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Determinants of Credit Uptake Among Smallholder Improved Indigenous Chicken Farmers' in Kenya

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Abstract
Youth enterprise development fund has been applauded as a vehicle that enabled most youths in Kenya to venture into agricultural enterprises and hence creating employment opportunities. The fund provides financial resources enabling youth farmers to increase their production and productivity levels. Despite these benefits both adoption levels and factors influencing credit uptake from youth enterprise development fund among small holder improved indigenous chicken farmers is not known. The objectives of the study were to determine credit uptake levels and factors associated with its uptake by small holder improved indigenous chicken farmers. Multistage sampling technique was employed in to sample both credit and non credit beneficiaries. Both primary and secondary data were utilized in the study where primary data was collected by semi-structured questionnaire. Data analysis involved the use of both descriptive and inferential statistics. Binary logistic regression model was used to analyze quantitative data with the aid of STATA version 11.0 software. Results revealed that age, gender, household size, nature of business ownership, family labour and role in poultry value chain significantly influenced credit uptake by smallholder youth farmers. Policy should focus on these factors to enhance availability of funds and hence subsequent productivity in the chicken value chain.
Keywords: Indigenous chicken(IC), credit uptake, binary logit model.

1.0 INTRODUCTION

Youth unemployment continues to be a challenge to the Kenyan government with one million youth entering the labour market annually (Kaane, 2014). Sock et al (2013) has observed that there are, and will continue, to be few direct employment opportunities for young people and that self-employment and enterprise development appear to be the pathway for young people. In view of this, the Government of Kenya in the year 2006 introduced the Youth Enterprise Development Fund (YEDF) as a Microfinance specifically targeting the youth. The goal of the fund is "to increase economic opportunities for and participation by Kenyan youth through enterprise development and strategic performance". It is meant to attract and facilitate investment in youth owned enterprises as a way of curbing unemployment among the youth.

Omiti, (2015) found that poultry contributes 30% to the agriculture sector in Kenya, 55 % to the livestock sector and 7.8% to the GDP. Additionally, the poultry sector employs 2-3 million people in Kenya. Sock et al (2013) identifies poultry production as a high potential agribusiness value chain that cuts across regions with entrepreneurship and employment ability for young people.

The YEDF in Gem Sub County has disbursed a total of KES 3,845,000 to youth groups and KES 473,800 to individuals within groups since its inception in the year 2006. 16% of the beneficiary groups invested the fund in poultry production (YEDF Gem, 2016). However, there is no documented evidence on the factors influence credit uptake. Furthermore, the adoption levels among youths have not yet been ascertained. The current study will fill this knowledge gap. The findings from this study will enable policy makers, development partners, microfinance institutions and agricultural sector service providers to develop workable strategies to improve youth participation and credit uptake which will spur economic development through improved indigenous chicken value chain.

2.0 MATERIALS AND METHODS

2.1 The study area and Sampling

Gem Sub County is one of the six sub counties in Siaya County with a surface area of 403.7km ^{2}. It borders 8 Sub Counties and is administratively divided into 6 wards, 9 locations and 39 sub-locations. The arable land measures 322.24 km2 which is under crop production and natural vegetation cover. The remaining 81.46 km^2 is under homesteads, schools, hospitals, roads and town/market centres.

2.2 Sample size

Primary data was collected with the aid of structured questionnaires administered by trained enumerators in a cross sectional survey design conducted between January and February 2018. Primary data collected included socio-economic factors; age, gender, household size, nature of business ownership, family labour and role in poultry value chain.

The vehicle for analysis was binary logistic regression model while performing the analysis; STATA 11 statistical package was used.

A sample size of 217 respondents was obtained using Kothari`s formula for a infinite population as follows;

$$n = \frac{z^2pq}{e^2} \quad \text{..... (4)}$$

n is the sample size,

p is the proportion of the population (50%) containing the major attributes of interest(youth farmers of improved indigenous chicken). This is chosen because the proportion of population rearing IIC is unknown.

