ISSN: 18158129 E-ISSN: 18151027
Volume 19, Issue 07, July, 2023

Coping Strategies with Rising Feed Costs as a Determinant Factor for Poverty Alleviation among Poultry Farmers in South-West, Nigeria

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ABSTRACT— The recent performance of poultry industry in Nigeria has fallen below expectation due to high cost of feed arising from fluctuations in rising prices of ingredients, and inefficiency in production. This study is aimed at analysing the effect of coping strategies with rising feed costs as a determinant factor for poverty alleviation among poultry farmers in south-West, Nigeria. The study employed a quantitative research approach using a survey research design. Multistage sampling procedures were used in selecting three states (Lagos, Ogun, and Oyo) from South-West zone in Nigeria. In the second stage, 575 poultry farmers from all Poultry Association of Nigeria zones were selected using simple random sampling technique. Data were collected using structured questionnaire, and analyzed with the use of descriptive and inferential statistics. The results of the study showed that the adopted strategies used by the farmers were Use of Finished Feed (24.70%), Mixed Farming (48.00%), Downsizing of Flock Size (16.10%), No Change of Strategies (6.20%), Verge of Exiting the Venture (5.20%). It was observed that majority (70.7%) of the poultry farmers were living below the poverty line (₦48,500/month) which was estimated using mean per capita household monthly expenditure while 29.3% of them were living above the poverty line. The result also shows that an increase in the coping strategies will lead to 80% decrease of poverty level of the poultry farmers in the study area. The study therefore concluded that farmers should adopt the most suitable coping strategy available to reduce the effect of rising feed cost.

KEYWORDS: Livelihood nexus, Logit regression, Mixed farming, Poverty measures

1. INTRODUCTION

Agriculture is the main stay of sub-Sahara African countries where it accounts for 25-40% of total GDP and there has been a steady small increase in its contribution to Nigerian economy [1]. This is could be due to the level of poverty among the participants in this industry. In Nigeria, the poultry industry contributes 25% to Nigeria's agriculture GDP in 2019 [2]. The poultry sub- sector in Nigeria has suffered a gross neglect and hence its potential to lift majority of peasants out of poverty has almost been completely eroded [3]. The recent performance of poultry industry in Nigeria has fallen below expectation due to high cost of feed arising from fluctuations in feed supplies, rising prices of ingredients, poor feed ingredients and inefficiency in production [4]. The cost of production may be too high, hence the enterprises are not profitable [5].

Statistical evidence showed that the rate of poverty in Nigeria has persistently been on the increase. According

to the official figures published by the National Bureau of Statistics (NBS), the incidence of poverty in Nigeria between 1980 and 2010 rose from 27.2 percent to 69.0 percent. According to NBS [1], forty percent of the people in Nigeria lived below its poverty line of 137,430 naira ($381.75) a year and this represents 82.9 million people. The World Bank [6], revealed that almost half of the Nigerian population is living below the international poverty line of ($2 per day) while unemployment peaked at 23.1%. Poverty level is however; higher in the rural areas when compared to the urban areas and most of the rural dwellers are small scale farmers that depend on agriculture for food and income [3], [7]. There is no gain saying that the Nigerian poverty livelihood nexus needs urgent attention. Poverty has been a global issue of many dimensions and complexities, a long-standing quagmire among the estimated world's 6.9 billion people with varying rate of occurrence from one part of the world to another [8]. Poverty has been seen as a multidimensional and multifaceted phenomenon and one of the major problems against development [9].

According to Worldwide Poverty Clock [10], the June report of 2018 indicated that 86.9 million people in Nigeria spend less than 1.90 USD per day and while by February 2019, there was an addition of over 3 million people that slipped into poverty making over 91 million Nigerians (people) live in extreme poverty. Compared to some other African countries, Nigeria has the largest proportion of people living in extreme poverty (86.9) million while Tanzania, Kenya, South Africa and Zambia have about 19.9 million, 14.7 million, 13.8 million and 9.5 million people respectively living in extreme poverty.

Studies has found out that poverty is most severe in the rural areas where all kind of farming activities are carried out with about 80 percent of the population lives below the poverty line, and social services and infrastructure are limited [11], [12].

