This however may have negative impact on the availability of labour for tedious farming operations. Perrin *et al.* (2004) however stressed that young school drop out look for a stable source of employment , multi – active entrepreneur.

Table 1.1: Distribution of respondents according to educational level

Educational level	Frequency	Percentage (%)
No formal education	14	15.73
Primary education	18	20.22
Secondary education	38	41.57
Tertiary education	20	22.47
Total	90	100.00

Source: Field survey data, 2011.

With respect to table 1.1, the highest educational level was secondary education. The fairly high proportion of secondary and tertiary graduates is an indicator that level of education has a serious impact on membership of farmers cooperative societies than probably for non-members. Umoren (2012) pointed out that literate people of a high academic standard are likely to understand the benefit required from being a member of cooperative society.

Table 1.2: Farming Experience of Respondents: distribution of respondents according to farming experience

Farming Experience	Frequency	Percentage
1 - 5	28	31.46
6 -10	54	60.67
11 – 15	2	2.25
Above 15	5	5.62
Total	90	100.00

Source : Field survey, 2010.

The table above showed that the highest farming experience for cooperative cassava farmers range between 6 – 10 years while between 11 – 15 years was the least. In essence, with a- priori expectation, what determine farming experience of farmers is the level of involvement in farming activities not his involvement in cooperative society. Effiong *et al* (2002) observed that the longer the years of farming experience, the more efficient the farmer becomes because the number of years a farmer has spent in the farming business may clearly give an indication of the practical knowledge he has acquired on how to cope with the inherent farm production, processing and marketing problems leading to higher levels of efficiency. Years spent in farming business are a very important tool in decision making and also on innovation adoption. Freshers' in farming business are prone to inefficient utilization of available resources. Farmers with more experience are expected to have higher levels of production efficiency than farmers with low farming experience in the sense that farming business involves annual routine activity. Ebong (2007) pointed out that the more the farmers remained in farming business the more they got acquainted with the risk elements and ways of mitigating possible losses through them. Durosh (2008) observed that farmers counted more on their farming experience for improved productivity than on their educational attainment.

Regression estimates of cooperative cassava farmers in Uyo Local Government Area of Akwa Ibom State

This section addressed factors affecting output of cassava of those involved in cooperative society. The regression estimates are shown below:

Table 1.3: Production linear double log semi-log exponential factors model function

Production Factors	Linear model	Double log model	Semi-log model	Exponential function
Constant (X0)	40310.24 (0.647)	5.017 (6.677)***	80877.42 (0.729)	4.657 (24.065)***
Age (X1)	91.394 (2.103)**	0.321 (2.204)**	63891.3 (4.623)***	0.002 (0.689)
Level of Education(X2)	540.797 (0.214)	0.081 (2.547)**	7492.42 (2.344)**	0.003 (0.359)
Labour (X3)	-1.250 (-0.409)	0.008 (4.084)***	-4579.65 (-0.343)	-4.453 (-2.469)**
Capital inputs(X4)	0.133 (0.522)	0.183 (2-014)**	8594.43 (0.640)	-5.114 (-0.648)
Fertilizer (X5)	4.528 (3.576)***	8.008 (3.049)***	-19614.43 (-0.856)	-3.102 (-0.127)
Farming experience(X6)	-616.681 (-0.312)	-0.138 (-1.159)	-13199.73 (-0.749)	-0.005 (-0.808)
Household size(X7)	3381.048 (0.977)	-0.071 (-4.727)***	1728.88 (4.120)**	0.010 (2.959)**
R2	4.028	7.075	6.045	5.033
Adj R2	4.026	6.914	6.037	5.050
F- ratio	2.336	10.943	1.549	0.399

Source: Field Survey Data, 2010.

*, **, *** are probability levels at 10%, 5% and 1% respectively.

Note that the figures in brackets are the respective t- ratios.

The lead equation was double log model which was taken to have the highest number of significant variables as well as a – priori economic expectation and econometrically stable more than the other models used in the analysis. The F-test ratio was also significant which however indicates that the model describes the data better.

From the estimated results, the coefficient for age was 2.204 and statistically significant at 0.01 probability level and followed a-priori expectations. Age variable had a positive sign. Chambo (2009) however stressed that older farmers are less likely to have contact with extension agents and are less willing to adopt new practices and modern inputs. Hartley (2003) stressed that respondents within the productive age were likely to adopt innovations better because they are still active and dynamic as against very aged farmers. Middle aged farmers readily accept farm innovations than their aged farmers. It is imperative to note that the mental ability to cope with the daily challenges and subsequent demand of farm production techniques decreases with increase in age. Effiong *et al.* (2002) however stressed that adult farmers had more farming experience that helps to enhance their production efficiency and productivity.

