



Determinants of utilisation of risk transfer measures among poultry farmers in Ogun state, Nigeria

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Abstract

The poultry industry contributes significantly to the development of Nigeria's economy. Unfortunately, poultry farmers like other farmers are faced with income fluctuations arising from risks associated with the enterprise. In this study, socio-economic characteristics of poultry farmers, different types of risk faced by the poultry farmers, management strategies employed by the poultry farmers for risk reduction; and the determinant of utilization of risk transfer measures were examined. A total of 186 respondents were selected as the sample size using multistage sampling method. The findings revealed that the average age of the poultry farmers was 45 years, Majority of the poultry farmers were male (87.1%), and married (91.4%). The major types of risk faced by the poultry farmers were fluctuation of input price (1.36), mortality of birds (1.35) and incidence of pest and disease (1.31). Furthermore, the study revealed that the management strategies employed by the poultry farmers for risk reduction were access to credit (1.80), timely administration of drugs and vaccines (1.67) and use of modern production techniques (1.54). From the results, it can be concluded that timely administration of drugs and vaccines, use of modern production techniques, income diversification are the common risk management practices among the poultry farmers. The study therefore recommended that poultry farmers should be encouraged to diversify into other viable income generating activities to increase output and reduce shock of failure. Also, adequate institutional support should be provided to improve productivity.

Keywords: poultry farming, utilization, risk.

Introduction

Poultry is the second most widely eaten meat in the world accounting for 30% of meat production in the world, after pork, 38% (FAO and AfDB, 2015). It is a well-known fact that poultry is a very good converter of ingredients, especially those of plant origin, into animal protein. Generally, poultry production is about twice as effective as producing pork and three times more as producing beef due to its very short cycle. Hence poultry is a popular meat in many places around the world (Ad Bal, 2011). In Nigeria, most poultry farmers operate on a small scale with little opportunity for diversification and insurance (Adejoro, 2013). This denotes that the unwillingness to

invest in agriculture is as a result of the inherent risky nature of the enterprise with uncertainties, thereby making investors to prefer investing their capital in other industrial enterprises other than agriculture.

Risk is a central issue that affects many different aspects of people's livelihood in the developing world. It is defined as a condition in which the result of any decision or course of action are not definitely known but will fall within a known range. Risk is uncertainty that affects an individual's welfare and is often associated with adversity and loss (Bodie and Merton, 2011). One measure of risk inherent in an activity is the variability of expected returns from the said activity. So, managing risk involves

choosing among alternatives to reduce the effects of risk. A risk averse individual, such as farmer, chooses an alternative which maximizes his expected utility. There are many risk management strategies such as enterprise diversification, contracts and insurance available to farmers. Whichever strategy is chosen, in large part, depends on the particular form of risk faced by the farmer (Weber et al., 2002). The farmers are not sure of weather, diseases, price change, input availability, government policies and new changes in technology - factors which make it difficult for them to predict the future with certainty. Farmers face risk from a variety of sources, including price and production risk all of which cause uncertainty in profit and this will affect input choice decision (Andres and Wall, 2017).

Climate change is undoubtedly the most current and topical global environmental issue. This is because apart from being environmental, it also has developmental dimension. Climate is the synthesis of weather of a given area or location over a period of at least thirty years (Akkari C. and Bryant C.R, 2016) (REF). African nations and indeed developing countries including Nigeria suffer most from climate change consequences because of high dependence on agriculture carried out on large expanse of arid or semi-arid cultivable lands which is climate sensitive. According to Akinbile (2016), estimate of the effects of climate change on crop yields are predominantly negative for the tropics. The possible effects of climate change on food production is not only limited to crops in agriculture, but also has far reaching consequence on poultry, livestock and fisheries sub sector. Climate risks pose enormous challenges to the possible contributions of poultry towards the attainment of the Millennium Development Goals of addressing the problem of extreme poverty in its many dimensions and it also

poses a threat to the realization of the nation's Agricultural Transformation Agenda (ATA).

