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Effect of Cooperatives on the Income of Poultry Products Sellers in Ogun State, Nigeria

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Abstract

The study investigated the effect of cooperative on the income of poultry products sellers in Ogun State, Nigeria. Poultry products sellers typically produce to satisfy household food needs or make profit from selling farm produce. Descriptive analysis was used to describe the socio-economic characteristics of the poultry products sellers. A two-stage random sampling techniques was used to select the number of respondents. A total of one hundred and fifty (150) poultry products sellers were selected for the purpose of this study. It was revealed that majority of the poultry products sellers (44.8%) in the study area were found to be within the age bracket of 55 – 64 years. Also, it was revealed that 32.8 per cent of the poultry products sellers were found to be within the age of range of 45 – 54 years of age. It was revealed therefore that majority of the poultry products sellers (67.2%) are married with 5 – 6 members and 38.4 per cent of the poultry products sellers in the study area have no formal education. The Total Variable Cost (TVC) incurred in poultry farming in the study area was estimated to be ₦163,440.00 which comprised the cost (2.31%). The Total Fixed Cost (TFC) was estimated to be ₦236,028.00. Finding revealed that household size is significant to household income at one per cent level. It is therefore recommended that capacity training of poultry products sellers to enable them to cope with the challenges of modern poultry farming and commercialization of small-scale layers poultry production should be carried out.

Keywords: Cooperative, Profit, Credit, Income, Poultry

JEL Classification: Q12, Q13, Q18

Introduction

The cooperative organizations exist within any aspects of the economy, so long as there is felt need and willingness amongst the people to cooperate. There are therefore various types of cooperative organization in Nigeria prominent among which are: agricultural cooperative, consumers cooperatives and cooperative thrift and loan societies. Cooperative organization can also be defined as a business organization where various entrepreneur cooperators pool their resources together with view of making profit for their own sustainability and economic survival such as the cooperative thrift and loan societies. It is estimated that about 75 per cent (68 million ha) of the total land area has potential for agricultural activities with about 33 million hectares under cultivation. Similarly, of the estimated 3.14 million ha irrigable land area, only about 2.20 lakh ha (7%) is utilized (World Bank 2005; Manyong *et. al* 2005). The poultry sub-sector is the most commercialized (capitalized) of all the sub-sectors of the Nigerian agriculture. The types of poultry that are commonly reared in Nigeria are chickens, ducks, guinea fowls, turkeys, pigeons and more recently ostriches. Those that are of commercial or economic importance given the trade in poultry, however, are chicken, guinea fowls and turkeys, amongst which the chickens predominate (Adene and Oguntade, 2006). Poultry farming has now developed into a commercial enterprise involving thousands of birds. Large poultry units have replaced the backyard poultry units while more efficient strains of meat or egg type birds, balanced feed, intensive housing and better poultry equipment came into use by farmers.

The poultry industry occupies a pivotal position because of its enormous potential to bring about rapid economic growth. The importance of the poultry sub-sector is chiefly in the provision of meat and egg as well as the provision of employment either directly or indirectly and the contribution to the revenue (Gross Domestic Product) of the country (Adebayo and Adeola, 2005). Compared to a number of other livestock species like cattle, sheep, goats, pigs and rabbits, the

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domestic fowl is easier to rear, less laborious to cater-for and financially less expensive to maintain. Poverty is a condition in which one cannot generate sufficient income required to secure minimum standard of living or a sustainable life. It is however generally agreed that poverty is a condition in which one cannot generate sufficient income required to secure a minimum standard of living in a sustainable pattern (Schiller, 2001). In alleviating poverty through poultry production a farmer needs to be equipped in marketing its products.

