

Impact of Microfinance on Small-Scale Poultry Production in Delta State, Nigeria

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Abstract: *This study was carried out to determine the impact of microfinance on small-scale poultry production in Delta State. A multi-stage sampling technique was used in obtaining the data from the field. Purposive sampling technique was used to select twenty (20) communities where poultry farming is prevalent. Two villages were randomly selected from each of the communities. Then seven (7) poultry farmers were randomly selected from each of the villages with the assistance of the livestock unit of the Ministry of Agriculture and the help of village head. Therefore, a total of two hundred and eighty (280) respondents were used for the study. Data for this study was collected from primary and secondary sources. The primary sources are from questionnaire and extension personnel's. The secondary sources are from textbook, journals and publications of past studies. Result of the analysis indicated that 92% of the farmers were below 60 years of age while the average age was 46 years. This implies that these farmers were within the active working age bracket. Again 30% of these farmers were 40 years old and below. These are particularly young people who could afford to venture into the poultry business which is known to be characterized by risks such as disease, fire outbreak and theft. About 68.0 percent of the poultry farm operators had up to 10-year poultry keeping experience while the average period of poultry keeping experience was 8 years. About 15.0 percent of the poultry farmers had no formal education while 60 percent had up to secondary school education. Linear regression model was used to identify the effect of credit use by the poultry farm operators. It measured the parameters of the conditional probability of having access to the required level of funds and the marginal charge in explanatory variables into with loan and without loan. The regression parameters and diagnostic statistics were estimated using the maximum likelihood estimation (MLE) technique (Table 3). Results showed that seven out of the ten included regressor had significant influence on the poultry productivity. The signal square (O2) value was 33.141, with a p-value of less than 0.01. Hence, statistically significant, thus indicating that the model displays a good fit. The variable that had significant co-efficient are gender (x_2), household size (x_3), educational level (x_4) feed (x_7), veterinary services (x_8) source of credit (x_9) and amount borrowed (x_{10}). It should be noted that a positive value tend to increase the likelihood of credit impact on poultry productivity. Similarly, a negative value of a co-efficient implied that higher values of the variables would reduce the probability of credit impact on the poultry productivity. Specifically of credit impact on poultry productivity was highest for household size (7.024) and least for farm age (0.088), implying that increasing poultry farm labour through harnessing of family labour was the most desirable. Also, in the same category is the coefficient of variable feed (x_7) which is significant at 1% level. This had a direct bearing on policy formulation as good quality and sufficient feeds were requires for good performance of poultry birds. Hence, good quality feed should attract topmost importance on the priority list of the investors in poultry business. The probability level 7.021 associated with. This result is expected and point to the positive impact of microfinance on poultry productivity. However, while extension and education variable had significant inverse relationships with poultry productivity, household size, feeds, source of credit and gender variables show direct relationships with poultry productivity. A group discussion carried out with the farmers revealed that most of the male farmers came in contact with the extension agents who in most cases failed to deliver the information needed by them. In addition, the women and children who were mostly responsible for the rearing of the poultry were mostly left out of extension plans. This might have contributed to the negative sign of the extension variable. The negative sign of the education variables may be due to the fact that the higher the level of education of the farmers, the more likely they out migrate in search for better placed employment. Credit availability is very significant in poultry production. The farmers need credit to buy feeds and pay for veterinary services.*

I. Introduction

A number of studies have been carried out on the impact of microfinance on agricultural development, academic interest that shows the impact of microfinance on agricultural development is evidenced that some academic journals have devoted special issues to research establish this linkage. Some school focused on the mechanism by which poultry is reduced. Copestake (2001) stated that income is critical to the development of a firm or household production. Evans and Adams (2009) seek to explain non-participation in the microfinance evolution stating that while microfinance is used as a viable tool in fighting poverty, more than 75% of the poor

individuals choose not to participate for various reasons. Ryne and Hatt (2004) provided a meta-analysis of microfinance and focuses on women empowerment, intending to show why various studies conflict in their conclusions as to the impact of microfinance on women empowerment. Parker (2001) evaluated the actual microfinance programmes in china using three key measures (targeting, sustainability and overall impact). Thus, both research and practice have seen an increasing concern about the impact of microfinance on development. In spite of this emphasis, none of these research provided sufficient justification for the link between microfinance and small-scale poultry business in developing countries. Beside, the empirical evidences emerging from few studies on the effect of microfinance on small scale poultry production have so far yielded mixed result that are inconclusive, backyard/household production is the largest system of poultry production and critical source of income and nutrition for poor household. In Ghana, for example, rural poultry accounts for 60-80 percent of the national poultry population (Aning, in FAO, 2006).