In this study, risk sources and the available management strategies employed by the poultry farmers were identified. It is paramount that the poultry farmers need to consider management options to help avoid, reduce, control or transfer risks, cost and concern in the future. Poultry sector experience diverse problems ranging from disease outbreak (such as avian influenza), rise in price of inputs, flood, fire outbreak, inadequate credit with global financial crisis; this brings about uncertainties in poultry production. Since, the poultry farmer cannot predict the probability of occurrence of any of these and cannot bear these risks and uncertainties alone, he is faced with the option of transferring or sharing the risks involved in the production. Lack of access to modern instruments (such as future contracts/guarantee funds etc.) is another risk factor facing poultry farmers in Nigeria, farmers rely on different traditional coping strategies and risk management techniques.

Utilization of risk transfer measures is expected to boost production as risk transfer measures can be a means of increasing the scale of production and bring about massive production in the poultry sector. This study empirically focuses on determinant of utilization of risk transfer measures among poultry farmers in Ogun state, with the following objectives to

1. determine the different types of risk faced by the poultry farmers;
2. ascertain the risk perception of the poultry farmers;
3. identify the management strategies employed by the poultry farmers for risk reduction;
4. ascertain the determinants of utilization of risk transfer measures by the poultry farmers

Hypotheses of the Study

The following hypotheses stated in null form were tested for the study;

Ho1: There is no significant relationship between management strategies and utilization of risk transfer measures by the poultry farmers.

Ho2: There is no significant relationship between types of risk faced and utilization of risk transfer measures by the poultry farmers.

Materials and Methods

The study was conducted in Ogun State; South West Nigeria. Ogun State consists of twenty local government areas. Ogun State is peopled predominantly by the Egbas, Ijebus, Yewas, Remos and Aworis who belong to the main Yoruba ethnic group. The state has abundant natural resources that include forest and water bodies as well as large quantities of mineral deposits, such as limestone, phosphate, granite stone, gypsum, bauxite, bitumen, feldspar, clay, glass sand, kaolin, quartz, tar sand, gemstones and crude oil are available in commercial quantities. The state is the largest producer of cement in the country. Ogun State is the cradle of education in Nigeria and has very high literacy rate coupled with skilled workforce. The state is divided into four main agricultural zones by Agricultural Development Project namely; Egba, Remo, Ijebu and Yewa zones. These zones were taken as sampling frames for the study. The target population of this study consists of all the registered poultry farmers in Ogun State, Nigeria.

Multi-stage sampling procedure was used for the study. In the first stage, 50%

of the zones were randomly selected from four agricultural zones that make up Ogun State. In the second stage, 40% of blocks were selected from each selected zone. In the third stage 50% cells were selected from the selected blocks each. The fourth stage involved the random selection of 50% of registered poultry farmer's per cell, giving a total of one hundred and eighty-six (186) respondents for this research.

The instrument used to collect data from the respondents was structured interview scheduled while data were analysed using both descriptive and inferential statistical tools . Frequency, mean and standard deviation were the descriptive statistical tools while Pearson Product Moment Correlation (PPMC) was used to analysed the hypotheses.

Results and Discussion

Different Types of Risk Faced by the Poultry Farmers in the Study Area

The mean scores in Table 2 show that fluctuation of input price (1.36) was the major risk faced. This is followed by bird's mortality (1.35), incidence of pest and disease (1.31), and fluctuation of output price (1.22) respectively. The findings of this study agreed with that of Akinola (2014) who identified risk sources in poultry farming to include market, production, political (institutional), disease outbreak and financial risk among others. Obike et al. (2017) noted that risks associated with the poultry farm system's economic environment relate to production, financial, marketing, technological, human, causality and institutional risk.

