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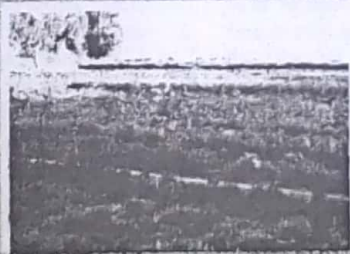
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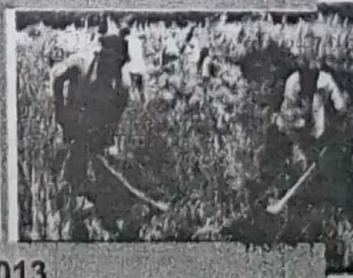
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LIVELIHOOD DIVERSIFICATION AMONG SMALL-SCALE POULTRY FARMERS IN OYO STATE, NIGERIA: DETERMINANTS AND EFFECT

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ABSTRACT

Promotion of rural income diversification continues to gain widespread support in poverty reduction strategy discourse in the developing countries. This study examined diversification of rural livelihood among small-scale poultry farmers in Oyo state, Nigeria. The study utilized data from a sampled survey of 104 small-scale poultry farming households to establish the effect of diversification of livelihood on poultry production and factors determining diversification of income among the poultry farmers in the study area. Results showed that majority of the farmers are male, married, and young with mean age of 44.35 years. The majority of them have formal education, and the mean farming experience is 7.52 years, the results also showed that minority of the respondents have access to credit and participate in cooperative society, minority of the poultry farmers diversified their sources of livelihood. The results showed that there is significant difference between farm size of farmers with other sources of income and the farmers without any other source of income. Non-poultry income is significantly positive to farm size, education and farming experience is also significantly positive among the smallholder poultry farmers. The major determinant of livelihood diversification includes education level of households head, household size, access to credit and cooperative society membership. Specific areas of intervention are expansion of education facilities, equipping the ministry of agriculture with adequate training facilities to train farmers and educate them on investment diversification, creating rural based credit facilities and enhancing cooperative society creation among the smallholder poultry farmers in the country.

Keywords: Diversification, Small-scale poultry farmers, Multinomial logit, OLS regression, Z-statistic.

INTRODUCTION

Globally, poverty issues have dominated discussions among the scholars and policy makers. In the last three decades many countries of the world have struggled with policies and programs that will reduce this problem to minimum level and concrete solution has not yet been found as the poverty level is on the increase. Worldwide, the rural communities harbour the larger majority of the poor, likely accounting for more than 70% of the total population (World Bank, 1999). Hence, the debate on the relationship between small farms and poverty in Sub-Saharan Africa (SSA) has gone through a complete circle (Spencer, 2002; Poulton *et al.*, 2005; Lipton, 2005). Evidence from literature and past studies have identified this region's as one of the world's poorest, and the economies are heavily depend on agriculture as the primary source of income and food. It was also identified that most of the poorest households in SSA are found working in agriculture (Apata *et al.*, 2010). In Nigeria poverty was more pronounced in the rural communities, but today it is a national issue.

Therefore, successive governments in Nigeria have repeatedly adopted policies and programs on virtually every aspect of the national life that would reduce poverty. Programs intended to ensure food self-sufficiency and provide necessary infrastructure to stimulate economic growth, enhance incomes and improve the welfare of the poor. Also, tremendous efforts were made to improve agricultural production and living standards through public credit institutions

like Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) transformed to Agricultural Bank of Nigeria (NAB) and more recent programs like National Fadama Development project (NFDP), Community based Poverty Reduction Project (CPRP), Local Empowerment and Environmental Management Project and Community and Social Development Project (CSDP which upshot from LEEMP and CPRP) (Idowu *et al.*, 2011a). Furthermore, in an attempt to provide formal insurance cover for the financial risk associated with agricultural enterprises, the Nigerian Agricultural Insurance Company (NAIC) was established in 1989 (Adekunle *et al.*, 2012).