With respect to the level of education, it was positively signed and significant as expected a-priori. The positive coefficient indicates that the level of education of the farmer positively influenced the output of cassava production. Majority of the sampled farmers have on the average acquired basic and fundamental knowledge and therefore would be willing to adopt and accept new innovation to improve their level of productivity in order to enhance the growth of the sector in the study area. Yates (2005) viewed education and training as being of utmost importance to enhance farmers' capabilities to accept and understand technological innovations in economic activities. Okoli (2007) emphasized that farmers with higher education responded readily to the use of improved technologies to enhance productivity. Lapedes (2007) stressed that the more educated the farmer was the less inefficiency he/she becomes. Durosh (2008) observed that the farm level efficiency in Ethiopia was approximately 55% and increased schooling reduced inefficiency of farmers.

It was also observed that labour cost influenced output of this crop in the study area. The variable was significant and rightly signed a-priori. Fayese (2009) also showed that the higher the cost of input, the lower the output that is being produced and vice versa. Chambo (2007) however pointed out that most farmers used their family or household in order to minimize the labour cost in both rural and urban populace. Most households has large family sizes which is of immense advantage in terms of employing family labour. Bertrand (2012) described labour as the most critical input in traditional agriculture. Barnett (2007) stressed that in countries where there are rapid population growth the national tendency was towards excessive utilization of labour on the farms. Surplus supply of labour normally depressed wage rate and thus encouraged farmers to use labour excessively with a resulting inefficiency. If profit is to be maximized, efficiency of labour must be as high as possible. The capital input variable however was statistically significant at 5% probability level but was positively signed. This however showed that output of cassava had a direct relationship with capital inputs. The positive signs showed that profit increase with increase levels of capital inputs. These fixed cost items is related to cost incurred in the use of such fixed assets such as buildings and equipment. Nweke *et al.* (2005) stressed that fixed cost affects the profit of most crops and livestock enterprises especially in the short run planning period. It is possible that farmers invest on capital inputs since the amount of capital inputs per farm determines the level of investment. High level of investment positively translates to higher returns. Capital inputs in this case is measured in naira including depreciation charges on machinery, equipment, implement, tools, repair and operating expenses such as in fertilizer, agrochemical etc, cost of machine hire, transportation, interest charges on loan. Price paid per capital is the interest paid on it.

With respect to fertilizer used which was statistically significant, it showed that quantity of output of cassava increased as quantity of fertilizer used increases. It portrays that fertilizer utilization helps in improving the fertility of the soil hence there is room for higher productivity of soil as well as in terms of production. It is however observed that these groups of farmers took advantage of the cooperative to pool resources together which aids them to get enough quantity of fertilizer for their farms. Household size had negative sign but statistically significant at 10% probability level. The negative signed showed that output decreases as household size increases. This however is in line with a-priori expectation. Effiong *et al.* (2002) stressed that relatively large family size is of immense advantage as it enables the house hold to use family labour especially in the adoption of innovations that require intense labour. Umoren (2012) pointed out that even when members of such large household sizes are available for farming activities, there is high possibility of underutilization of labour as most of the farmers rear small herds of animals or cultivate small areas of farmland. It is important to emphasize that in real life situation, higher household sizes will help to reduce most of the labour problems and cost of production in the enterprise. In essence, larger households might utilize family labour which may help to reduce labour cost and create avenue for improved production efficiency. More adults in farmers household implies more workforce and savings in labour cost. Perrin *et al.* (2004) emphasized that traditional rural household counts more on their family members than hired workers as sources of farm labour which is one good reason for rising household size in the rural economy.

Cost and return analysis

	Average Cost ₦/ha
Fixed Cost of Items	
Cost of acquiring land	1566.52
Depreciation of farm implements	663.42
Total Fixed Cost	16323.94
Variable Cost of Items	
Planting material	2470.39
Fertilizer	2068.56
Agro chemical	8614.47
Transportation	2430.13
Bags	555.92
Labour	8320.46
Baskets	1138.69
Total Variable Cost	25598.69
Total Cost	41922.63
Total Revenue	54603.69
Net Revenue	12741.06

Total cost was ₦41922.63 per hectare while total variable cost was ₦25598.69 per hectare and Total fixed cost was ₦16323.94 per hectare while Total Revenue was ₦54663.69 per hectare. Major source of revenue in the study area was cassava and net returns realized was ₦12741.06 which showed that cassava production in the area was profitable. The items of costs were classified into fixed and variable costs. Fixed cost items were expenditures such as cost of acquiring land, depreciation of farm implements etc. While variable cost items were cost of labour, planting materials, fertilizer, agrochemicals, cost of bags purchased and transportation cost were expressed in terms of naira per hectare of cassava produced. The sum of these costs on average basis gave the Average variable incurred. The returns or revenue were realized from the sales of cassava grown by individual farmers, and these include cassava and the sum of this revenue gave the total revenue realized. Variable cost items were determined by each farmer based on the quantity used and what price. A manday was equivalent to 7 – 8 hours while women were estimated at 0.75 manday and children at 0.5 manday. The study therefore showed that a gross margin of ₦907432 and net profit of ₦6408.27 were achieved per hectare of cassava. This gives a rate of return of ₦0.3220 on capital invested per hectare of the crops

