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COSTS AND RETURNS ANALYSIS IN POULTRY PRODUCTION IN BAUCHI AND GOMBE METROPOLIS AREAS

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ABSTRACT
The main objective of the study was to analyse costs and returns in egg production in Bauchi and Gombe metropolises. A number of 29 commercial poultry egg entrepreneurs were purposively selected and interviewed using structured questionnaires. The analysis of the cost structure revealed that feed accounted for about 76% of the total cost of production, while the depreciation on layer stock represented about 90% of the total fixed cost.

KEYWORDS: Economics, Poultry, Production, Bauchi, Gombe

INTRODUCTION

Poultry production in Nigeria which used to be a sideline occupation for peasant farmers has taken a new dimension over the last five decades in Nigeria country. The socio-economic consequences of this development in the poultry sub- sector include among others, the increase in poultry products, high profit and the proliferation of commercial poultry enterprise. More so, due to Commercial trend and tremendous sector expansion in the last decades, the economic importance of poultry and products, particularly eggs can not be overemphasized.

Nigeria, like many developing countries, has continued to experience protein deficiency in the diet. It is generally agreed amongst production expert and economists that developing the poultry industry would provide the fastest means of combating the problem of protein deficiency. The advantage which poultry has over other animals livestock stems from several factors. Cardinal amongst these factors include:

i. Poultry has short generation interval and quick return to capital investment, (ii) Poultry production requires relatively low capital per head of stock (Adu, 1996; Nwosu, 1993).

Changes in government policies occasioned by a general economic recession has been identified as the serious challenges facing the poultry industry. There has been an astronomical increase in the cost of production, especially the cost of feeds day old chicks, drugs and other sundries. The high cost of production has greatly reduced the returns and has made many farmers to abandon the enterprise and discouraged investors, hitherto interested in the business. In spite of these economic issues saddling the sub sector, poultry production still holds a strong panacea for ameliorating the protein gap in Nigeria (Akinwumi *et.al.*,1979).

The broad objective of this study is to analyse the costs and returns structure in egg production enterprises in Bauchi and Gombe metropolis. Specifically:

a. To determine the socio-economic characteristics of poultry egg producers in the study area;
b. To determine the degree of interrelationship between socioeconomic variables of the poultry producers;
c. To determine the costs and returns of egg production in the study area.

METHODOLOGY

Bauchi and Gombe metropolitan areas are the headquarters of Bauchi and Gombe Local Government Areas of Bauchi and Gombe States (Nigeria), respectively as well as the capital of the respective states. Both study areas cover an estimated land area of about 4678.51 square kilometers. The 1991 National Census puts the headcount of Bauchi and Gombe L.G.As at 341, 758 and 283, 189, respectively. Both metropolises, apart from being state capitals, Local Government Area Headquarters

are also major urban centers which enjoy favourable vegetative conditions and climatic characteristics which provide conducive atmosphere for viable poultry production.

The target population in this study is the commercial poultry egg farmers. A total of 29 commercial poultry farmers were purposively selected and interviewed using pre-tested structured questionnaires.

The analytical tools used include the descriptive statistics and farm budget.
Descriptive statistics was used to analyse the socio- economic variables such as age, sex educational status, years of experience in poultry enterprises, flock size and type of management.
There variables were analysed using percentages, means and frequency distribution.
The farm budget analysis (Olukosi and Isitor, 1990) involved the computation of the revenues and total costs for the various flock sizes. The costs and returns for each of the sampled farms were used to calculate Gross Margin, Gross Farm Income, and the profit per tray (30 pieces).

RESULTS AND DISCUSSION
Socio- economical Characteristics
The results of socio- economic characteristics reflect the two study areas.
Entrepreneurs fall within this age. This goes to show that the poultry industry in the study areas is documented by people who are

Table 1: Socio- economic Characteristic of poultry egg farmer in Bauchi and Gombe Metropolitan Area.

Socio- Economic Characteristic	Bauchi	Gombe
• Mean Age (yrs)	49	49
• Percentage with at least primary education (%)	100	100
• Mean years of Experience in Eggs product (yrs)	16	18
• Mean flock size (No)	1197	1374
• Average Household (No) size	15	12
• Percentage of poultry egg farmer non-farm income (%)	56.25	53.85
• Percentage of farmers with formal or informal training in poultry or agriculture in general (%)	31.25	38.46

The results of socio- economic characteristics reflect the two study areas.

