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PROFITABILITY AND CONSTRAINTS OF POULTRY PRODUCTION AMONG HOUSEHOLDS IN SOUTH - SOUTH, NIGERIA. IMPLICATIONS FOR PROTEIN INTAKE SUSTAINABILITY

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Abstract

The study's main objective was to examine the profitability of poultry production and its constraints. Data were collected with the aid of a structured questionnaire which was evaluated using descriptive statistics, 4 Likert scale and regression analysis. The data analysis reveals that most poultry farmers were male with a mean farming experience of 8 years. Most respondents were married while the mean family size was 7 persons with a secondary educational level. The study revealed that sex (0.002), age (0.000), farming experience (0.000) and education (0.000) have significant positive effect on the poultry production profitability while household size (0.739) had an insignificant positive effect on the poultry production profitability. The study recommends that poultry farmers' inputs should be subsidized by Government to reduce the cost of inputs and give technical support to poultry farmers to enhance poultry business development thereby resulting in more profit.

Key words**:** *constraints, households, poultry, profitability, production, protein*

INTRODUCTION

The rearing of birds such as ducks, chickens, quails, geese and turkeys with the intent of raising them for the production of eggs, meat and their products used as feathers and faecal droppings in natural organic materials production [21]. Poultry eggs and meat are highly desirable in all parts of the country. Just two (2) eggs a day are sufficient to meet 17.2% of an adult person's protein needs as well as essential vitamins and trace elements [11]. Poultry meat contains more proteins than beef in addition, poultry housing can be provided at a relatively low cost and the growth period is short (usually about 6 - 10 weeks for broilers). The Poultry industry has become very popular during the past few years due to the growing rate of unemployment and population explosion in Nigeria [14]. Though Nigeria has the largest number of poultry meat farms in this region [10]. the country is the fourth-largest producer of broiler meat with South Africa being the leading producer [22]. In 2013 and 2016, poultry meat production in Nigeria stood at about 300,000 and 450,000 metric tons respectively [22].

The Nigeria poultry business has experienced a significant change from a peasant, backyard and primitive domestic oriented small-holder to large-scale and modern poultry business since early fifties till date. Though the value of livestock resources has grown in absolute terms in recent years, its overall contribution to agricultural output remains dismally low [3]. It is thus advantageous to recognise likely areas that need improvement hence this study on poultry farming profitability was carry out.

However, in spite of ever-increasing biological activity, inadequate attention has been devoted to the viability of the business itself. According to [13], poultry production involves more than the biological processes of birds growth. It also includes paying critical attention to the financial aspects of the production. Efficient financial management of poultry can make the difference between profits and losses [12]. The poor regard of poultry as an economic activity has made it

difficult to promote its commercialization, as investors were not convinced that poultry could be a profitable enterprise [13]. This could be a result of a lack of economic information on the profitability of the poultry business which has adversely affected poultry production. It affect decision making when evaluating possible investment options, accessibility to the financing needed for investment and it makes insurance of such investments difficult [19]. These factors will negatively impact poultry investment and its development [13]. The research conducted by [4] showed that the feed cost is a key constraint in poultry enterprise in conjunction with other constraints such as disease outbreaks breeding process, and the absence to access capital. These have resulted in the business liquidation of numerous broiler farmers.

The Nigeria livestock business is occupied with abundant complications, which have occasioned a gross shortage of meat, eggs and other animal products. The agricultural sector growth rate in Nigeria is quiet under country's human resources and natural potential due to agricultural inputs high cost, insufficient private section participation, insufficient functional infrastructural facilities, and inconsistencies of government agricultural policies, poor mechanized farming, poor funding of agriculture and little or no implementation of some simple agricultural technologies developed by scientists.

In spite of the advantages, the poultry industry is yet to attain the desired level of productivity in Nigeria due to the production high cost [17]. For example, poultry farmers are confronted with the difficulty of tremendous increase in drugs, day-old chicks, and other poultry inputs. The situation has forced small-scale poultry farms to close down and those still managing to survive are producing at very high cost and also contending with serious input limitations.

Availability of credit and capital accumulation within the agricultural sector, poultry sector inclusive is very slow [5] and [14]. There is also a low level of productivity [17].