There is an urgent interest in producer organizations such as cooperatives as an institutional tool to improve market participation of smallholder farmers, which has the potential of increasing farm incomes and reduce rural poverty (Bernard and Spielman, 2009; Bernard and Taffesse, 2012). It has been ascertained that improving the productivity, profitability and sustainability of smallholder agriculture is the main pathway out of rural poverty in developing countries. Institutional innovations are believed to play a crucial role in this as they can help farmers to overcome market failures (Hazell *et al.*, 2010; World Bank, 2008). To have an effect on income and households' welfare, these emerging institutions need to be both, inclusive – i.e. poorer farmers need to participate – and effective – i.e. creating an impact on farmers' income and wellbeing. Cooperatives are often associated with collective actions and social capital and are therefore often thought to be more inclusive than other types of institutional innovations such as contract-farming. Promotion of livelihood should be concentrated on human resources and people of grass root levels and they should be mobilized to work together voluntarily to make use of scarce resources at their disposal. Agricultural cooperatives play a vital role in enhancing rural dwellers income which will eventually promote their livelihood. People participate directly in agriculture and they create and increase productivity which are the major indicators for poverty reduction and promotion of livelihood in general (Chikaire, 2011). Enhancing the income of the rural poor becomes more urgent and this calls for organizations such as cooperative societies to use their potentials and resources optimally towards the satisfaction of their members' wellbeing.

Livestock/poultry is one of the most important agricultural sectors serving as 'safety net' providing ready cash in emergency needs as well as an important source of protein for consumers. Its role in rural livelihoods and food security is enormous. Poultry meat and Eggs play a very useful role in bridging the protein gap in Nigeria. They are palatable and generally acceptable. This acceptability cuts across nearly all cultural religion boundaries in Nigeria. The poultry industry plays important roles in the development of Nigerian economy. It is a major source of eggs and meat which have a high nutritional value particularly in the supply of protein. Eggs are also important in the preparation of confectionary and vaccines. The poultry industry also provides employment opportunities for the populace, thereby serving as a source of income to the people (Tibi and Adaigho, 2015).

Nigeria, like many other developing countries suffers from protein deficiency compounded as a result of rapid population growth, low productivity in the agricultural sector, rural urban migration, and decline in productivity of the livestock sub-sector (Girei *et. al.,* 2018). In same vein Gibson *et al.* (2017) also asserted that apart from Nigeria's agriculture not meeting up in its food production to meet the food requirement of the increasing population, its greatest problem is that of inadequate animal protein in the diet of a large proportion of the population especially in the rural areas which constitutes over 70% of the Nigeria population. Hence the significance of poultry and livestock in general for sustainable food production and fostering of widespread provision of animal protein cannot be over emphasized. It is therefore clear that much needs to be done to accelerate the transformation to commercial poultry husbandry and sustain the interest of present and intending modem poultry farmers in Nigeria. The specific objectives are to describe the socio-economic characteristics of poultry product sellers, estimate cost-return structure of poultry product selling in the study area and to determine the effect of participation in cooperative on poultry product sellers in the study area

Data Sources and Methodology

The study was carried out in Ogun State, Nigeria. Ogun State was created out of the former Western state of Nigeria on 3rd February 1976 with Abeokuta as the capital. Abeokuta means 'under the stone'. Also known as the 'gateway state' because of its strategic position as the link by road, rail, air and sea to the rest of the country, its towns of importance Shagamu, Ijebu Ode and Ilaro served as markets during the mining industry's better times and down to these days. Ogun state lies within latitudes $6^0$17'57.9"N and $7^0$58'39.8"N and longitudes $2^0$38'57.1"E and $4^0$36'22.9"E. Ogun State comprises of varying dialects of the Yoruba language; the Egbas, the Egbados, the Ijebus, the Remos. Ogun deals in traditional arts, carving, sculpture, smithery, poultry keeping amongst others. The State covers a landmass of 16,981sqkm [approximately 1.9% of the area of Nigeria] and has a total population of 3.75 million. It shares an international boundary with the Republic of Benin to the West and interstate boundaries with Oyo State to the North, Lagos and the Atlantic to the South and Ondo State to the East (NPC, 2006). The vegetation is characterized by plants typical of the rainforest and mangrove forest. The people almost exclusively engage in poultry farming, farming, fishing, craft-making, trading and hunting. Cash crops grown include cocoa, coconut, coffee, oil palm and timber while food crops grown include cassava, maize and vegetables.

