



Socio-Economic Factors Affecting Broiler Bird Brooding In Ika North East Local Government Area Delta State, Nigeria

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ABSTRACT

This study was conducted to investigate the socio-economic factors affecting broiler bird brooding in Ika North-East Local Government Area, Delta State. Data collection was done by means of well-structured questionnaires. The questionnaires were administered to thirty (30) broiler birds' brooders. The brooders were selected from fifteen (15) communities in the Local Government. Data collected were described with descriptive statistics, and analyzed using multiple regression technique. The study revealed that household size, experience, education and labour source were significance at 0.05, with $R^2 = 0.89$. This implies that the explanatory variables have been able to give account of income realized. This suggests that increase in income depends on the above variables. In addition, it was observed that broiler brooding was not gender related (53.3%): It was recommended that sex should not be the determining factors in broiler birds brooding when farmers are to be considered for incentives. Brooders should acquire more training, and loans granted to them at low interest rate to enlarge their farms in order to increase their income level.

Keywords: Brooding, Birds, Innovation, Productivity, Farmers

INTRODUCTION

Nigeria with over 140 million people is yet to achieve self-sufficiency in food production in spite of the country's numerous and diverse natural resources (Olagunju and Oguniyi, 2023). More disturbing is the acute shortage of animal protein in recent times especially among rural communities. Government at all levels have made efforts to improve the production of domestic animals especially cattle, sheep, goat, pig and poultry but animal protein continues to be in short supply and prohibitively expensive for an average Nigerian (Akintunde, Adeosun and Ogundijo, 2021; Essien and Ifenkwe, 2021).

Poultry refers to all kinds of domestic birds kept for meat or egg). However, the study is focused on broiler bird brooding enterprise. Broiler which genealogically belong to the genus *Gallus*) is meat type chicken bred for marketing at early age and matures faster than other types of chickens (Ogunwole and Ajalla, 2022). Commercial strains of broiler include: Ross, Cobb and Anak. They have been bred for efficient conversion of feed to meat and large and small areas of land and quick recovery of capital investment after six weeks (Olayemi et al 2021).

Improvement in poultry production is considered as an assured means of alleviating this problem. This is because of its numerous good attributes which include short gestation periods, good converter of feed and vegetables into meat, relatively low capital and space requirement, quick returns on investment, low cholesterol content of the meat and high prolificacy. These qualities contribute to food supply increase and nutritional improvement outcomes. The potential of poultry farming have been highlighted by many

agricultural expert and development organization as food alleviation strategy to food malnutrition and insecurity (Alabi, Esobhaman and Aruna, 2020, Sharma, Gruere and Deborah, 2022, Mangotho et al, 2021).

In the production function analysis, the techno-economics variables of production alone do not often provide full explanation of the observed variations in farmers' output and income levels. A fuller explanation may be obtained through the combination of socio-demographic and economic variables (Nwaogu and ume, 2023). The aim of the study therefore, is to examine the influences of some socio-economic characteristics (household size, age education, experience, farm size) of the broiler bird brooders on their incomes.

MATERIALS AND METHODS

The study was carried out in Ika North-East Local Government Area, Delta State. The L.G.A. shares common boundaries with Obior in the East in Aniocha South, Emuhu in the west in Ika South, Ekukwu-Agbor in the South in Ika South. It is made up of fifteen communities.

A purposive sample of 30 broiler bird brooders was taken from among the communities. The entire Local Government Area was the sampling unit because bird brooding business was administered to the respondents. Data collected were analyzed using questionnaire was administered to the respondents. Data collected were analyzed using descriptive statistical tools and multiple regression technique with implicit form thus.

$$Y = f(x_1 x_2 x_3 x_4 x_5 x_6 E)$$

Where:

Y= Income

X₁= Farm size (Number of bird brooded)

X₂= Gender (dummy taking value of 2 for male and 1 for female).

X₃= Education (Number of years in school).

