

Evaluation of the relationship between participation in agricultural insurance scheme and income of poultry farmers in Osogbo ADP zone, Osun State

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Target Audience: *Poultry producers and Policy makers.*

Abstract

Poultry production is affected by disease outbreak, weather-related perils, market risk, financial risk, and technological failure of the production. This study examined relationship between the farm income and participation in agricultural insurance on poultry layers farmers in Osogbo Agricultural Development Projects (ADP) of Osun State, Nigeria. Primary data were collected from 120 poultry layers farmers with the aid of structured questionnaire using multi-stage sampling procedures. Descriptive statistics and inferential statistics were used to analyze the data. Majority (80.0%) of the poultry farmers were below the age of 50 years and more than half (64.2%) of them were male. Majority (83.3%) of the poultry farmers had poultry farming experience of more than five years with mean years of farming experience of 12 years. The crucial constraint that limits the poultry farmers in participating in agricultural insurance scheme in the study area is lack of adequate information on the benefits of agricultural insurance scheme. Mean farm income of those poultry farmers that insured their farm was higher than those that did not participate which imply that agricultural insurance scheme has a positive relationship on the farm income on farmers who participated in the insurance scheme. Adequate dissemination of knowledge on the benefits of agricultural insurance by extension agents is crucial to increase the level of participation of poultry farmers.

Keywords: *poultry; production; farmers; risk; mitigation; insurance*

Description of Problem

The Nigerian poultry industry comprises about 180 million birds which has made Nigeria to have the second-largest chicken population in Africa after South Africa (1). Poultry can be described as birds of economic value to man as it provides meat and eggs. The poultry industry plays an important role in the development of the Nigerian economy. Its role in rural livelihoods is enormous as a source of ready cash in emergency needs in rural communities and for food security. Also, the industry provides employment opportunities for the populace,

thereby serving as a source of income to the people (2).

Risks that affect farming include price or market risks, income or financial risk, production risk, institutional risk, human or personal risk (3). The production risks are associated with production losses and crucial among the agricultural risks (4). Common causes of production risk include; climate, predators, theft, pests, and diseases. Production risks exist because agribusiness enterprise is affected by many uncontrollable events that are often related to weather such as unlimited rain or drought, pests and diseases, random

physical hazards, and technological failure of the production process (3). Risk management in poultry production is crucial for the sustainability of the business since failure to manage risks can have direct negative effects on production, farmers' income, market stability, and food security (5). According to (6), risk management involves the use of risk management practices which will determine the level of risk and development of appropriate strategies to ameliorate the effect risks until the overall level of risk is reduced to the minimal level.

Agricultural insurance scheme is one of the notable mitigation methods by which farmers can share or transfer the risks and uncertainties associated with their farming enterprise. The participation of farmers in agricultural insurance scheme as manifested in taking agricultural cover will encourage them to make greater investment in agricultural production, building their confidence in diversification of enterprises, enhances their accessibility to credit by financial institutions as the insurance cover serves as an added collateral (7). Nigerian farmers are not very excited about taking an agricultural insurance policy which can be attributed to the fact that there is a problem of bureaucracy in the process of obtaining compensations from the insurance institutions in the advent of disaster in the farm. This is one the reasons that most of the farmers are discouraged to participate in agricultural insurance scheme. Consequently, less than 1% of the total population of farmers takes agricultural insurance cover (8).

National Agricultural Insurance Scheme (NAIS) was launched in 1987 but took off in 1989 and the Nigerian Agricultural Insurance Corporation (NAIC) was subsequently established to manage it. Agricultural Insurance is a special line of property insurance applied to agricultural firms. The underlying theory justifying the institution of NAIS is that risk mitigation in the agricultural

sector will enhance agricultural productivity. This will be achieved by meeting the persistent demand by lending institutions and the Nigerian farmers for appropriate risks aversion measures. The major objective of the scheme was to reduce the impact of risks and uncertainties to an acceptable minimum. It was also intended to promote agricultural production by minimizing or eliminating the need for ad hoc assistance previously provided to farmers by governments during agricultural disasters (9; 2). It has been observed (8; 10) that despite the existence of insurance services rendered by NAIC and other private insurance firms in Nigeria, there has been a low level of participation of farmers participating in agricultural insurance scheme.