Q is 1-p,

Z is the standard variation of 1.96 given a confidence level of α =0.05 and

e is the acceptable precision level of 7.0%

A sample size of 217 was thus selected based on the following computation;

1.96x1.96x0.5x0.5/0.07x0.07 = 196

Since it is difficult to determine the exact population of youth farmers keeping IIC in the study area due to continuous influx of such chicken, the assumption was that 50% of the chicken farmers in the study area rear. The acceptable precision of 7.0% was chosen because of the smaller sample size hence higher confidence level of the results. The final number of questionnaires administered was 217 representing an increase of 10% to carter for non response rate (Israel, 1992).

2.3 Data Collection

Data collection instruments for this research include use of semi-structured questionnaires and primary data from literature, county livestock office and YEDF office. The data was cleaned, coded, and analyzed through a statistical analytical data base. The data was archived for future reference.

2.4 Data analysis

2.4.1 Factors influencing YEDF uptake by IIC smallholder farmers

This was achieved through inferential statistics. To evaluate the influence of socio-economic and institutional factors on uptake of YEDF credit by smallholder IIC farmers, binary logistic regression model was used. The discrete nature of the dependent variable rendered the ordinary least square estimation methods inappropriate and hence adoption and use of logit model. The dependent variable was the decision to adopt and use YEDF in the IIC business. A value of 1 was used for farmers who used credit and zero (0) for those who did not use YEDF credit. Independent variables included socio-economic, institutional and demographic variables. Probit model gives similar results as logit model but was not used in this analysis due to its mathematical complexity. Similarly, its reported that logistic distribution has more density mass in its bounds than probit model (Zhao, 2008). More specifically, the method that was used for econometric analysis was the logistic regression.

$$y_i = \alpha x i + \varepsilon i \qquad (5)$$

Where: yi is a dependent dummy variable which takes a value of 1 for YEDF adopters and 0 otherwise, Xi is the vector of explanatory variables representing both socio-economic and institutional factors, a is the estimated coefficient of the regressors and εi is the disturbance term of the regression. The logit model was expressed as;

$$Li = \ln\left(\frac{\text{Pi}}{1-\text{Pi}}\right) = \beta 1 + \beta \text{iXi} \qquad (6)$$

Where: Li is the *log of odds ratio called logit*, Pi is the probability in favour of credit uptake, 1-Pi is the probability of non credit uptake, $\left(\frac{\text{Pi}}{1-\text{Pi}}\right)$ is the odds ratio representing the ratio of average probability for credit adopters to non credit adopters (Erdal and Esengun, 2008), Xi represents a vector of independent variables, βi are slope coefficients which represents the marginal effect in the *log of odds* and β1 is a constant representing the value of *log of odds* when all other predictors have a value of zero.

3.0 RESULTS AND DISCUSSION

Logistic regression analysis was used to determine factors influencing YEDF uptake by smallholder IIC farmers. The binary logit model was used to indicate the relationship between the binary variable (credit and non credit adopters) as the dependent variable and independent variables which included; extension service, role in poultry value chain, number of chicken owned, land ownership, income, education, age, gender, household size, family labour, business ownership, initial chicken number and farming experience. Results of table 4.2 below indicates that one factor was significant at (P<0.1); two factors were significant at P<0.05 and two factors significant at P<0.01. The other factors did not significantly influence the decision to use credit on the farm.

Table 4.2: Factors influencing credit uptake by IIC farmers

Independent variables	Coefficient	Std error	Z	P < |z|
Age	0.9265**	0.4721	1.96	0.050
Gender	-2.7514***	0.9220	-2.96	0.003
Education	0.3838	0.4005	0.96	0.338
Income	-0.1542	01288	-1.20	0.232
Farming experience	-0.0194	0.0347	-0.56	0.576
Household size	0.0555***	0.1087	-0.51	0.004
Chickens owned	0.8110	0.5076	1.60	0.110
Extension service	-0.1461	0.2437	-0.60	0.548
Land ownership	-0.5142	0.6225	-0.83	0.409
Role in chicken business	-0.6130**	0.2505	-2.45	0.014
Family labour	0.5967***	0.2083	2.86	0.004
Business ownership	1.0657*	0.6306	1.69	0.091
Pseudo R^2	0.3362***			