Objective of the Study

The main aim of this study is to determine the impact of microfinance on small-scale poultry production in Okpe Local Government Area

Specific Objective

1. Identifying the socio-characteristic of small-scale poultry farmers benefiting from microfinance in the area.
2. Determining the volume of credit obtaining from microfinance banks by poultry farmers in the area.
3. Evaluate the effect of micro credit and farmers socio-economic characteristics on poultry production in Okpe L.G.A
4. Making policy recommendations based on research findings.

Research Hypothesis

Ho: There is no significant relationship between microfinance and small-scale poultry business in Okpe Local government Area.

Significance of the Study

The importance of microfinance cannot be over emphasized, especially in a country like Nigeria which is characterized with small scale enterprise (Small scale poultry).

II. Research Methodology

The study was carried out in Delta State. It is among the thirty six (36) state in Nigeria central District. Delta State does not have extreme weather conditions the annual rainfall and temperature are 180mm annual 31°C (87.8 °F) respectively, the rainfall is seasonal and has double range between June, July and September, October. This is suitable for the production of most crop are adapted to the ecological zone of the main forest. The study area is predominated agrarian and rural; the farmers are mainly small-scale producers depending solely on the use of land and local method. The major farm operation are crop production comprising of cassava, maize, oil palm vegetable etc, livestock production comprising of poultry chicken production, pig production, goat production and fishery production.

Population of the Study Area

The population of the study area consists of the entire small-scale poultry production in Okpe Local Government.

Sampling Procedure

A multi-stage sampling technique was used in obtaining the data from the field. Purposive sampling technique was used to select twenty (20) communities where there are prevalent poultry farmers. A total of four villages were randomly selected from each of a list of livestock farmers developed with the help of the village head. Therefore, a total of three hundred and twenty (320) farmers were sampled for the study but data from two hundred and eight respondents (280) were used for the purpose of the analysis, since emphasis was placed on those farms that kept fairly good and accurate records of their operations.

The farmers were divided into two group: farmers that took loans (whether from formal or informal sources) for poultry production and the farmers that did not. Information was sought on the socioeconomic characteristic of the poultry farmers such as age, farm size, feeds gender, veterinary services, educational background, output, experience and household size of the farmer among others, their source and level of access to credit etc.

Method of Data Collection

The data for this study was collected from primary and secondary sources. The primary sources are from questionnaire and extension personnel. The secondary sources are from textbook, journals and F.A.O publications of past studies.

Method of Data Analysis

The Model Specification

The study used quasi-experiments to assess the impact of credit on livestock productivity. The quasi-experiment involved selection of respondent who willingly sort for credit and compared them with those who did not obtain any form of loan for livestock production who have similar observable biophysical and socio-economic characteristics. Since the dependent variable, credit or no credit is of an ordinal nature, an ordinal regression model (Zavonia and Mc Elvey, 1975), was used for the analysis

$$Y_i^* = B x_i + E_i \text{----- (1)}$$

Where Y_i^* is the underlying latent variable that indexes the credit access that a poultry farmers experience, x_i is a vector of explanatory variable, B is a column vector of parameter to be estimated, and B_i is the stochastic error term. The latent variable exhibits itself in ordinal categories which could be coded as 1, 2, 3 ----- J. the probability for each of the observed ordinal response, which in our case had only two categories (1,2) for credit access, no credit access until be given as.

$$P(Y=1) = P(Y^* \leq 1) = P(B x + \xi \leq 1) = F(-B \cdot x)$$

$$P(Y=1) = F(\sigma_2 - B \cdot x) \text{----- (2)}$$

Where F is the cumulative distribution function (CDF) for the stochastic error term E .

III. Results and Discussions

Result of the analysis indicated that 92% of the farmers were below 60 years of age (Table -2) while the average age was 46 years. This implies that these farmers were within the active working age bracket. Again 30% of these farmers were 40 years old and below. These are particularly young people who could afford to venture into the poultry business which is known to be characterized by risks such as disease, fire outbreak and theft. About 68.0 percent of the poultry farm operators had up to 10-year poultry keeping experience while the average period of poultry keeping experience was 8 years. Expectedly, the more the numbers of years of experience in poultry keeping, the better the ability to manage the poultry business well. Case of disease attack, fire outbreaks, poor feed quality and pilferage should be better handled by experienced poultry farmers. With better handling of production resource in poultry, there should be a higher level of production in the poultry farmers.

About 15.0 percent of the poultry farmers had no formal education while 60 percent had up to secondary school education (table-2) on the whole, poultry farmers need to have good education on poultry keeping so that they are able to properly harness all available resource to the advantage of production process. With this, the level of production per poultry farm will increase. Knowledge about the latest research efforts in the affect the prevention of communicable disease such as avian influenza is necessary for effective performance and increased productivity of the poultry industry.