There is no gainsaying in the fact that researchers (7; 11; 10; 2; 12) have worked on poultry farmers' willingness to participate in the agricultural insurance scheme. However, this study distinguished itself from the previous research efforts on agricultural insurance schemes in poultry production through assessment of relationship between the farm income and participation in agricultural insurance policy on poultry farming in Osun State, Nigeria. The specific objectives are to:

- i. profile socio-economic characteristics and income of the poultry farmers;
- ii. examine the level of awareness of poultry farmers to agricultural insurance scheme;
- iii. determine the factors limiting the participation of poultry farmers in agricultural insurance scheme;
- iv. evaluate the relationship between participation in agricultural insurance and poultry farmers' income.

Hypothesis of the study

H₀: There is no significant difference between the farm income of those poultry farmers that participated in the agricultural insurance scheme and those poultry farmers that did not participate.

Materials and Methods

Study Area: The study was carried out in Osogbo Agricultural Development Projects (ADP) zone of Osun State, Nigeria. Osun state is located between latitudes 7.0° North and 9.0° North of the equator and longitudes 2.8° East and 6.8° East of the meridian, it lies in the equatorial rain forest belt and approximately has a land area undulating landscape of 9,251 square kilometers and its capital is in Oshogbo, it is bounded in the East and West respectively by Ondo and Oyo State, while Kwara and Ogun States are its boundaries in the North and South respectively. Administrative, Osun state comprises 30 local government areas with landed area of 9,251 square kilometers. The Osun state agricultural development programme (OSSADEP) is divided into 3 zones namely Oshogbo, Ife/Ijesa, and Iwo. The predominant population of Osun State is Yoruba. The vegetation of the state comprises rainforest zone, derived savannah and savannah. The people of Osun are mostly farmers who engage in the cultivation of both cash and food crops and the rearing of poultry and livestock. The average rainfall ranges from 1125mm in the derived savannah to 1475mm per year in the rain forest belt. The mean annual temperature ranges from 27.2°C in June to 39.0°C in December.

Source and type of data: Primary data were obtained with the aid of a well-structured questionnaire that captured the socio-economic characteristics of poultry layers farmers. These include the age of the poultry farmer, gender, and level of education, poultry farming experience, household size, income and access to agricultural insurance scheme. Also, information was sought on the attitude of poultry farmers towards participating in agricultural insurance scheme, information on risk towards agricultural insurance participation.

Sampling techniques and data collection:

Multi stage sampling procedure was employed for the selection of the sample size for the study. Osun State consists of three Agricultural Development Projects Zones and thirty (30) blocks. These are Osogbo (12) blocks, Iwo (7) blocks and Ife/Ijesha (11) blocks. The first stage involved purposive selection of Osogbo ADP zone as the study area among the three ADP zones in Osun State. The purposive selection was due to preponderance of poultry production in the zone as revealed by the membership register at the state office of Poultry Association of Nigeria at Osogbo. The second stage involved the random selection of four (4) blocks from the twelve (12) blocks of Osogbo ADP zone. The four blocks randomly selected include Osogbo Local Government Area, Orolu Local Government Area, Egbedore Local Government Area, and Ede South Local Government Area. The last stage was the random selection of thirty (30) poultry farmers from each Local Government Area chosen in the stage two which resulted into sample size of one hundred and twenty (120) poultry farmers while the sample frame was the membership register of Poultry Association of Nigeria in each Local Government.

Analytical techniques and models: The study employed analytical tools based on the stated objectives. They include descriptive such as mean, mode, range, and standard deviation. Inferential statistics adopted was two-sample t test. Objective 1, 2 and 3 were achieved with the aid of descriptive statistics while objective 4 was achieved by application of two-sample test as an inferential statistics.