This study therefore examined the effect of coping strategies with rising feed costs as a determinant Factor for poverty alleviation among poultry farmers in South-West, Nigeria

2. METHODOLOGY

The study employed a quantitative research approach using a survey research design.
This study focused on South west Nigeria, a region that is part of the six geopolitical zones in the country. South west Nigeria includes the states of Ekiti, Ondo, Osun, Ogun, Oyo, and Lagos. According to the National Population Commission's 2012 report, the region has a population of 38,257,260 people.

2.1 Method of Data Collection

The study population for this research is made up of layer's poultry farmers from the Poultry Association of Nigeria (PAN) of three selected Nigerian states of Ogun, Oyo, and Lagos.

Table 1 shows the zonal structure of the Poultry Association of Nigeria in the three selected states.

Table 1: PAN Zonal Structure of the 3 states

State	Zones
Lagos	Agege, Alimosho, Badagry, Epe, Etiosa, Ikorodu and Ojo
Ogun	Egba, Ijebu, Mowe, Remo, Otta and Yewa
Oyo	Ibadan II, Oyo, Ogbomoso, Ibadan I and Oke-Ogun

2.2 Sample size and sampling Technique

The farmers population was gotten from the registered layer's poultry farmers in the various PAN zones in

ISSN: 18158129 E-ISSN: 18151027
Volume 19, Issue 07, July, 2023

the selected states
The number of registered poultry farmers in each state is as follows:

1. Ogun State: 430 registered poultry farmers
2. Oyo State: 363 registered poultry farmers
3. Lagos State: 321 registered poultry farmers

The total number of registered poultry farmers across the three states is 1,114 (430 + 363 + 321).

The Yamane (14) formula was used to determine the sample size.
The formula is given as:
$n= N/[1+N(e)^2]$
The study utilized a multistage sampling procedure to select the poultry farmers. The sampling process was carried out in three stages:
Purposive Selection of States: The first stage involved the purposive selection of three states (Lagos, Ogun, and Oyo) out of six states in the region. This selection was based on the high concentration of poultry farmers in these states, making them suitable for the study.

Purposive Selection of Poultry Association Zones: In the second stage, all poultry association zones in each of the selected states were purposively chosen. This ensured that the study covered a wide range of poultry farming practices and associations within the selected states.

Random Selection of Poultry Farmers: The final stage involved the random selection of 575 poultry farmers from the eighteen poultry association zones across the three states.

This random sampling aimed to provide a representative sample of poultry farmers in the region. Table 2 shows the sampling procedure for the selection of the poultry farmers.

Table 2: Sampling procedure for the selection of the poultry farmers.

State	PAN Zones	Population of Layer's Poultry Farmers	No of Sampled Layer's Poultry Farmers	No of Questionnaire Distributed	No of Questionnaire Retrieved and Completely Filled
Lagos	Agege	40	24	24	18
	Alimossho	38	21	21	22
	Badagry	32	20	20	16
	Epe	54	26	26	21
	Etiosa	35	20	20	20
	Ikorodu	64	37	37	33
	Ojo	58	30	30	25
	Sub Total	**321**	**178**	**178**	**153**
Ogun	Egba	84	42	42	35
	Ijebu	70	35	35	32
	Mowe	62	28	28	21

	Remo	80	42	42	41
	Otta	70	32	32	32
	Yewa	64	28	28	30
	Sub Total	**430**	**207**	**207**	**191**
Oyo	Ibadan I	75	41	41	39
	Ibadan II	70	36	36	30
	Ogbomosho	64	31	31	27
	Oke-Ogun	69	36	36	35
	Oyo	85	46	46	40
	Sub Total	**363**	**190**	**190**	**171**
Total		1,114	575	575	515

However, after interviewing the 575 selected poultry farmers, only 515 responses were considered useful for the analysis.

2.3 Method of Data Analysis

The analytical tools to be employed in this study were descriptive and inferential statistics. The descriptive statistical and inferential statistics Mean Per Capita Household Expenditure (MPCHE), was used to estimate the poverty line of the poultry farmers while Logistic Regression Model was used to analyzed the effect of coping strategies on poverty level in the study area.

