

## **MULTIPLIER EFFECT OF MICRO CREDIT INVESTMENT AMONG SMALL SCALE POULTRY AGRIBUSINESS ENTREPRENEURS IN DELTA STATE, NIGERIA**

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*Accepted: 16 April 2011*

### **ABSTRACT**

**Financial injection, through credit program is expected to result in a proportional increase in saving and investment of beneficiaries. The multiplier measures the size of the carry-through effect of credit. It is important to investigate the multiplier effect of micro-credit so as to justify credit program in the poultry industry. This study was undertaken to examine the multiplier effect of micro credit among small scale poultry farmers in Delta State. A well structured questionnaire was used to collect primary data from randomly selected sixty (60) poultry entrepreneurs. The data gathered were analyzed using descriptive statistics, and regression model. The study revealed that a 14% change in the consumption (expenditure) of the poultry entrepreneur correlated with income without obtaining micro credit. After obtaining micro credit, the consumption (expenditure) of the poultry entrepreneur increased by 62%. Also, it was revealed that 33% change in savings correlated with access to micro credit as against 6% save. The result revealed an overall multiplier effect of 72%. It was recommended among others that government and credit institutions should facilitate the delivery of micro credit to the rural poultry farmers to catalyse the growth in the poultry subsector.**

*Key words:* Multiplier, microcredit, small scale, agribusiness, entrepreneur

### **INTRODUCTION**

Capital formation through credit could stimulate growth in the poultry industry. It can boost the purchasing power of farmers and plays an important role in the welfare of the farmers and the national economy at large. Modernization of the poultry sector through credit is essential and this depends heavily on the productivity of credit among poultry farmers. One strategy for developing this sector is the provision of financial assistance to small-scale farmers in the form of micro-credit. Micro credit can be defined as small loans, or money given to small scale farmers, or entrepreneurs to enable them start new agribusiness and expand existing once. Micro credit has been referred to as a catalyst or an investment multiplier for sustainable development. An investment multiplier is defined as the ratio of the change in income due to change in investment (Dwivedi 2010)

Poultry production represents one of the alternatives to food security and poverty alleviation

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(Gueye 2008). However, according to Gueye and Van Hooft (2002), most of the conditions required by the poultry sub-sector to perform effectively are not met adequately. Prominent among such requirements are the ability to purchase improved inputs such as feeds, vaccines, drugs and equipment and hire highly skilled man power. This implies that the purchasing power of poultry farmers must receive a boost for effective performance. Achieving this goal will require credit facilities. Hence it is assumed that credit facilities will improve the purchasing power of the poultry farmers and this can in turn translate directly or indirectly to development in the poultry sub-sector and national economy in general. The above assertion has been verified by Nudamatiya et al (2010). They investigated the impact of micro credit on the income of the beneficiaries and revealed that 53% of change in the farm income of credit beneficiaries was attributed to the amount of credit accessed and invested. An important research objective that is worthy of investigation is therefore the analysis of multi-

plier effect of micro-credit among poultry agribusiness entrepreneurs in Delta State, Nigeria.

The Specific objectives were: 1. to ascertain the marginal propensity to consume (MPC) inputs of the poultry farmers before and after obtaining credit. 2. to determine the marginal propensity to save (MPS) of the poultry farmers before and after obtaining credit. 3. to compare multiplier index of micro credit before and after accessing credit by poultry farmer in the study Area.

**Research hypothesis:**  $H_0$ : Amount of credit accessed does not have significant multiplier effect on the income and expenditure capacity of poultry entrepreneurs in the study area.

## MATERIALS AND METHODS

**The Study Area, Sampling procedure and Data collection Techniques:** The study was carried out in Delta state. It has twenty-five (25) local Government area. This location was chosen for the study due to a high population of poultry agribusiness entrepreneurs in the area. The poultry industry is very relevant in the economy of Delta State, in terms of employment creation, income generation, food security and poverty reduction. Hence it is assumed that credit intervention program will create a multiplier effect on the poultry industry and Delta State in general. The area is located in the rainforest zone which is favorable for poultry production.