Constraints to performance of cooperative cassava farmers

Table 1.4: Distribution of respondents by constraints faced by cooperative cassava farmers

Constraints	Frequency	Percentage
Insufficient capital	82	92.13
Inadequate farmland	58	65.17
No proper land security	54	60.67
Pests/disease attack	41	46.06
Inadequate input	33	37.07
Destruction of crops by animals	44	49.43
Theft of crops	36	40.45
Poor quality of soil	37	41.57
Political and regulatory obstacles	30	53.71
Low access to credit facilities	30	33.71
Reduction of farm land by Industrial Revolution	59	62.29

Source: Field Survey, 2010.

This section examines constraints faced by cassava cooperative farmers. The result showed different opinions of farmers to different problems faced in the study area. Insufficient capital, inadequate farm land, inadequate input, reduction of farm land were common constraints among the farmers. Production of most food crops in the study area are more or less in small scale due to inadequacy of the farmers to obtain loans. The money from cooperative are not sufficient to enable them procure adequate inputs for their farm investment. If they have the necessary collateral to obtain adequate fund, it could have been ideal to enable farmers to supplement their initial capital they have from cooperative society. Farmers in the study area commit so much money in purchasing the basic implement which are needed for the production process and this includes cutlass, spades, wheel barrow, basins etc.

With respect to scarcity and high cost of inputs, farmers in the area are placed in a very difficult situation due to inadequate supply of agro-chemical inputs, fertilizers which are not easily obtained by farmers due to high cost and poor accessibility of the product. The problem of land tenure system however tried to describe the way land is used and owned in the study area either for temporary or permanent use. It is important to stress that the way land is owned influences the way in which it is used by the farmers. With respect to marketing and storage problem, most traditional methods of storing and processing cassava cause problem to farmers. This has caused great number of farmers to dispose their produce at very low price to avoid spoilage. There is also no well arranged marketing system to enable farmers make good sales.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study analyzed the performance of cooperative cassava farmers in Uyo Local Government Area of Akwa Ibom State, Nigeria. The study objectives identified the socio economic characteristics of members, identify factors influencing its production as well as profitability indices and constraints. A sampling frame which stipulates the list of cassava farmers involved in cooperatives was drawn from the State Ministry of Agriculture and Agricultural Development Programme (ADP) in Uyo. Moreover, a multi stage random sampling technique was used. Both primary and secondary data were used to capture relevant information as applied in the study objectives. Altogether, ninety (90) respondents were utilized for the study. With respect to the socio economic characteristics of respondents, one salient observation was that youth of less than twenty (20) years of age did not participate. More so, secondary education had the highest frequency which implied that literate people are likely to understand the benefit required from being a member of cooperative society than the uneducated. The highest farming experience by members was between 6 – 10 years. Four functional models were tried out to identify factors influencing its production by cooperators. Production factors that influenced its production include age, level of education, labour, capital inputs, fertilizers and household size. From the study the total cost was ₦41922.63 per hectare and the total revenue was ₦54663.69 per hectare. The net returns realized was ₦12741.06 per hectare which however confirmed that its production was profitable in the study area for those members in cooperative. Constraints that was primarily observed was insufficient capital even though the whole idea of cooperatives is to voluntarily contribute money for members to use was not enough to cater for the operation. It is rather imperative to emphasize that cooperative society is a better alternative to non-cooperative society as its merits far outweighed its demerits. It is a worthwhile exercise as it can under proper management and efficient resource utilization under cooperatives will lead to increased output.

However, the study recommendations were sought which include the following:

Efforts should be geared to encourage middle aged farmers as they readily accept farm innovations than their aged counterparts.

Formal training of people should be emphasized especially by government by compulsorily declaring free education at all levels. Education helps to enhance farmer's capabilities to enhance technological innovations in economic activities.

There is need to enhance labour efficiency on farm as this could help by utilizing the best level of resources to increase output.

It is also important to recommend that the problem facing fertilizer procurement by farmers should be addressed to save the situation. It is true that fertilizer utilization helps in improving the fertility of the soil which may however triggered higher productivity of soils to enhance output. Even though cooperators helped themselves but they pay higher price to receive the input.

Farmer's cooperative societies should be affiliated to cooperative banks to ensure easily accessibility to loan by members.

Subsidies and other benefits should be made available to members to encourage non-members to join farmer's cooperative societies.

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