The author [1] argued that luck alone does not explain the differences in the profitability levels of farms or ranches with the same resource endowment. Financial management is, therefore, a key factor determining the success or failure of a business enterprise; be it a firm or a farm. [7] reported that business is economically rewarding and viable considering the poverty level present in the rural area; therefore, poultry production like any other agricultural business activity requires that a farmer has a wealth of experience in the financial management of the enterprise. The farmer is out to make a profit and in order to actualize this; he should be able to produce at a level that will make him recoup his cost. Based on the above premise, this study is aimed at comparing the poultry production profitability with the intention of the following objectives achievement.

Objectives of the Study were to:

(i)describe the poultry farmers' socioeconomic characteristic

(ii) determine poultry farmers' revenue

(iii) analyse the poultry farmers cost of production per cycle

(iv)determine the poultry farmers' profitability per cycle

(v) determine the poultry farmers cost and return per cycle

(vi) determine the poultry farmers constraints faced.

The Hypothesis of the Study

The hypothesis of the study was tested in a null form as follows:

Ho I: socio-economic characteristic has no significant influence on poultry profitability in the study area.

MATERIALS AND METHODS

South-South Nigeria was chosen for the study as most inhabitants were farmers that mostly rear livestock (especially poultry), fishing, petty trading and arable crops. The area has inhabitants of roughly 6 million people of different ethnic races [15]. South-South Nigeria is made up of six states namely, Akwa Ibom, Cross Rivers, Delta, Bayelsa, Rivers, and Edo. Multi-stage method of sampling was

incorporated into the study. Firstly, five states were selected randomly followed by four local government areas (LGAs) each was chosen randomly amounting to 20 LGAs. Thirdly, five farming communities each were selected randomly giving a total of 100 rural farming communities and lastly, three poultry farmers each were wisely picked from the 100 communities giving an aggregate of 300 poultry farmers. Studied data were realized with the aid of well-ordered questionnaires administered to respondents. Data were tested by descriptive statistics such as median, mode, mean, percentages and frequency, budgetary technique and multiple regression techniques.

Model Specification

$\Pi = TR - TC$……..Eq. (1)
$TR = PQ$……..…. Eq. (2)

where:
Π = Total Profit (N)
TR=Total revenue (N)
TC= total Cost (N)
P= Unit price of output (N)
Q= Total quantity of output (N)

The Regression Model

In order to decide on the influence of socioeconomic variables on the level of poultry profitability, a multiple regression model was engaged in the hypothesis testing. The model is specified as follows:

$Q=f(X1, X2, X3, X4, X5, X6, X7, e)$…Eq. (3)
where:
Q = poultry output (naira)
X1= poultry stocking density (square meters)
X2= poultry production labour used
X3= feeds cost (naira)
X4= vaccine cost (naira)
X5 = deep litters cost (naira)
X6 = fixed inputs cost (naira)
X7 = day-old chicks cost (naira)
e= Error term

Likert scale

The Likert scale was used to examine the severity of the challenges faced by poultry farmers.
Very severe = 4
Severe = 3
Non severe = 2
Not very severe = 1
This was added to get 10 divided by 4 to get 2.5 as the cut-off point. A variable with a mean score of 2.5 and above will be regarded as severe while less than 2.5 will be regarded as not severe.

RESULTS AND DISCUSSIONS

Socioeconomic characteristics and activities of poultry farmers

The mean age of the poultry farmers was 44 years this designates that most poultry growers were within the economically active age. This finding is in line with the observation of [2] who noted that respondents within this age group were motivated and innovative individuals who can survive challenges that may originate from poultry farming. Gender is an important factor to consider in farming activities or any other activities that demand energy, out of the respondents 300 sampled 86% were male while 14% were female. This is in contrast with goat production as reported that its production were mostly carried out by female [8]. In the distribution of marital status of respondents were singles (6%) while 88.6% were married poultry farmers. The consequence is that poultry production is encouraged due to respondents' stable homes. The respondent's family size indicates that 60% of the poultry farmers have between 6 - 10 members in the family, while 33% have family sizes from 1 - 5. Family size has a consequence on the hired labour size engaged by poultry farmers, because the higher the size of the family the lower the hired labour and vice versa which support the finding [18]. The educational status of poultry growers revealed that 24% acquired tertiary education, 1.33% without formal education, 8% had primary education and 66.67% acquired secondary education. The perimeter in Table 1 confirms that 70% respondents had poultry farming experience range of 1 - 7 years with a mean farming experience of 7 years. It has been proved that the productivity of labour

with higher experience is better for the poultry business [4].