X₄= Age (In years).

X₅= Occupation (Full-time farmer and part-time dummy taking 2 X 1).

X₆= Experience (Number of years in business

X₇= Household size

X₈= Labour source

X₉= Source of finding

X₁₀= Frequency of respondents

e = Error term.

To determine the factors influencing the socio-economic characteristics of broiler birds brooders measured by their income, four functional forms were estimated. The regression analysis functions used were linear, semi-log double-log and exponential functions.

2.0 Theoretical Framework

2.1 Sustainable Livelihood Framework (SLF)

Sustainable Livelihoods Framework's underpinning components are:

An organized explanation of the factors that make people's lives sustainable underpins the SLF. The Department for International Development (DFID) invented the SLF in the 1990s to help define and debate multidimensional poverty as well as engage people and communities to discuss their livelihood futures.

1. Livelihood Assets:

The SLF is right on point that someone's social life is restricted by many interrelated constraints such as access to different types of capital, operating in vulnerable conditions or what policies, institutions and processes guide their choices and options.

In fact, the five forms of capital are listed by this framework. Five main types of capital which can be used by individuals in developing sustainable livelihoods viz; human, social, natural, financial and physical are identified by the SLF. These are assets that will be used by individuals in order to achieve their livelihoods and develop themselves in society.

2. Vulnerability Context:

Vulnerability context refers to all other external influences, trends as well as seasonal shifts that may have an impact on one's livelihood. Some of these include natural calamities, economic trends, conflicts among others. It is crucial when designing strategies that promote resilience among households.

3. Transforming Structures and Processes:

According to SLF, various levels of policy making including local level; state level; global level play a significant role in shaping people's lives hence influencing their livelihoods. In some instances certain structures or processes may facilitate or hinder individual entry into and use of livelihood assets thereby limiting implementation options available to them at large.

4. Livelihood Strategies

The strategies developed by individuals depend on how they gain access to their food basket and how much vulnerability they face in relation to securing desired outcomes from these efforts. For example one may decide to diversify income sources, increase agricultural production, non-farm activities.

5. Livelihood outcome

In essence, SLF is supposed to help people achieve positive livelihood outcomes such as increased income or food security among others and reduced vulnerability. However, these outcomes are not rigid but rather dynamic and can be changed by the context of vulnerability as well as changing efficiency of process and structure.

The main principles of sustainable livelihood framework (SLF) including its application in rural development and poverty reduction based on the need for an all embracing flexible approach towards addressing the complex characteristics contributing to peoples' livelihoods. The SLF would allow the identification of the best interventions to support sustainable livelihoods- based on the data on the in the vulnerability and of the fact that the capital connects in a sustainable way through LF perspective on how different capitals relate to each other, institutional framework , environment and vulnerability.

RESULT AND DISCUSSIONS

Socio-economic characteristics of the respondents

Result of this study showed that broiler bird brooding in the study area was not gender specific. Both males and females participated in the business though males were more in number (53.3%). This report agrees with Atoma et al, (2023) that more male are involved in farming than female. In the study area, the mean age of the brooders was 37 years with majority (40%) found within the age bracket of 30-39 years (Table 1.0). This is an active productive age bracket in agriculture. The reason is that the younger age group (fewer 45 yrs) may not be able to afford the needed capital for this enterprise. Again, the elderly (above 50 yrs) though may have the fund, but may not be able to cope with the stress and technical know-how of broiler brooding. This resulted the low level of participation (6.5%) of this age bracket. This result corroborates age of the farmers is important in determining productivity and rate of adoption of innovation (Oloyode and Adegbite, 2023).

Availability of family labour depends largely on household size and its age structure. Majority (57.5%) of the bird brooders had family size within the range of 1-5 persons. This fortifies the observed fact that majority (59.5%) of them was married and mainly (63.33%) made use of their family labour for the brooding business (Table 1.0).