The age of farmers in the study areas ranged from 30 to 69 years with mean age of 49 years. About 50% of the farmers in Bauchi metropolis fall within this mean age while close to 40% of the Gombe metropolis still relatively young and active (table 1). The number of years of production of the farmers also reveals that in each of the study areas both had at least a minimum of primary education. This result tend to depicts that egg production enterprise needs some level of technical knowledge hence demands some level of literacy (Abaelu, 1984).

Further, the level of education of producers is of significant importance, on decision making. Mean flock size for the whole study areas was 1300 birds of which 56 percent of the egg producers fell within this category. Also, close to 70 percent of the producer have neither formal or non informal training on poultry production and management. Majority of the farmers (81%) in both study areas have large household size, and this may be a reflection of the age of the farmers. This means that family labour may be employed to a large extend in the business in order to reduce cost of production resulting from the use of hired labour. This observation is in conformity with the studies conducted by Abaelu (1984) and Adu (1996) that family labour is still important in laying supplementary role to cushion the high cost of hired labour in commercial poultry enterprises. Increasing cost of hired labour has became a major constrained to profit maximization. Most of the farmers have other sources apart from the poultry enterprise. This indicates that most farmers do not depend on the business as the sole mean of livelihood. This has the tendency of increasing the amount being invested into the enterprise through plugging back the proceeds of the other enterprises.

Table 2. correlation matrix of inter- relationship of some socio- economic characters of Commercial Poultry Egg Entrepreneurs in Bauchi and Gombe Metropolises

Socio-economic characters	K1	K2	K3	K4	K5	K6
K2	0.086**					
K3	0.113^{NS}	0.897***				
K4	-0.091^{Ns}	0.079NS	0.671*			
K5	-0.215^{NS}	0.317*	-0.013^{NS}			
K6	0.762**	0.341^{NS}	-0.387*	0.215^{NS}	-0.037^{NS}	
K7	-0137^{NS}	0.218^{NS}	0.411*	-0113^{NS}	-0392^{NS}	0.087^{NS}

Where

K1	=	Age
K2	=	Years of Experiences
K3	=	Flock size
K4	=	Training
K5	=	Formal education
K6	=	Household size
K7	=	Non- farm Income
***	=	Significant of (P<0.001)
**	=	Significant at (P<0.01)
*	=	Significant at (P<0.05)
NS	=	Non- significant

The correlation matrix revels that farmers age is positively and significantly correlated with the years of experience (P<0.001) and household size (P<0.01). The significant and positive correlation between farmers age and years of experience should be expected because farmers tend to acquire skill in their enterprise over time through trial and error, and adoption of productive innovation.

These two variables, age and experience may influence other socio- economic variable in the same manner. The positive and significant correlation between farmers' age and household size may be attributed to the number of wives the male farmer marries and the number of children and dependents they have. Hence as farmers age increase, the tendency of household size increasing is obvious.

Farmers level of formal education is not significantly correlated with most socio- economic variable and the stated probability levels and it was found to be negatively correlated with age, years of experience in farming, household size and non- farm income.

Non- farm income was also observed to be non- significant and negatively correlated with all the socio-economic characteristics with the exception of flock size. This is not at variance with the earlier assertion that the proceed realized from the enterprise may be used to beef up flock size because the farmers may not have the need for the income from the enterprise.

Cost structure Analysis

The cost structure of the various flock size categories of egg production enterprise is given in table 3. The cost structure reveals that feed cost accounted for as much as 76.30% of the total cost of production. The enterprise is thus, more of capital intensive than labour intensive because the cost of labour is less than 10% of the total cost of production.

The result of the study reveals the need for cost efficiency in the poultry industry. This result is constant through the flock sizes.