Data were collected from the primary and secondary sources. The primary source included the use of well-

structured questionnaire to obtain information from the respondents through personal interview. The information to be obtained included the socio-economic status of the respondents such as age, marital status, educational level, religion, years of experience etc. the poverty status of the respondents etc. the secondary data would be collected from relevant publications, bulletins, newspapers, magazine, journals, past projects etc.

A two-stage random sampling technique was used to select the numbers of respondents. The first stage involved the selection of five (5) communities from the Local Government Area. The second stage would be the selection of thirty (30) poultry products sellers from each of the selected communities. A total of one-hundred and fifty (150) sampled poultry products sellers were selected for the purpose of this study. The data collected were analyzed using descriptive statistics and inferential statistics. Descriptive statistics which includes: the use frequency tables, percentages, mean and other measure of central tendency. The inferential statistics include cost and returns structures, Chi-square, and FGT poverty index.

(i) Socio-Economic Characteristics of Poultry Products Sellers

This objective was analyzed using descriptive statistics. It involved the use of measures of central tendency such as mean, median, frequency distribution, ratios, percentages and measures of dispersion such as ranking, standard deviation and coefficient of variation. Data were collected on parameters such as age, sex, marital status, educational level and so on.

(ii) Cost-Return Structure of Poultry Product Selling in the Study Area

The costs incurred in the production process were investigated. Several costs, which include fixed cost such as land purchase, pen construction, feeding and water troughs and variable costs such as feeding, medication, transportation and vaccines and revenues from poultry production were calculated. Such revenues may be from egg sales, sales of spent layers and sales of broilers. The budgetary analytical model is given as:

$$GM = GR - TVC \quad \text{..... (1)}$$

$$NI = GM - TFC \quad \text{..... (2)}$$

$$TC = TVC + TFC \quad \text{..... (3)}$$

Where:

GM = Gross Margin naira per month

NI = Net Income (naira)

GR = Gross Revenue in naira

TVC = Total Variance Cost in naira

TFC = Total Fixed Cost (naira)

TC = Total Cost (naira)

Total Variable Cost (TVC) included the cost of procuring materials, labour cost, feeding cost, and transport cost. Total Fixed Cost included depreciation on fixed inputs like poultry pen, machines and so on.

The results of the budgetary analysis were used to obtain the following ratios.

$$\text{PI = Profitability Index} = \frac{NI}{TR} \quad (4)$$

$$\text{RRI = Rate of Return on Investment} = \frac{NI}{TC} x \frac{100}{1} \quad (5)$$

$$\text{OR = Operating Expense Ratio} = \frac{TVC}{TR} \quad (6)$$

$$\text{RRVC= Rate of Return on Variable Cost} = \frac{TR}{TVC} x \frac{100}{1} \quad (7)$$

Where:

NI = Net Income (₦), TR = Total Revenue (₦), TC= Total Cost (₦)

TFC = Total Fixed Cost (₦), TVC = Total Variance Cost (₦)

Effect of Participation in Cooperative on Poultry Product Sellers in the Study Area

Multiple regressions analysis model was used to analyze the objective. The regression model was specified as shown below;

$$Y = \beta_o + \beta_i X_i + \mu \quad (8)$$

Where;

Y = Total Amount of Income (₦),

X_i = Vector of the independent variables, X1 = Quantity of sales (kg), X3 = Years of experience (years), X_4= Age (years), X_5 = Years of formal education (years), X_6 = Marital status (Married = 1, 0 = otherwise), X_7 = Primary occupation (Farming =1, 0 =otherwise), X_8 = Source of credit (1 = formal, 0 = informal), X_9 = Cost of buying inputs (₦), X_{10} = Transportation cost (₦), X_{11} = Technology (1=modern, 0= otherwise), X_{12} = Season of the year (1=festive season, 0=otherwise), X_{13} = Availability of raw material (1=available, 0=otherwise), X_{14} = Amount of loan disbursed (₦), X_{15} = Interest rate (%), X_{16} = Loan duration (₦), β_0 = constant term, β_i= coefficient of i^{th}, μ = error term.