Table 1 Sampling Size

Study area	No of zone in the state	Selected zones (50%)	No of blocks	Selected blocks from each zone (40%)	No of cells in the selected blocks	50% of cells selected	No of registered poultry farmers	50% of registered poultry farmers selected
Ogun State	4	Yewa	4	Imeko	6	Imeko	25	13
						Ayetoro	55	28
						Sala	10	5
				Sawonjo	8	Sawonjo	25	13
						Igbogila	20	10
						Ibese	10	5
						Imasai	15	8
	Ijebu	6	Isonyin	6	Isonyin	20	10	
					Ogbogbo	25	13	
					Ijebu ode	40	20	
			Ala	5	Ala	15	8	
					Odogbolu	80	40	
					Imosan	25	13	
Total		2	10	4	25	13	365	186

Source: Poultry Association of Nigeria, Ogun State Chapter (PANOG), 2023

Table 2: Distribution by Types of Risk Faced By Poultry Farmers (n=186)

S/N	Types of risk	Always	Sometimes	Never	Mean	Rank
	Natural risk					
1	Erratic rainfall	30.6	54.8	14.5	1.16	6 th
2	Incidence of pest and disease	38.2	54.8	7.0	1.31	3 rd
3	Mortality of birds	37.6	59.7	2.7	1.35	2 nd
	Social risk					
4	Theft by workers	30.1	44.6	25.3	1.05	7 th
5	Theft by non-workers	21.0	46.7	32.3	0.89	9 th
6	Inefficiency of workers	17.2	65.6	17.2	1.00	8 th
7	Lateness in drug and vaccine administration	33.3	50.5	16.1	1.17	5 th
	Economic risk					
8	Fluctuation of input price	40.3	55.4	4.3	1.36	1 st
9	Fluctuation of output price	25.8	70.4	3.8	1.22	4 th
10	Unavailability of input	12.4	62.9	24.7	0.88	10 th

Source: Field survey, 2023

Risk Perceptions of Poultry Farmers in the Study Area

The respondents perceived that; use of modern production techniques is vital in transferring and avoiding risk (4.37), timely administration of drugs and vaccines is an effective measure of overcoming poultry risk (4.33), success in poultry farming is greatly influenced by access to credit by farmers (4.24), relaxation of pen reduces risk of diseases outbreak in poultry farm (4.06), income diversification is a way of mitigating risk that a poultry farmer can experience

(3.98), joint production with other farmers reduces risk impacts on poultry farmers (3.39) and knowledge on risk transfer measure has being clearly made known by extension agent's visit (3.26). Overall, Table 4 shows that over half (55.9%) of the respondents had negative perception of risk of poultry production, while 44.1% had positive perception of risk of the poultry production. This is in line with the findings of Adeyonu et al. (2021) who also indicated negative risk perceptions among poultry farmers in south-west Nigeria.

Table 3: Distribution by Risk Perceptions of Poultry Farmers

Perception statements	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Mean
Use of modern production techniques is vital in transferring and avoiding risk	43.5	52.2	2.7	1.1	0.5	4.37
Knowledge on risk transfer measure has being clearly made known by extension agent's visit	19.4	31.7	13.4	26.3	9.1	3.26
Timely administration of drugs and vaccines is an effective measure of overcoming poultry risk	37.6	58.1	3.8	0.5	-	4.33
Relaxation of pen reduces risk of diseases outbreak in poultry farm	24.7	61.3	10.2	3.2	0.5	4.06
Income diversification is a way of mitigating risk that a poultry farmer can experience.	24.7	59.1	9.1	3.8	3.2	3.98
Success in poultry farming is greatly influenced by access to credit by farmers	(45.2)	43.0	5.9	2.7	3.2	4.24
Farming insurance is an effective way to minimize loss from poultry farming.	6.5	22.0	30.6	29.0	11.8	2.82
Sale of assets is the only way out of risk.	3.8	18.3	32.3	35.5	10.2	2.70
Joint production with other farmers reduces risk impacts on poultry farmers	10.8	47.3	17.2	19.9	4.8	3.39

Source: Field survey, 2023

Table 4: Distribution by Level of Risk Perception

Variable	Frequency	Percentage	Mean	Standard deviation
Negative	104	55.9	33.16	4.18
Positive	82	44.1		

Source: Field survey, 2023

Management Strategies Employed by Poultry Farmers for Risk Reduction

Table 5 reveals the management strategies employed by the poultry farmers for risk reduction in the study area to include: access to credit (1.80), timely administration of drugs and vaccines (1.67), use of modern production techniques (1.54), income diversification (1.42), joint production with other farmers (1.32), visit of extension agent (1.21), relaxation of pen (1.28) and reallocation of labour (1.00). This

indicates that access to credit, timely administration of drugs and vaccines, use of modern production techniques and income diversification are practiced by the poultry farmers for managing associated risks in poultry farming activities in the state. In affirmation, Iheke and Igbelina (2016) however stated that most farmers diversify enterprises and combined marketing and production strategies in tackling poultry farming risk.