Table 3. Percentage cost structure of various flock sizes of egg production Enterprises

		Flock Size Range				
Percentage cost composition of input (~~N~~)	200-500	510-800	801-1100	1101-1400	1401-1700	Mean
Variable input cost	7.40	4.30	3.50	3.10	4.00	4.50
Cost of feed	74.60	76.20	75.50	74.30	77.90	76.30
Drugs & Vet. Service	1.80	1.20	3.40	2.80	1.30	2.10
Other variable input	0.40	0.70	0.80	0.60	0.40	0.60
TVC of variance inputs	84.20	82.40	83.20	84.80	83.60	83.56
Freed input cost building (Depr.)	0.40	0.30	0.40	0.30	0.40	0.40
Cages (Depr.)	2.20	3.10	1.60	2.40	2.60	3.20
Stocks (Depr.)	13.20	14.20	14.80	12.50	13.40	13.50
Total cost of fixed inputs	15.80	17.60	16.80	1520	16.40	16.50
Percentage total%	100.00	100.00	100.00	100.00	100.00	100.00

The cost of medication was found to be less that 3.00% of the total cost of production. This is an indication of low level of health care given to the enterprise. This has an unpalatable implication in an event of disease epidemic among the flock.

Table 4 shows the return analysis per 100 layers in one production cycle for each of the five flock size categories. The table revealed that profit per 100 birds increased with increase in flock sizes. The farmer operating flock size of 200-500 released a profit/100 bird of N 33,332.96, the profit seems low because, all cost including the imputed cost of family labour were deducted from the gross revenue. Another interesting feature to be noted is the difference in profit per 100 birds associated with the different flock size groupings, which is more attributed to revenue rather than cost differences. The Returns per Naira invested increased with increases in flock size. Thus sharing the benefit of economies of scale.

The ratio of gross margin to revenue was used as the performance indicator. High values tending to unity indicate better performance. This implies that overall, egg entrepreneurs were able to cover their variable costs, hence they can continue production. The economic implication of this is that egg production is a profitable business in the study area.

Return Analysis

Table 4. return per 100 birds per production cycle and performance rations for different flock size.

Flock size	TC/100 Birds/ cycle (N)	Returns/100 Birds/ cycle (N)	Profit/ 100 Birds/cycle	Returns (N) invested	Ration of VC to Returns	Ration of GM to Returns
200-500	176,361.18	209,694.14	33,332.96	1.18	0.43	0.56
501-800	187,304.92	235,258.24	447,953.32	1.25	0.41	0.58
801-1100	199,978.34	287,996.90	88,018.56	1.44	0.40	0.59
1101-1400	205,607.35	346,474.99	140,867.64	1.68	0.36	0.63
1401-1700	208,007.14	428,416.58	220,409.44	2.05	0.36	0.63
Mean	195451.79	301568.17	106116.39	1.52	0.39	0.60

KEY:

TC	=	Total cost
Returns	=	Revenue
VC	=	Variable cost
GM	=	Gross margin

CONCLUSION

The analyses in this paper has reveled the performance of commercial poultry egg entrepreneurs in the areas of study Bauchi and Gombe metropolises. Socio- economic variable in the enterprise were identified and the inter-relationships or otherwise amongst these characteristic were examined using the correlation analysis. Flock size, and years of experience in the enterprise were some of the major socio- economic variable which affected others. The correlation analysis showed a positive and significant relationship exists between years of experience and farmers' age, and consequently, farmers' age and Household size. Also the correlation result shows that non farm income has a positive significant relationship with flock size only, among the socio- economic variables. Though many of the entrepreneurs were operating with 1,300 flock size, they are considered to be efficient despite their small flock size as indicated by the returns on capital invested, ratio of variable cost to revenue and the ratio of gross margin to revenue. Feed costs are clearly the most important component of production in poultry egg farms. Profitability was found to be positively related to the average flock size.

REFERENCES

Abaelu, J.N. (1984). Costs and returns of private commercial Egg production in Ibadan Area. A pivot Investigation. *Bulletin of Rural Economics and sociology* 1 (1): 75-85.

Adu, I.F. (1996). Poultry Development in Nigeria; Politics, problems and prospect. *Nigeria Journal of Animal production*. 13 (1) 1-4.

Akinwumi, J.A., Adegeyeye, A.J., Ikpi, A.E. and Olayide, S.O. (1979). Economic Analysis of the Nigeria poultry Industry. A report submitted to the Federal Livestock Dept., Lagos pp 49-78.

Nwosu, A.C. (1993). Economic crisis and Government Policies. Implications for Commercial poultry production in Nigeria. *Journal of the Nigerian Institute of Social and Economic Research* 10 (1&2): 118-131.

Olukosi, J.O. and Isitor, S.U. (1990). Introduction to Agricultural Marketing and Prices: Principle and Applications. Living Books Series, Gu Publication, Abuja, 116pp

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