In this study area, literacy level is high among the respondents with a mean of 7.6 years in school. The relevance of literacy level of farmers to farm productivity and production efficiency had been previously documented (Ewododhe and Ogisi, 2024; Obioha and Osuagwu, 2020; Charkraborti, Sahid, and Ali, 2021). The authors see education as a key player in the transfer of knowledge to farmers.

The number of years a farmer has spent in the farming business could give an indication of the practical knowledge acquired. It could have a considerable influence on production efficiency. From this study,

about (63%) of the respondents have spent between 1 to 10 years in the business with mean of 4.8 years for the entire respondent. This shows that many of them were relatively new in the business.

Data on farm size (measured in number of birds each farmers was capable of brooding per production batch) showed that 79.3% of the respondents were brooding birds numbering about 1 to 500 in a production period. This shows an overall mean of 288 birds. Again majority (53%) of them could brood between 1-5 times in a year with an overall mean of 4 times. Brooders also funded their business mainly from their personal savings (Table 1.0).

Table 1.0: Summary of Socio-economic Characteristics of Broiler Bird Brooder in Ika North-East Local Government Area, Delta State.

Characteristics	Frequency	Percentage	Mean
Gender			
Male	16	53.3	
Female	14	46.7	
Age(in years)			
20-29	7	24.5	
30-39	12	34.5	37 years
40-49	9	30	
50-59	0	0	
60-69	2	6.5	
Marital status			
Single	12	39.5	
Married	18	59.5	
Household size			
1-5	15	57.5	
6-10	8	30.5	6.0 persons.
11-15	3	10.5	
Education (in years)			
1-6	2	6.5	
7-12	10	32.5	7.6years
13-18	18	59.5	
Experience(in years)			
1-10	9	6.5	
11-20	9	29.5	4.8years
21-30	2	6.5	
Major Occupation			
Farming	17	56.67	
Other	13	43.33	
Farm size(number of birds)			
1-500	23	79.3	
501-1000	5	17.2	288 birds
1,501-2000	1	3.5	
Labour Sources			
Family/Self	19	63.33	
Hired	11	36.69	
Sources of Funding			
Personal Savings	21	70	
Family Support	4	13.33	
Borrowed	5	10.67	
Frequency of brooding			
1-5	10	53	
6-10	8	27	
11-15	5	17	4 times
16-20	1	3	

Source: Field survey data 2023

Factors influencing the socio-economic characteristics of broiler on their income in the study area

Analysis of the data revealed that only two, linear and semi-log were found to be significant at $p= 0.05$ (Table 2.0). The independent variables were gender size, education, age, occupation, experience, household size, labour source of funding and frequency of brooding. The result of the analysis showed that the semi-log function gave the best fit (highest) and was chosen as the lead Equation. This was due to higher adjusted R (0.8 109) and f-value 22.88. The significance level of the explanatory variables and their signs are shown in the result. Significantly, household size, labour sources, experience and education were able to explain the income level of broiler birds brooders at $p= 0.05$, as shown by R2 value. The f-value indicated a strong relationship in the independent variables. The positive coefficient among the variable implied that income would increase as any of the variables are increased while others are kept constant. Contrary, the negative sign on level of education implies that the more educated the farmers, the less the income level of the brooder. It could further be explained that over consideration of education as a parameter for brooding would result in income decrease.

Table 2.0: Multiple Regression Result in two Functional Forms

Variables	Linear	Semi-log
Constant term	-62365	-538992
Farm size (x_1)	245.13(7.69) *	9669(4.92)
Gender(x_2)	-10445(-0.47)	7842.729(0.19)
Education(x_3)	2795.29(0.71)	-76535*
Age(x_4)	111.15(0.08)	84540(1.42)
Occupation(x_5)	24612(1.24) *	-10987(-0.27)
Experience(x_6)	212.69(0.14)	0.03540(0.38) *
Household(x_7)	67.1(15.5) *	21.2(3.7) *
Labour Source (x_g)	0.003(0.002) *	34.9(14.5) *
Source of fund (x)	14.8(17.4)	-26.9(15.4)
Frequency of brooding (x_{io})	44.6(25.2)	0.04(0.02)
R	0.7489	0.8565
Adjusted R	0.6834	0.8190
F-Value	11.43	22.88

*= Significant 5% level of probability. The values in parenthesis are at the t-values.