2.4 Poverty Measures:

Poverty line was constructed to classify the household into poor and non-poor. Monthly income was used as the proxy for standard of living. In order to calculate per capita household monthly expenditure, household total monthly income was divided by household size, while the mean per capita household monthly income was calculated by dividing total per capita household monthly income by total number of household size.

$$\text{Mean PCHHE} = \frac{\text{Total Per Capita Household Expenditure of households}}{\text{Total number of households}} \quad \ldots\ldots(1)$$

In line with Obayelu, (15), two-thirds of monthly Mean PCHHE was chosen as the poverty line. The non-poor threshold is the region that is greater than two-thirds of MPCHHE, while the moderately poverty line ranges from one-third to two-thirds of MPCHHE, the core poor threshold is the region less than one-third of MPCHHE. This study therefore partitions the respondent poultry farmers to non-poor, (those above the two-thirds of household monthly mean per capita expenditure), and poor (those below two-thirds of MPCHHE). The MPCHHE was obtained from poultry farmers expenditure on food, housing, health and transportation.

2.5 Analysis of the Effect Coping Strategies on the Level of Poverty among Poultry Farmers

Logit regression was adopted to analyse the effect of price of feed on the level of poverty among the poultry farmers

The model is specified as

$$Y_i = \gamma_0 + \sum \gamma_j x_j + \varepsilon_j \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

$$Y_i = \gamma_0 + \gamma_1 cs\ \gamma_2 age + \gamma_3 sex + \gamma_4 hhs + \gamma_5 edu + \gamma_6 farsize + \gamma_7 coopmem + \gamma_8 marital + \gamma_9 ext.visit + \gamma_{10} acccredit + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

ISSN: 18158129 E-ISSN: 18151027
Volume 19, Issue 07, July, 2023

Where:
Y_i = Poverty Level [Poor = 0, Non-poor = 1]
Age = Age of the Poultry Farmers [in years]
Sex [Male = 1, Female = 0]
Hhs = Household Size [Number]
Numyrsedu = Educational Status [in years]
Farsize = farm size [hectare]
Coop Mem = Cooperative Membership [yes = 1, no = 0]
Accredit = Access to credit [Access to credit = 1, no access to credit = 0]
Marstatus = Marital status [Married = 1, single = 0]
Extvisit = Extension visit [Number of visit per year]
ε_i = Random term

3. RESULTS AND DISCUSSION

Table 1 Presents the Various Strategies Poultry Farmers Adopted in Response to the High Price of Feed.

It is important to note that different farmers opted for different coping strategies based on their unique circumstances and resources available to them. The strategies observed in the study are as follows:
No change of strategy (5.2%): A small proportion of the poultry farmers (5.2%) did not adopt any strategy in response to the high price of feed. This could be due to various reasons, such as lack of awareness, resources, or alternative options.

Use of finished feed (24.7%): Approximately a quarter of the poultry farmers (24.7%) switched to using finished feed to cope with the high price of feed. Finished feed is a complete and balanced feed product that can potentially help farmers reduce feed costs and improve efficiency.

Mixed farming system: A large (47.8%) percentage of poultry farmers adopted a mixed farming system, integrating crop production or other livestock into their operations. This approach can help farmers diversify their income sources, reduce feed costs by utilizing farm-produced feed ingredients, and enhance overall farm resilience.

Downsizing flock size: Downsizing (16.1%) was another strategy adopted by poultry farmers to reduce their flock size, which may help lower feed costs and make it more manageable for them to maintain their operations amidst high feed prices.

Verge of Exiting the poultry business: Some farmers (6.2%) chose verge of exiting the poultry business altogether as a way to cope with the high price of feed. This decision can be a difficult one, but in some cases, it may be the most viable option for farmers facing significant financial stress due to high feed costs thereby allocating resources met for poultry venture to other ventures.