Hypothesis Testing

The hypothesis was tested using Chi-Square and Regression analysis.

Chi – square is expressed in the form:

$$\chi^2 = \sum_{i=1}^{n} \left(\frac{O - E}{O}\right)^2$$

It is expressed also as;

$$Chisquare = \frac{(Observed - Expected)^2}{Observed}$$

Where:

σ = observed frequency

Table 1: Socio-Economic Characteristics of the Respondents

Variables	Frequency	Percentage
Age (years)		
Below 35	14	5.6
35 - 44	14	5.6
45 - 54	41	32.8
55 - 64	56	44.8
Above 65	14	11.2
Sex		
Male	136	88.8
Female	14	11.2
Marital Status		
Single	17	11.2
Married	90	67.2
Divorce	13	10.4
Widowed	16	11.2
Household Size (persons)		
Below 5	29	16.8
5 - 6	29	16.8
7 - 8	60	44.0
Above 9	28	22.4
Educational Level		
No Formal Education	50	38.4
Primary Education	46	33.6
Secondary Education	24	16.8
Tertiary Education	16	11.2
Source of Fund		
Cooperative Society	60	44.0
Commercial Banks	18	6.4
Friends and Family	12	8.0
Social Club	7	5.6
Money Lenders	23	18.4
Government Grants	2	1.6
Microfinance Banks	20	16.0
Uses of Credit		
Expansion of Existing poultry farm	12	8.0
Establishment of new poultry farm	38	30.4
Collection of day-old chicks	14	11.2
purchase of feeds and medication	6	4.8
purchase of machines and materials	14	9.6
Children's education	9	7.2
buying of business	14	8.8
buying of business/farm inputs	8	6.4
purchase of vehicle	17	9.6
settlement of previous debt	5	4.0
Source of Income		
Poultry farming	112	78.4
Business	10	8.0
Farming	16	4.0
Civil Servant	12	9.6
TOTAL	150	100

Source: Field Survey, 2021

E = expected frequency

χ^2 = Chi Square regressors

Results and Discussion

The age of respondents is an important factor that affects their level of productivity and over all coping ability within the business. It was revealed in Table 1 that majority of the poultry products sellers (88.8%) in the study area were found to be within the age bracket of 20 – 64 years. This implies that the study area was dominated by farmers who are still in their most productive years, strong and agile. Nwaru (2005) found out that the ability of a farmer to bear risk, be innovative and be able to do manual work decreased with age.

Sex is a parameter that shows the strength of the respondents with the ability to withstand stress. It comprises of the male and female counterparts. It was found that the majority (88.8%) of the poultry products sellers were male as 11.2% were found to be female. This shows that the study area is majorly dominated by male poultry products sellers. The high number of males might be attributed to hard task (such as, building of the poultry house, changing of poultry litters, processing of fish meal/blood mea, and so on) out in egg production process.

The marital status of respondents helps to reduce labour cost especially when the respondents are married in which they can supply labour from the households. It was revealed that majority of the poultry products sellers (67.2%) are married and 11.2% are single and widowed. 10.4% of the total sampled poultry products sellers were found to be divorced. It was therefore concluded that married poultry products sellers dominate the study area. The high number of married people in the business was to reduce labour cost as most married persons have children that constitute the labour force in broiler production.