Results

Socio-Economic Characteristics of the Poultry farmers: Table 1 presents the socio-economic characteristics of the poultry layers farmer. Table 1 showed that the average age of

the poultry farmers was 32.8 years, the majority (80.0%) of the poultry farmers were below the age of 50 years. More than half (64.2%) of the poultry farmers were male and the majority (72.5%) of them were married with an average household size of 5.0 persons. More than half (53.4%) of the poultry farmers were educated above secondary education. Also, the results in Table 1 indicated that the Majority (83.3%) of the poultry farmers had poultry farming experience of more than five years with mean years of farming experience of 12 years. The mean annual income from the poultry business was ₦452,000 as more than half (54.2%) of the poultry farmers earn less than ₦500,000 per annum. The majority (63.3%) of the poultry farmers were not aware of agricultural insurance scheme while only a few (18.3%) insured their poultry farm.

Constraints limiting participation in agricultural insurance scheme in the study area by the poultry farmers: Poultry farmers in the study area were confronted with different constraints that limits them from participating in agricultural insurance scheme. These constraints include inadequate information on the benefits of agricultural insurance scheme, low income of poultry farmer, a rigorous procedure in receiving the claim, small scale size level of the farmers, and compensation paid does not cover all the losses. Table 2 presents the mean ranking distribution of constraints using a 5-point

Likert scale to explain their level of severity. As shown on Table 2, the constraint with the highest mean value was perceived to be the most severe. Out of all these constraints, the three most prevailing constraints limiting the poultry farmers in participating in agricultural insurance scheme in the study area were inadequate information on the benefits of agricultural insurance, the rigorous procedure in receiving the claim, and low income of poultry farmer with mean of 4.09; 3.90 and 3.86 respectively.

Relationship between agricultural insurance participation and farm income of poultry farmers

Table 3 presents the relationship between the participation in agricultural insurance and farm income. The results in Table 1 revealed earlier that majority (98%) of the poultry farmers did not insure their farms. Result from Table 3, shows that the difference in income of the farmers that insured their farms and those that did not insured their farms was statistically significant ($p < 0.05$) with mean income of (3.11) and high level (2.04) and a mean difference of (1.07). The implication of this result is that the null hypothesis which stated there is no significant difference in the farm income of the farmers that insured their poultry farms and those that did not insure their poultry farm is rejected and conclusion is drawn that there is a relationship between the farm income and participation in agricultural insurance scheme.

Table 1: Socio-economic characteristics of the poultry farmers

Characteristics	Frequency	Percentage (%)
Age (Years)		
31-40	40	33.3
41-50	26	21.7
51-60	20	16.7
> 60	4	3.3
Mean = 32.8		
Marital Status		
Single	21	26.3
Married	58	72.5
Divorced	1	1.2
Gender		
Male	77	64.2
Female	43	35.8
Level of Education		
No formal education	10	8.3
Primary education	25	20.8
Secondary education	21	17.5
Tertiary education	64	53.4
Household Size		
1-3	51	42.5
4-6	54	45.0
7-9	15	12.5
Mean = 5		
Poultry rearing experience		
1-5	20	16.7
6-10	51	42.5
11-15	9	7.5
16-20	31	25.8
21-25	5	4.2
>25	4	3.3
Mean = 12		
Income		
<500000	65	54.2
500000-1000000	20	16.6
1000000-1500000	23	19.2
> 1500000	12	10.0
Mean = 452,000		
Level of awareness of insurance		
Not aware	76	63.3
Aware	44	36.7
Insurance participation		
Not insured	98	81.7
Insured	22	18.3

Source: Field Survey Data, 2020.

Table 2: Mean ranking of constraints limiting access to agricultural insurance

FACTORS	Mean	Standard Deviation	Rank
Inadequate information on the benefits of agricultural insurance.	4.09	1.163	1st
Low income of farmer	3.86	1.074	3rd
Rigorous procedure in receiving the claim	3.90	0.920	2nd
Small scale farm level	2.08	1.061	5th
Compensation paid does not cover all the losses	2.87	1.037	4th

Source: Field Survey Data, 2020.

Table 3: Two-sample t test of difference in income between the two levels of perceived effect of poverty.