Table 3 Poultry Farmers Strategies for Coping with High Price of Feed

	Frequency		Percent	
	Yes/No	Total	Yes/No	Total
No change of strategy	27.0/488	515	5.2/94.8	100.0
Use of finished feed	127.0/388	515	24.7/75.3	100.0
Engagement in mixed farming	246.0/269	515	47.8/52.2	100.0
Downsizing of flock size	83.0/432	515	16.1/83.9	100.0
Verge of Exiting the poultry business	32.0/483	515	6.2/93.8	100.0

Field Survey 2022

3.1 Poverty Level of the Poultry Farmers

Table 4 shows the poverty level of poultry farmers during the period of high cost of feed. It was observed that majority (70.7%) of the poultry farmers were living below the poverty line (₦48,500/month) which was estimated using mean per capita household monthly income while 29.3% of them were living above the poverty line. This shows the high cost of feed had a negative impact on the poultry farmers. This could affect the sustainability of of the poultry industry because most farmers may be either force to opt out or reduce their flock size. Consequently, this will reduce it contribution to GDP, reduce unemployment and increase the poverty level of the populace. This is line with the findings of Central Bank of Nigeria [2] which found that the poultry industry contribute about 25% to the GDP in 2019, while according to [3], the poultry sub- sector in Nigeria has suffered a gross neglect and hence its potential to lift majority of peasants out of poverty has almost been completely eroded.

Table 4: Poverty Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non Poor	151	29.3	29.3	29.3
	Poor	364	70.7	70.7	100.0
	Total	515	100.0	100.0	

Field Survey 2022

3.2 Analysis of Coping Strategies on Poverty Level of Poultry Farmers

The coping strategies, educational status, household size, farming experience and access to credit were found to be significant factors affecting the poultry farmers poverty level. This result shows that an increase in the coping strategies may lead to 80% decrease of poverty level of the poultry farmers in the study area. This finding is in accordance with the findings of [16] who opined that there is a negative relationship between coping strategies adopted and food insecurity.

The level of education have been found to be an important variable in the poultry industry. The educational status of the poultry farmers was found to be significant with a negative coefficient. Owing that if the level of poultry farmers should increase, there is a possibility of reducing their poverty level by 7.7%. This findings is in line with the findings of [17] who viewed educational status as a variable which has direct impact on productivity, growth and which is essential to improve human capital.

The household size was also found to be a significant variable with a positive coefficient. This means that as the household size increases, the poverty level may increase by 6.6%. This could be attributed to the fact that the farm resources maybe expended on too many people.

Farming experience was also a significant influencing the poverty level of the poultry farmers. The negative coefficient shows that farming experience was had an inverse relationship with poverty level of poultry farmers, owing a one percent increase in farming experience will lead to 0.6% reduction on the poverty level of the poultry farmers.

Table 5: Analysis of Coping Strategies on Poverty Level of Poultry Farmers

	Coefficient	Std. Error	t

ISSN: 18158129 E-ISSN: 18151027
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(Constant)	.371**	.151	2.457
COPING STRATEGIES	-.801***	.172	-4.657
SEX	.043	.039	1.099
AGE	2.592E-5	.002	.015
MS	.021	.028	.75
EDU	-.077***	.013	-5.923
HHS	.066***	.011	5.917
FARM SIZE	8.691E-7	.000	.538
COOP	.033	.041	.817
EXP	-.006*	.004	-1.748
ACCESS TO CREDIT	-.134***	.033	-4.018
$R^2 = 0.531$			
Adj. $R^2 = 0.714$			
F = 7.588			

Field Survey 2022

4. CONCLUSION

The poultry farmers adopted various strategies ranging from no change of strategy to the high price of feed, use of finished feed as a method of reducing price, engagement in mixed farming system, downsizing the flock size, to farmers that are at the verge of exiting the poultry business.

The poverty line (₦48,500/month) was estimated using Mean Per Capita Household Expenditure poverty measures. About 71% of the poultry farmers were found to be living below the poverty line estimated from the study. This could be a threat to the poultry industry in the study area.

Coping strategy was found to be the major determinant in the regression model for the determinant of poverty level among poultry farmers. The result shows an inverse relationship between the coping strategies and poverty level of the poultry farmers, likewise education, farming experience and access to credit were found to be inversely related to poverty.

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