The total household size of the respondents comprises of their wives or husbands, children and their dependants. In Africa settle, children and women constitute large proportion of a household size. Evidence showed that 44.0% of the poultry products sellers have a household size ranging between 7 – 8 household members. Also, further revelation shows that 22.4% have above 9 household members as 16.8% were found to have between 5- 6 members and below 5 household members. A mean value of 6 household members was obtained. This result agrees with the findings of Tijani 2008 who found out that majority of the respondents (small scale poultry egg farmers in Ogun State) had an average family size of 6 people.

Education is a very important factor in the lives of those involved in the business because it broadens their horizon, enhanced their marketing abilities and helps them become better decision makers. Also, it increases their chances of adopting innovations. It was therefore revealed that 38.4% of the poultry products sellers in the study area have no formal education. Also, it was shown that 33.6% of the poultry products sellers have primary education has 16.8% was found to have secondary education. The finding indicates that relatively literate farmers dominated the study area. Educated farmers are expected to be more receptive to improved farming techniques, while farmers with low level of education or without education would be less receptive to improved farming techniques. This implies that there were more educated people in poultry egg production. However, this does not suggest that in poultry egg production education was a barrier but rather an added advantage for efficient management. With this level of education, there is tendency of the farmers being able to increase the level of technology adopted and skill acquisition.

Sources of credits available for poultry products sellers in the study area revealed that majority (44.0%) of the poultry products sellers have obtained their credit from the cooperative societies around. Also, the findings revealed that 18.4% of the poultry products sellers have their credit sourced from the money lenders. Also, 16.0% of the poultry products sellers also utilize the microfinance banks as the source of credit. Friends and family also accounts for 8.0% of the source of credit available for the poultry products sellers. This implies that majority of the poultry products sellers sourced credit from cooperative and money lenders because of the little or no interest attached to the credit provided.

The use of credit received from the sources is very important. As it is believed that when credits are being given out it must be well utilized. Table 1 showed that 30.4% of the poultry products sellers used their obtained credit in establishing a new poultry farm and 11.2% of the poultry products sellers used the credit obtained in collection of day-old chicks. This implies that most of the poultry products sellers used the credit in purchasing of machines, production materials, feeds and medication.

Major occupation the respondents is poultry farming which earn them more income. The more they take poultry farming as their primary occupation the more they will concentrate on it and increase productivity. Distribution of sources of income of poultry products sellers revealed that majority of the poultry products sellers (78.4%) are having poultry farming as their as their main source of income. The results implies that majority of the respondents are the poultry products sellers, and will give their total attention to the production since that is their main source of income generation.

Profitability of Poultry Farming in the Study Area

The data in Table 2 revealed the cost and returns structure of the poultry products sellers in the study area. The Budgetary Analysis result revealed therefore that the Total Variable Cost (TVC) incurred in poultry farming in

the study area was estimated to be ₦163,440.00 which comprised the cost of vaccine and drugs (11.47%), feeding cost (59.96%), transportation (2.07%) and weeding cost (2.31%). The Total Fixed Cost (TFC) was estimated to be ₦236,028.00. Cost of construction of poultry pen accounted for the highest cost (52.96%) and cost of land purchase and hiring accounted for 32.88%. The total revenue from poultry farming in the study area was estimated to be ₦529,894.70. It was shown that the biggest of returns for the poultry products sellers are sales of egg (38.71%**)**, sales of broiler birds (19.47%), sales of spent layers (23%). The gross margin was estimated to be ₦366,454.70. The Net farm returns estimated to be ₦130,426.70 which implies that poultry farming is a profitable business in the study area. It was also estimated that the Internal Rate of Return was estimated to be 0.33 which implies that for every one Naira invested in poultry farming business in the study area, *ceteris paribus,* an interest of 33kobo will be gotten.