A multi stage random sampling procedure was used to compose the sample for the study. The procedure was considered appropriate because of its efficiency in guarding against selectivity bias. The first stage, involves the selection of communities. In this stage, five communities were randomly selected, namely Igbodo, Umunede, Owa, Ute-okpu and Otolokpo. Stage two involved the selection of micro credit beneficiaries in the selected communities. From each community, twelve (12) micro-credit beneficiaries were randomly selected making a total sample of 60 micro credit bene-

ficiaries. Data for the study were collected from primary and secondary sources. Primary data were collected from respondents using structured questionnaires. This was personally administered to micro credit beneficiaries in the study area. The secondary data were collected from bulletins, journals, published and unpublished articles and research reports.

**Analytical framework:** The data were analyzed with descriptive statistics such as frequency and percentage distribution. Given the income and consumption of the respondent poultry farmers, the marginal propensity to consume of the poultry farmers was derived using a simple regression model.

### Marginal Propensity to Consume

Mathematically;

$$MPC = \frac{DC}{DY} \dots(1)$$

Where:

MPC = marginal propensity to consume inputs;

DC = change in consumption of inputs;

DY = change in farm income

Given a distribution of incomes and savings of the respondent poultry farmers, the marginal propensity to save of the poultry farmers were determined by regressing savings on income of the respondents.

This is expressed mathematically as;

$$MPS = \frac{DS}{DY} \dots (2)$$

Where:

MPS = marginal propensity to save;

DS = change in savings;

DY = change in income

Having obtained the values for marginal propensity to consume (MPC) and marginal propensity to save (MPS), the multiplier (M) was obtained using the formula:

$$M = \frac{1}{1-MPC} = \frac{1}{MPS} \dots (3)$$

Where:

M = Multiplier,

MPC = Marginal propensity to consume,

MPS = Marginal Propensity To Save.

**Marginal Propensity to Save:** The multiplier effect can be defined as the reciprocal of MPS. Multiplier effect of micro credit on the poultry farmers was determined by computing and comparing the multiplier (M) of the respondents before and multiplier (M) of the respondents after obtaining micro credit.

**Multiplier effect (M<sub>E</sub>):** computed as the difference between M<sub>B</sub> and M<sub>A</sub>

This is mathematically represented as:

$$M_E = M_A - M_B \quad - \quad (4)$$

Where:

M<sub>E</sub> = Multiplier effect,

M<sub>A</sub> = Multiplier of poultry farmers after benefiting from micro credit,

M<sub>B</sub> = Multiplier of poultry farmer before benefiting micro credit.

## RESULTS AND DISCUSSION

**Marginal Propensity to Consume by Poultry Farmers:** The equation below shows the relationship between MPC and income (Y)

$$MPC = 5815.11 + 9,138Y_B + e \dots\dots(.8) \\ (2,21)^* \quad (11.93)**$$

Note: the values in parenthesis are the corresponding T- statistics of parameter estimate.

\*- significant at 1%: \*\* - significant at 5%

A simple regression showing the coefficient of marginal propensity to consume (MPC<sub>B</sub>) of the respondents without benefiting from credit as (0.138) i.e. the relationship between income and consumption of input of the farmers before benefiting credit. The result of the analysis showed that a 1% change in the income of the respondents translated to about 14% change in the marginal propensity to consume poultry inputs without obtaining credit. In the same vein, the result shows that marginal propensity to consume after benefiting micro credit as;

$$MPC = 7743 + 0.467 Y + e \quad \text{---}(0.769 \quad (4.43)**$$

Note: the values in parenthesis are the corresponding T- statistics of parameter estimate.