Eighty-nine (89) percent of the poultry farmers had up to 9 household members. The average household member was however 7. this implies that the poultry farm operators in Okpe Local Government in Delta state generally had a large firmly size. The family might be exploited as cheap source of labour for the poultry farms. However, large family size might be a drain for business profit, as household expenditure, particularly on consumption, is high. This basically explains why most small-scale farms close down when they could no longer provide the required funds for their smooth operation. Fifty-five (55) percent of the small-scale poultry farms operators source their finance internally from co-operative societies (table-2). Lack or limited collateral securities, however, made it difficult to obtain bank loans as only 10.71 percent could secure bank loans. Some poultry farmers, sourced finance from a combination of personal savings, bank loans and co-operative society loan. Internal sourcing of finance from owners' equity (Personal savings) is constrained, as most of the poultry farm operators had a weak financial base. Additional source of finds are therefore required for the poultry operators to sustainable solidify their finance base with assured increased output level.

Table 1: socio-economic characteristic of respondents

Characteristic	Frequency	Percentage
Age of poultry farmer (years)		
20-30	45	6.7
31-40	67	22.7
41-50	116	37.2
51-60	37	25.0
> 60	15	8.3

mean age =46		
Source of credit		
Personal savings	154	55.0
Co-operative	56	20.0
Banks	30	10.7
Friend and relatives	28	10.0
Money lenders	12	4.29
Household size		
1-4	64	22.85
5-9	187	66.78
10-14	19	6.78
≥	10	3.57
Marital status		
Married	241	78.3
Single	39	6.11
Educational status (years)		
No formal education	42	15.00
1-6	60	21.42
7-9	168	60.00
10-12	6	2.44
≥ 13	4	1.44
Means = 7		
Experience (years)		
1-5	27	9.64
6-10	163	58.21
11-15	19	6.79

Source: field survey 2012. N=280

Determinant of credit use on poultry productivity

Linear regression model was used to identify the effect of credit use by the poultry farm operators. It measured the parameters of the conditional probability of having access to the required level of funds and the marginal charge in explanatory variables into with loan and without loan. The regression parameters and diagnostic statistics were estimated using the maximum likelihood estimation (MLE) technique (Table 3). Results showed that seven out of the ten included regressor had significant influence on the poultry productivity. The signal square (O2) value was 33.141, with a p-value of less than 0.01. Hence, statistically significant, thus indicating that the model displays a good fit.

Table 2: Linear regression model explaining the determinants of credit on poultry productivity.

Variable	Marginal probability	Standard error
Age (x ₁)	0.088	0.778
Gender (x ₂)	7.021*	0.023
Household size (x ₃)	7.264*	0.004
Educational level (x ₄)	4.953*	0.028
Experience (x ₅)	1.084	0.217
Extension vision (x ₆)	3.447	0.063
Feed (x ₇)	6.342*	0.016
Veterinary service (x ₈)	4.462*	0.35
Source of credit (x ₉)	5.249*	0.064
Amount borrowed (x ₁₀)	6.543*	0.047

Source: field survey 2012, chi square value = 33.141p<0.01 sig at 5%,

The variable that had significant co-efficient are gender (x₂), household size (x₃), educational level (x₄) feed (x₇), veterinary services (x₈) source of credit (x₉) and amount borrowed (x₁₀). It should be noted that a positive value tend to increase the likelihood of credit impact on poultry productivity. Similarly, a negative value of a co-efficient implied that higher values of the variables would reduce the probability of credit impact on the poultry productivity. Specifically of credit impact on poultry productivity was highest for household size (7.024) and least for farm age (0.088), Implying that increasing poultry farm labour through harnessing of family labour was the most desirable.

Also, in the same category is the coefficient of variable feed (x₇) which is significant at 1% level. This had a direct bearing on policy formulation as good quality and sufficient feeds were requires for good performance of poultry birds. Hence, good quality feed should attract topmast importance on the priority list of the investors in poultry business. The probability level 7.021 associated with the relationship between sex of

household lead and credit impact on poultry productivity implied that *ceteris paribus*, the probability that the poultry productivity of a particular household will be above any given level, 7.0 times higher for a male led household than for a female led household. This can be explained by the fact that culturally in, southwestern Nigeria; men own and have more access to resource than women.

This result is expected and point to the positive impact of microfinance on poultry productivity. However, while extension and education variable had significant inverse relationships with poultry productivity, household size, feeds, source of credit and gender variables show direct relationships with poultry productivity. A group discussion carried out with the farmers revealed that most of the male farmers came in contact with the extension agents who in most cases failed to deliver the information needed by them. In addition, the women and children who were mostly responsible for the rearing of the poultry were mostly left out of extension plans. This might have contributed to the negative sign of the extension variable. The negative sign of the education variables may be due to the fact that the higher the level of education of the farmers, the more likely they out migrate in search for better placed employment. Credit availability is very significant in poultry production. The farmers need credit to buy feeds and pay for veterinary services.