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Insured	22	3.110546	.3105204	2.468606	3.627984	3.86207
Not insured	98	2.004207	.2574183	1.124155	2.401546	2.47146
Combined	120	2.531263	.2250532	2.325528	2.103947	3.989377
Diff		1.106339	.4287832		.4249109	2.123126

diff = mean(insured) - mean(not insured) t = 2.6413
 Ho: diff = 0 degrees of freedom = 118

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
 Pr(T < t) = 0.982 Pr(|T| > |t|) = 0.0016 Pr(T > t) = 0.0028

Source: Field survey Data, 2020.

*Significant at the 5% level (critical t = 1.96)

Discussion

The average age of the poultry farmers was 32.8 years with the majority (80.0%) of the poultry farmers were below the age of 50 years. This result implied that most of the poultry farmers were agile and they are in their active and productive years who can easily adopt innovations that could enhance production. This agrees with the findings of (10; 12) that the majority of the poultry farmers were in their active age of below 50 years. More than half (64.2%) of the poultry farmers were male. The dominance of males in the poultry production in the study area could be attributed to the labour intensive nature of the poultry, which could be very tedious, hectic, and time-consuming especially for women. Another reason for male dominance could be attributed to the high level of risk involved in the poultry production which might discourage the women. This aligns with

the findings of (12, 13) that more than half of the poultry farmers were male. More than half (53.4%) of the poultry farmers were educated above secondary education which implies that they can make changes fast and adopt innovation. This corroborates the findings of (14; 15) that farmers’ ability to read and analyze agricultural information is enhanced through education.

Majority (72.5%) of the poultry farmers were married with an average household size of 5.0 persons. This implies that there will be positive impact on the security of their farms since most farmers had their family members to look after the farms in their absence. Also, it is expected that the family size of the poultry farmers will vary directly with the labour offered and with expenditure too as confirmed by (12). They reported that more than half of the poultry farmers had between 4-6 household members, with an average household size of 6

persons which falls within the national average of approximately 5 persons. They further argued that with an increase in household size, the more traditional option of cutting down on expenditure in managing risk becomes more difficult thereby, giving way to farmers seeking alternative modern methods for insurance cover.

Majority (83.3%) of the poultry farmers had poultry farming experience of more than five years with mean years of farming experience of 12 years which agrees with the findings of (10). Experience is crucial regardless of the level of education as a well-experienced poultry farmer will possess the most preferred attitude toward risk management, which in turn will increase their level of productivity compared to another farmer with less poultry farming experience.

The three most prevailing constraints that limit the poultry farmers in participating in agricultural insurance in the study area were inadequate information on the benefits of agricultural insurance, the rigorous procedure in receiving the claim, and low income of poultry farmers. This finding is in agreement with (7, 12) that bureaucratic problem in collection of agricultural insurance scheme is one of the major constraints of poultry farmers in participating in agricultural insurance scheme. Lack of adequate and effective information about the benefits of agricultural insurance was indicated to be a constraint by most of the poultry farmers and this may affect their perception of agricultural insurance. The constraint of rigorous procedure in processing and receiving insurance claims due to excessive bureaucracy made the farmers withdraw from the insurance scheme.

There is a significant difference in the farm income of the farmers that insured their poultry farms and those that did not insure their poultry farm. Mean farm income of those poultry farmers that insured their farm was higher than those that did not participate. This

implies that agricultural insurance scheme has a positive relationship on the farm income on farmers who participated in the insurance scheme.

Conclusion and Applications

1. The empirical findings emanating from this study revealed that there were more male than female poultry farmers in the study and were well educated above the secondary school level.
2. Inadequate information on the benefits of agricultural insurance, a rigorous procedure in receiving the claim, and low income of poultry farmers were all crucial constraints limiting the participation in agricultural insurance by the poultry farmers.
3. To enhance poultry farmers' participation in agricultural insurance, this study recommends that the government should make agricultural insurance more accessible to poultry farmers by subsidizing the cost of taking an agricultural insurance cover.
4. Adequate dissemination of knowledge on the benefits of livestock insurance by extension agents is crucial to increase the level of participation of poultry farmers in the use of agricultural insurance to mitigate against production risk in poultry enterprise.

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