\*\* - significant at 5%

The regression model shows the estimation equation of marginal propensity to consume (MPC<sub>A</sub>) after benefiting from micro credit. This is the relationship between income and consumption of poultry inputs after benefiting from micro credit. The coefficient of income (Y) in the equation is 0.467. The implication of this result is that a 1% change in the income of the poultry farmers after benefiting from credit translates to 47% change in the consumption of the poultry farmers after benefiting credit.

**Marginal Propensity to save by Poultry Farmers:**

$$MPS = 3468 + 0.062 INC + e \\ (3.44)** \quad (3.89)**$$

Note: the values in parenthesis are the corresponding T- statistics of parameter estimate.

\* - significant at 1%: \*\* - significant at 5%

The regression model was used to analyze the change in saving as a result in change in income. The model above gave 0.062 as the coefficient of income as a factor of marginal propensity to save (MPS<sub>B</sub>) of the respondents without benefiting from micro credit. The result of the relationship between savings and income imply that 86% of change in savings was as a result of 14% change in income before benefiting micro credit. Following the same format, marginal propensity to save after benefiting from micro credit was also computed as. The regression equation showing the relationship between savings and income of the respondents before benefiting micro credit. The coefficient i.e. the marginal propensity to save (MPS<sub>A</sub>) before benefiting micro credit is (0.533). this implies that 53% of change in the savings of the respondents was as a result of 47% change in income of the respondents after benefiting micro credit.

**Multiplier Index of Credit on Poultry Farmers:** The multiplier index of the respondents before obtaining credit was computed as:

$$M_B = 1$$

$$1-MPC_B = 1.16 \dots\dots\dots (11)$$

Multiplier index after obtaining micro credits were computed as follows:

$$M_A = 1$$

$$1 - MPC_A = 1.876 \dots \dots \dots (12)$$

**Multiplier Effect of Micro Credit among Poultry Farmers:** This was determined by the difference between multipliers index without credit and multiplier index with credit

$$M_E = 1.876 - 1.160 = \underline{0.72 \text{ (72 percent)}}$$

In effect studies, data are usually collected before and after an application of a stimulus. In the present study, micro credit is the stimulus. The difference is used as a measure of the response or effect of the stimulus of such innovation. In this study, the counterfactual approach of without and with credit was used. The result of this study has revealed the difference in the multiplier index in the two scenarios is 0.72. This implies a 72% increase in the capacity of the entrepreneurs to purchase more inputs, thereby leading to growth in the poultry industry. This is known as the multiplier effect and it comes about because of the injection of money (credit) into the circulation will raise income and stimulate further rounds of spending. The result of the work done by Babajide (2011) indicated that access to micro finance opportunity could enhance entrepreneurial ability to hire more labours and more fixed assets. If loan increase by N1000, investment will increase by 0.61 (Babajide 2011).

Further observed that even if entrepreneurs accessed credit, but did not have investment opportunity, the credit will not translate to further increase in investment. Considering the multiplier effect computed above, we can now say that 5 years after benefiting micro credit, the income of the farmer have grown by 72%. This result tend to agree with (Khandker 2005), where he estimated that about 21% of the Grameen Bank borrowers managed to lift their families out of poverty within about four years of participation. Also that extreme poverty declined from 33% to 10% among its participant.

In Bank Reakjat Indonesia (BRI), income increased by 84% within 3 years of program participation. They all tend to portray the multiplier effect which credit has on the income of the beneficiaries. The problem is how the poor can have a sustainable access to credit.

## CONCLUSION / RECOMMENDATIONS

Multiplier effect of micro credit among poultry agribusiness entrepreneurs was investigated and concluded the credit created significant effect in the poultry industry through increase in expenditure on labour, feeds, and other sectors that indirectly depend on the poultry sector for livelihood. The amount of credit that flows to the poultry industry will determine the magnitude of impact in terms of employment that can be generated in the poultry sector. Only then one can conclude that the ultimate objectives such as breaking the vicious cycle of poverty has been accomplished. Micro credit will only create micro multiplier effect. The paper recommends that any development program designed for the poultry sector must incorporate more credit disbursement to increase the multiplier effect on the industry.

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