Source: Own survey 2018 * significant at 10%, ** significant at 5%,***significant at 1 %

The pseudo R^2 indicated goodness of fit for regression estimators implying that they were able to explain YEDF credit uptake among small holder IIC farmers. Age, family labour and form business ownership positively influenced the decision to take up credit. Conversely, gender, household size and role in poultry business had an inverse relationship to credit uptake for improved indigenous chicken enterprises.

Age of the household head had a positive and statistically significance influence on the decision to take credit ($P<0.05$). This implies that older farmers were more likely to take credit for investment than their younger counterparts. These can be attributed to a number of factors which hinders young people from investing in agriculture such as; high risks, lack of land ownership and sedentary nature of business which takes longer to yield income. The finding agrees with Republic of Kenya (2010) which established that young people are less interested in agricultural enterprises due to perceived length of time to earn returns. Gender of the household head indicated a negative and statistically significant effect on the decision to take credit ($P<0.005$). The results showed that women took more credit than men. This could be attributed to the dominance and control of women in poultry businesses especially in rural. Similarly, women are unable to seek for loans from commercial banks due to lack of security and collaterals which leaves them with YEDF and other informal loaning schemes as an alternative source of credit to their businesses. This finding is in agreement with Olagunju (2013) who found negative but statistically significance relationship between gender and access to credit.

Household size indicated a positive and statistically significance influence on credit uptake ($p<0.001$). This is attributed to provision of family and cheap labour to the poultry business by large members of the household. Consequently management costs and efficiency in input use can be highly monitored. The results are consistence to those of Odendo et al. (2010) who argued that project participation may depend on whether the household has a higher ratio of members who contribute to farm work. Similarly, Marvis and Oduro (2013) established that the size of families in Ghanaian villages affected the utilization of conditional cash transfers. The role played by the farmer in the poultry value chain had a negative and significance effect on credit uptake ($P<0.05$). Farmers who participated in the production of IIC were likely to go for credit than those in the trading of chicken and value addition. This is probably due to high demand for capital to start value addition and trading compared to production where farmers commence with small flocks. Accordingly most government programmes such as subsidies and grants favours the production stages than those activities at the apex of the value chain hence cautioning farmers form high costs associated with credit utilization.

The number of family labour utilized in the poultry business had a positive and statistically significance impact on credit uptake ($P<0.001$). This indicates that families with high members providing labour to the poultry business were likely to take credit. This can be attributed to the accumulated experiences in managing poultry business and the inherent reduced production costs. The form of business ownership had a positive and statistically and significance effect on the decision to borrow credit ($P<0.1$). Those farmers who owned chicken business as a group took more credit than those who owned business as individuals ($P<0.1$). The probable reason is attributed to the requirement by microfinance institutions that farmers must be willing to work in groups for ease of enterprise management. Accordingly, group managed businesses are able to guarantee each other for loans, can increase scale of operation hence need for more capital.

4.0 CONCLUSION AND IMPLICATIONS

In the determinants of YEDF uptake, the study established that elderly farmers were more likely to take credit due to resource endowment. The study therefore concludes that to enhance youth access to agricultural credit, resources such as land and infrastructure should be made available. Women were likely to take credit that their male

counterparts. It can therefore be concluded that majority of poultry businesses are managed by women and hence to increase productivity, trainings and credit supply should be focused to women. Household size indicated a positive and significance influence on credit uptake. The IIC business is labour intensive and focus should be on provision, sourcing and training of specialised manpower which acts as an incentive to invest. Producers were likely to go for credit than other players in the IIC value chain such as traders, retailers and processors due to intensive demand for production inputs. Nature of business ownership influenced credit uptake. Farmers who managed IIC business as a group were more likely to take credit than individually managed chicken business. Microfinance institutions should therefore target therefore target group than individual farmers.

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