The data of the distribution of the income level of respondents indicates that income level was **(N)** 382,946.70 average and flock stock size averagely was 500 birds.

Table 1. Socioeconomic activities of poultry farmers

Socio-economic variables	Frequency	%	Mean/Mode
Age (Years)			
20 – 29	42	14.00	45 years
30 – 39	70	23.33	
40 – 49	78	26.00	
50 – 59	66	22.00	
60 – 69	32	10.67	
70 – 79	12	04.00	
Total	300	100	
Gender			
Male	258	86.00	Male
Female	42	14.00	
Total	300	100	
Marital status			
Single	18	6.00	Married
Married	264	88.00	
Widowed	14	4.67	
Divorced	04	1.33	
Total	300	100	
Household size (Persons)			
1 – 5	106	35.33	8 years
6 – 10	180	60.00	
11 – 15	14	04.67	
Total	300	100	
Educational level			
No formal education	04	1.33	Secondary education
Primary education	24	08.00	
Secondary education	200	66.67	
Tertiary education	72	24.00	
Total	300	100	
Farming experience (Years)			
1 – 7	210	70.00	7 years
8 – 14	54	18.00	
15 – 21	18	06.00	
22 – 28	14	4.67	
29 – 35	04	1.33	
Total	300	100	
Flock stock size			
101 – 200	04	1.33	
201 – 300	04	1.33	
301 – 400	06	2.00	
401 – 500	110	36.67	
501 – 600	176	58.67	
Total	300	100	
Income (N)			
101,000 – 300,000	132	44.00	**(N)** 382,946.70
301,000 – 500,000	102	34.33	
501,000 – 700,000	36	12.00	
701,000 – 900,000	20	06.67	
901,000 – 1,100,000	10	03.33	
Total	300	100	

Source: Own processing based on Field survey data.

Mean income coming from broilers production

The broiler farms generated a total mean revenue income of ₦1,559, 250.00 per production cycle. Averagely 500 birds was raised per cycle with a mean selling price per bird at ₦900 per kg as revealed in Table 2. These findings collaborated with [7] who reported that means selling price of broilers is ₦1000 per kg resulting in a high level of profit.

Table 2. Mean income coming from broilers production

Numbers of birds	500
Quantity sold per kg	1,732.50
Selling price per kg	₦ 900
Total income	₦1,559,250.00

Source: Field survey data.

Average Cost of Production

The information in Table 3 revealed the poultry farmers' mean cost of production was in the purchase of feeds, day-old chicks, Detergent/soap, Drugs/vaccine, labour and Fuel which made up the total variable cost of N1,088,809.13 while rent and feeder/drinkers made up the total fixed cost (N94,732.3) incurred in poultry production. The total expenditure (cost) incurred was N1,183,541.43 and it was observed that most expenditures were in the purchase of day-old chick (N375,249.55) and feeds (N621,116.70). Continuous increases in feed costs remain noticeable issues in the poultry sector [16].

Table 3. Average cost of production

Cost of producing 500 broilers	**Amount ₦**
Feeds	621, 116. 70
Chicks	375, 249. 55
Detergent / Soap	2,578.00
Drugs / Vaccines	5,698.40
Labour	61,093.00
Fuel	21, 469. 48
Miscellaneous	1, 604. 00
Total variable cost	**1,088,809.13**
Cost of renting	76,871.80
Cost of feeders and drinkers	17,860.50
Total fixed cost	**94,732.30**
Total cost	**1,183,541.43**

Source: Computed based on the field data.

The findings agreed with [20] that feed cost constituted about 70% of the total variable cost in the production of broilers. According to the author, the second largest contributor to the production cost was day-old chicks (22%),

while other materials contributed the remaining 22%.