Source: field survey data 2023.

CONCLUSION

The study revealed that broiler bird is not gender specific. The mean age of brooders was 37 years, and this is good for youth workforce in the study area. Regression result revealed experience, education, labour source, and household size as significance variables. This implies increase in the above variables result in increase in income of brooders. The R2 value of 81% indicates that the independent variables have been able to explain changes in income level. It is therefore recommended that large scale farmers should acquire relevant training and access to loan in order to make maximum income. In addition, gender (sex) should not be a constraint. Both male and female can go into the enterprise.

REFERENCES

Akintunde, O, K., Adeosun, J. O., & Ogundijo, D.A (2021). Productivity and Profitability of Broiler Production in Oyo State, Nigeria. *Journal of Animal Production and Food Processing*, 3(2), 45-54.

Alabi, R.A., Esobhawan, A.O. & Aruna, M.B. (2020). Improving Household Food and Nutrition Security Through Family Poultry Production in Nigeria. *Journal of Agriculture and Food Security*, 8(1), 15-25.

Atoma C. N.; Onwumere-Idolor S.; Ewododhe A.; Ehigie H. & Uyoyou A. S. (2023). Socio-economic determinants of livestock farmers’ level of awareness of organic farming practices. Proceedings

- of NOAN AGM/Technical Workshop, Anambra 2023, Association of Organic Agriculture Practitioners of Nigeria (NOAN). 265-266
- Chambers, R., & Conway, G. (1992). Sustainable rural livelihoods: practical concepts for the 21st century. IDS Discussion Paper, 296.
- Essien, E.B & Ifenkwe, G.E (2021). Analysis of Factors Affecting the Technical Efficiency of Small Poultry Farmers in Akwa Ibom State Nigeria. *International Journal of Agricultural Economics*, 6(1), 1-10.
- Ewododhe A.C.A & Ogisi, D. (2024) Large scale farmland acquisition outcome on displaced farmers livelihood in Edo state, Nigeria. *Journal of Agriculture , Food and Environment (JAFE) , Delta State University, Abraka . 5(4)12-29*
- Magothe, T.M, Okeno,T.O., Muhuyi W.B, & Kahi, A.K. (2021). Indigenous Chicken Production in Kenya:Current status, research and Development Priorities. *World's Poultry Science Journal*, 68(3), 491-504.
- Nwaogu , D.C & Ume, S.I. (2018). Analysis of the constraints to small scale poultry production in Abia State, Nigeria. *Asian Research Journal Of Agriculture*, 8(2), 1-10.
- Ogunwole O. A, Ajala, A.O & Akinwumi, A.O. (2022).Determinants of profitability in Broiler Production in Ondo State, Nigeria. *Livestock Research for Rural Development*, 34(3).
- Olayemi, W. A., Alalade, O.A., Omotosho, O. A.& Akinyemi, A. F. (2021). Profitability Analysis of Broiler Production in Oyo State, Nigeria. *Journal of Agriculture and Food Environment*, 2(1), 1-9.
- Oloyode, F. M., Adegbite, D.A, & Ayinde, I.A. (2022). Determinants of Technical Efficiency of Rice Farmers in Ogun State, Nigeria. *Journal of Agriculture and Food Environment*. 3(1), 18-27.
- Sharma, N.,Gruere, G.,& Debnath, D. (2022). Leveraging Poultry value Chains for Improve Food and nutrition Security in India. *Agricultural Economics*, 53(3), 399-414.