Table 3: Multiple regression estimate of factors affecting poultry Productivity

Factors	Respondents with credit (n =120)	Respondent without credit (n = 160)
Age	2122.72(2.01)	463.42(0.57)
Household size	1544.68*(3.27)	1846.75*(3.52)
Educational level	-1756.18*(2.18)	-1275.41*(0.98)
Experience	1725.0(1.89)	1312.0(0.62)
Extension	-5978.01*(2.19)	-6632.00(2.74)
Feed	28.15*(2.06)	11.28(1.96)
Veterinary service	0.31(3.46)	0.27(1.87)
Source of credit	0.27*(3.60)	0.068(1.02)
Gender	0.11(0.21)	0.036(0.31)
Constant	14292.75	37481.32
Adjusted R ²	77.68	68.78
f.ratio	56.6947	42.3621

Source: field survey 2012 * sign at 5%, Values in the bracket are the t. values.

Summary, Conclusions and Recommendations

This study was carried out to determine the effect of microfinance on small-scale poultry production in Okpe Local Government Area of Delta State.

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The model also met the assumption that requires that parameters in the subsequent equations are the same. The variable that had significant co-efficient are gender (x_2), household size (x_3), educational level (x_4) feed (x_7), veterinary services (x_8) source of credit (x_9) and amount borrowed (x_{10}). It should be noted that a positive value tend to increase the likelihood of credit impact on poultry productivity. Similarly, a negative value of a co-efficient implied that higher values of the variables would reduce the probability of credit impact on the poultry productivity. Specifically of credit impact on poultry productivity was highest for household size (7.024) and least for farm age (0.088), implying that increasing poultry farm labour through harnessing of family labour was the most desirable.

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The result of the multiple regression model estimates shows on table 3 that six of the nine variables included in the model were significant for farmers without credit. The result showed that age, experience was not significant for both group. The non credit group had in addition the co-efficient of variable age, feed, veterinary services and gender not significant. The result for the farmers without credit are poor, this could be an indication of inefficient use of the available resource and inability to acquire additional capital indicated that they are resourcefully efficient than their counterpart producing without credit.

This result is expected and point to the positive impact of microfinance on poultry productivity. However, while extension and education variable had significant inverse relationships with poultry productivity, household size, feeds, source of credit and gender variables show direct relationships with poultry productivity. A group discussion carried out with the farmers revealed that most of the male farmers came in contact with the extension agents who in most cases failed to deliver the information needed by them. In addition, the women and children who were mostly responsible for the rearing of the poultry were mostly left out of extension plans. This might have contributed to the negative sign of the extension variable. The negative sign of the education variables may be due to the fact that the higher the level of education of the farmers, the more likely they out migrate in search for better placed employment. Credit availability is very significant in poultry production. The farmers need credit to buy feeds and pay for veterinary services.

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Recommendations

In terms of the effect of this work on policy change of the government, it is recommended that microcredit facilities should be continuously made available to poultry farmers, so as to enable them acquire more modern poultry farming inputs which could lead to increase productivity. The amount of microcredit facilities provided should be increased so as to increase productivity. The processes involved before securing the credit facilities need to be reduced especially the long bureaucratic process. Microfinance programmes should be extended to all rural communities in the State where the bulk of farming is done, so as to accelerate the reduction of poverty among rural dwellers.

Government should evolve policies that will facilitate availabilities of poultry farm inputs and protection of microfinance institutions in rural communities since it has proved to be a poverty alleviation tool. To effectively harmonize the full advantages of micro-credit from micro financing for poultry production and agriculture, there is the need for the formal and informal institutions to collaborate with one another as partners. They both must also seek the cooperation of the International Agencies and Donors. The informal institutions including the Non-Governmental Organizations have played a creditable role and they needed to be further encouraged.

Government should expand their social responsibilities to farmers, particularly in the rural areas. Also, microfinance programmes must be broadened and empowered to be more proactive in economic activities of the poor, and also in the management of disasters affecting micro-credits beneficiaries. Microfinance banks can offer small initial loans to farmers by starting with very small loans appropriate for meeting day to day financial requirement of micro enterprises like small-scale poultry production and motivate repayment by offering larger loans as incentives for repeat customers. Microfinance banks should be located close to entrepreneurs (in small scale industrial estates, villages etc). Select staff from local communities, including people with lower levels of education (and salaries) rather than from staff in formal banks. Locate where there is a critical mass of client in order to reduce transaction costs. Micro-finance programs reach sustainability in part by making large volume of loans. They should limit the time between loan application and disbursement. Since the majority of micro-loans are for working capital, speed is ideal for borrowers and saves administrative costs for lending institutions. Poultry farmers should be

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