Profitability of Broiler Production

The information in Table 4 stipulates that the total revenue and total cost of poultry production was N1,559,250.00 and N1,183,541.43 respectively. The poultry production gross margin and net returns were N470,440.87 and N375,708.57 respectively. These figures reveal that poultry production was a profitable business. The business benefit-cost-ratio was 1.3 which clearly indicates 30% profitability, also shows that 30 kobos will be made for every naira committed to the business, this also indicates business profit. This agreed with [6] who reported 30% profitability in goat farming in Niger Delta. But however arbitrary increase in the cost of feed and other inputs has led to a reduction in the profit margin of poultry operations.

Table 4. Profitability of broiler production Amount (₦)

Total Revenue (TR)	1,559,250.00
Total variable cost (TVC)	1,088,809.13
Total fixed cost	94,732.30
Total cost	1,183,541.43
Gross Margin (MG) = TR- TVC	470,440.87
Net Return(NR) GM-TFC	375,708.57
Benefit-Cost-Ratio = TR/TC	1.32

Source: Computed based on the field data.

Poultry Farmer Constraints

Table 5 itemized the issues that poultry farmer entrepreneurs must deal with.

Table 5. Poultry Farmer Constraints

Challenges	Frequency	%	Rank order
Lack of finance	40	16.70	3rd
Acquisition of land	08	06.70	6th
Farming inputs	64	45.00	2nd
Technical support	99	57.50	1st
Pollution	16	10.70	4th
Environmental/ Climate change	12	10.00	5th

Source: Field Survey Data.

The result presented in Table 5 indicates that lack of Technical support from government/local authorities ranked 1stthe major constraint, lack of agricultural inputs, including water, day-old chicks, equipment, and machinery ranked 2nd challenges, lack of funding ranked 3rd problem confronting poultry farming and the least.

The obstacles were land acquisition which ranked 6th. This agreed with [9] and [4] reported serious constraints such as the high cost of inputs, inadequate access to credits and diseases which affected the profitability of poultry production in Delta State.

Regression Analysis

Effects of Socioeconomic Characteristics of Poultry Farmers on Output

A study indicates that four variables in the model were significant.

These are sex, age, education and farming experience.

The sex variables have a coefficient of -4.635 with a t- value of -3.186 and are significant at the 1% level with a negative coefficient sign. This implies that the female gender decreases the output of poultry farmers while male poultry farmers were more productive.

The age of rural poultry farmers had a positive sign with a coefficient of 0.677 and a t- value of 8.216. It is significant at a 1% level. This implies that older farmers had more farming experience to produce more birds than the younger ones (Table 6).

Table 6. Regression Analysis

Variables	Coefficient	Std error.	T-value.	Significance
Constant	6.638	3.341	1.987	0.050***
Sex	-4.635	1.455	-3.186	0.002***
Age	0.677	0.082	2.216	0.000***
Marital status	-0.286	1.690	-0.169	0.866
Household size	0.163	0.487	-0.335	0.739
Education	2.519	0.642	3.922	0.000***
Farming Experience	5.726	0.645	3.481	0.000***
$R^2 = 0.671$				
F- Ratio = 34.056				

***, ** and * significant at 1%, 5% and 10% level respectively

Source: Own results.

The level of education had a coefficient of 2.516 and a t- value of 3.922 with a positive sign at a 10% level of significance. This implies that with higher education the farmers

master all the production techniques which could enhance output.

The farming experience of poultry farmers had a coefficient of 5.726 and a t- value of 3.481, it is significant at the 1% level which implies that farming experience leads to a greater poultry output (Table 6).

CONCLUSIONS

The data analysis result reveals that poultry farmers were mostly male with 7 years averagely farming experience. Most respondents had secondary education and were married with a mean household size was 7 persons. The survey exposed that sex (0.002), age (0.000), farming experience (0.000) and education (0.000) have significant positive effect on the poultry production profitability while household size (0.739) had an insignificant positive effect on the poultry production profitability. The study recommends that poultry farmers' inputs should be subsidized by Government to reduce the cost of inputs and give technical support to poultry farmers to enhance poultry business development thereby resulting in more profit.

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