Table 5: Distribution by Management Strategies Employed for Risk Reduction

Risk Management Strategies	Major strategy	Minor strategy	Not a strategy	Mean
Visit of extension agent	42.5	36.0	21.5	1.21
Use of modern production techniques	55.9	41.9	2.2	1.54
Timely administration of drugs and vaccines	71.0	25.3	3.8	1.67
Relaxation of pen	37.6	52.7	9.7	1.28
Mitigating				
Income diversification	50.0	41.9	8.1	1.42
Contract farming	10.8	59.7	29.6	0.81
Farm insurance	16.1	44.1	39.8	0.76
Coping Strategies				
Access to credit	81.7	16.1	2.2	1.80
Joint production with other farmers	43.0	45.7	1.3	1.32
Sale of assets	12.9	61.3	25.8	0.87
Reallocation of labour	14.5	71.0	14.5	1.00

Source: Field survey, 2023

Hypotheses of the Study

Hypothesis one: Relationship between Management Strategies and Utilization of Risk Transfer Measures by the Poultry Farmers

Table 6 reveals that significant relationship existed between the management strategies and utilization of risk transfer measures by the poultry farmers at

($p < 0.05$) level of significance. This is an indication that the management strategies influenced their level of utilization of risk transfer measures by the poultry farmers. According to Waweru (2017) positive relationship existed between the management strategies adopted and the utilization of risk transfer measures.

Table 6: Correlation Analysis of Relationship between Management Strategies and Level of Utilization of Risk Transfer Measures by the Poultry Farmers

Variables	R	p value	Remark
Management strategies employed by the poultry farmers for risk reduction	0.482**	0.000	Significant

Source: Field survey, 2023

Hypothesis two: Relationship between types of risk faced and Utilization of Risk Transfer Measures by the Poultry Farmers

Table 7 shows that significant relationship existed between types of risk faced and utilization of risk transfer measures by the poultry farmers ($p < 0.05$).

This is an indication that types of risk faced influenced the poultry farmers' level of utilization of risk transfer measures. Akinbile et al. (2013) reported a direct correlation between types of risk faced and determinants of utilization of risk transfer measures by the poultry farmers.

Table 7: Correlation Analysis of Relationship between types of risk faced and Level of Utilization of Risk Transfer Measures by the Poultry Farmers

Variables	R	p value	Remark
Types of risk faced by poultry farmers	0.230**	0.002	Significant

Source: Field survey, 2023

Conclusion and Recommendations

All decision makers have to deal with risk and uncertainty, with risk being an uncertainty that can be approximated by probabilities and the magnitude of consequences. The study shows that poultry farmers belong to an active labour force. The study concluded that fluctuation of input price, mortality of birds, incidence of pest and disease, fluctuation of output price,

lateness in drug and vaccine administration, erratic rainfall, theft by workers and inefficiency of workers are the major sources of risks encountered by poultry farmers. Timely administration of drugs and vaccines, use of modern production techniques, income diversification are the common risk management practices among the poultry farmers. Generally, about half of the poultry farmers had high level of utilization of risk

transfer measures. It could be concluded that risks and uncertainty situations were highly prevalent among poultry farmers in the study area which exert negative effect on the farmers' output, and hence income.

Based on the above findings, the study recommended that:

1. Poultry farmers should be encouraged by government, non-governmental organizations and development agencies to diversify into other viable income generating activities to increase output and reduce shock of failure,
2. Policies on risk management in poultry enterprise should be targeted at farmers' socio-economic characteristics and risk perceptions so as to enhance the growth potentials of poultry farmers and prevent the collapse of the poultry industry.
3. There should be adequate institutional support in form of credits facilities, sales of day-old chicks, quality feed, vaccines and drugs in government stores to poultry farmers for improved productivity.

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