Effect of Participation in Cooperative on Poultry Product Sellers in the Study Area

Participation in cooperative has been found to greatly influence the profitability of product products sellers and their social status. The finding revealed that age was found to be statistically significant to household income at 1%. This implies that the older the poultry products sellers, the more income they are going to be making. This may be so as the level of exposure and experience increase with the age of an individual. It was also shown that household size is significant to household income at 1% level. This implies that the more the household size of a poultry products seller the more the income of the household. Also, years of farming experience was found to be positive and significant at 5% which implies that the more experienced the poultry products sellers are, ceteris paribus, the more productive the poultry products sellers will be. Use of hired labour was found to be positive at 1% and access to extension agent was found to

Table 2: Cost and Returns Structure of Poultry Products Sellers

Variables	Values (N)	Percentage
Pen construction	125,000.00	52.96
Land purchase	77,600.00	32.88
Feeding trough	20792.00	8.81
Crate	3,616.00	1.53
Wheel barrow	9,020.00	3.82
Total Fixed Cost	**236,028.00**	**100**
Vaccine and drugs	18,740.00	11.47
Feeding	98,000.00	59.96
Sacks	2,460.00	1.51
Transportation	3,380.00	2.07
Weeding	3,780.00	2.31
Pesticide	9,480.00	5.80
Labour cost	27,600.00	16.89
Total Variable Cost	**163,440.00**	**100**
Egg sales	205,121.20	38.71
Spent layers	121,823.53	23.00
Broilers	103,150.00	19.47
Cockerel sales	99,800.00	18.83
Total Revenue	**529,894.70**	**100**
Total Cost	399,468.00	
Gross Margin	366,454.70	
Net Farm Income	130,426.70	
Internal Rate of Return	0.33	
Rate of Return Variable Cost	3.24	

*Data source: Field Survey, 2021***.**
Note: The exchange rate of Indian rupee was equal to ₦ 10.72 during the year 2021

Table 3: Regression Result of the Effect of Participation in Cooperative on Poultry Product Sellers in the Study Area

Variables	Coefficient	t-value
Intercept	393013.86	102.09
Age	30028.31***	29.67
Household size	19785.22***	14.42
Years of poultry farming	3576.92**	2.23
Gender	83.04	.034
Level of Education	31731.53***	58.42
Years of experience	-347.94**	-2.17
Access to extension	70247.82***	72.49
Use of hired labour	-380355.35***	-293.26
R	0.68	
R Squared	0.47	
Adjusted R-Square	0.44	

Data Source: Field Survey, 2021.

be positive and statistically significant at 1%. This implies that if these variables are well taken care of the income level of the poultry products sellers will increase. The R-value of 0.683 signifies that the model predicted 68.3% correctly (i.e. 67% quality) which is an acceptable quality. The coefficient of determination (R^2) of 0.466 depicts that the model can successfully explain about 46.6% of the variability of the dependent variable which is as a result of the data - only. The adjusted R square of 0.438shows (simply) that the data is 43.8% rich and measures the goodness of fit of the model.

Conclusion and Policy Implications

In conclusion, cooperative activities has helped in increasing the income of poultry products sellers by granting them access to loan, to facilitate production and marketing of the poultry products such as eggs and meat production. It can be concluded that majority of the poultry products sellers in the study area are male within an economic age, educated and have good household number. They mainly source for credit from the cooperative society as they are majorly into poultry farming. Internal Rate of Return was estimated to be 0.33 which implies that for every one Naira invested in poultry farming business in the study area, ceteris paribus, an interest of 33kobo will be gotten.

From the research it can be recommended that Capacity training of poultry products sellers to enable them to cope with the challenges of modern poultry farming and commercialization of small scale layers poultry production should be carried out. Government should make policies specifically for transformation of the small scale poultry industry. This will assist in removing the challenges of small poultry farms and thereby creating a favourable environment to increase layer production among small holder poultry products sellers. Loans extended to young farmers with high number of dependents should be monitored by the lending institution to ensure that these loans are applied to activities for which they are advanced for

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