Livestock are ubiquitous in poor communities across the developing world. An estimated two-thirds of resource-poor rural households keep some type of livestock (LID, 1999). Animal husbandry is one of the major means of livelihood in the rural Nigeria, especially poultry keeping. Similar information for poor urban households is scarce, but a recent survey in two cities in Nigeria found that more than one-half of all urban households were keeping livestock; the highest rates were found in the most densely populated, lower-income areas (Randolph *et al.*, 2011). According to Kazybayeva *et al.*, (2006) FAO, (2007) Nouala, (2011), livestock plays many important roles, including: as a provider of employment to farmer and family members; as a form of insurance; as a store of wealth; contributing to gender equality by generating opportunities for women; recycling waste products and residues from cropping or agro industries; improving

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the structure and fertility of soil; and controlling insects and weed. Livestock residues can also serve as an energy source for cooking, contributing to food security (Gueye, 2009).

However, unfortunately the overall role of agriculture, which is primarily to provide goods and industrial raw materials has not been fulfilled over the years, and the effect has resulted to increased poverty level in the country (Adekunle *et al.*, 2012 and Okuneye, 2002). The failure of the agricultural sector in bringing about the desired reduction in poverty and improvement in rural livelihood have led to growing scepticism in international development discourse about the relevance of agriculture to poverty reduction (Babatunde *et al.*, 2007). In view of this, the promotion of rural income generating activities continues to gain widespread support among development agencies and rural development agencies (Matshe and Young, 2004 and Yu, 2011). Haggblade, (2005) stated that agriculture as the backbone of most rural economies, given the scale of non-farm earnings, the simplistic notion of rural economies as being purely agricultural is completely obsolete.

Ellis (2000), Barrett (2001) stated that livelihood concept and diversification of income among rural households help in alleviating poverty. It is generally believed that non-farm income activities play, an enormous role in breaking the vicious cycle of poverty, because non-farm income can significantly increase the total income of rural dwellers, help smooth out income fluctuations, and improve food security through savings, which in turn allows rural dwellers to survive sudden shocks (Omilola, 2009).

One important pathway toward sustainability of livelihoods involves avoidance of long term dependency on only one income source (Block and Webb, 2001). The livelihood portfolio is the bundle of activities households engage in to generate livelihood and achieve a certain level of livelihood security (Rudie 1995), while diversification of income sources has been put forward as one of the strategies households employ to minimize household income variability and to ensure a minimum level of income. Livelihood diversification is 'the process by which rural households constructs an increasingly diverse portfolio of activities and assets in order to survive and improve their standard of living' (Ellis, 2007 and Scoones 1998). Livelihood diversification therefore refers to attempts by individuals and households to find new ways to raise incomes and reduce environmental risk, which differ sharply by the degree of freedom of choice (to diversify or not), and the reversibility of the outcome (Adugna, 2012). Reardon *et al.* (2001) and Idowu, *et al.* (2011b) reported that the contribution of non-farm income sources to the rural economy has grown substantially during the last two decades and different country case studies illustrate that the share of non-farm income to total household income ranges between about 30% and 40% while Islam (1997) reports that the share of the non-farm sector in rural employment in developing countries varies from 20%

to 50%. Reardon (1997) finds rural non-farm income shares in Africa ranging from 22% to 93%.

The diversification of livelihoods can either offer opportunities for farmers or, if not properly managed, add to the pressures on them. Research shows that while some forms of diversification enhance welfare, others can increase risk. Poultry farmers are diversifying, but their capacity is limited and reflective of their inherent skills and knowledge. Diversification of income sources, assets, and occupations is the norm for individuals or households in different economies, but for different reasons. Ellis (2000) divided the reasons for diversification of livelihoods between necessity and choice reasons. Necessity refers to push or distress reasons that enforce households to diversity such as eviction from own land, natural or civil disasters, environmental deterioration. Choice by contrast refers to pull reasons which attract households to diversity such as searching or seasonal employment opportunity, educating children to improve their future prospect of obtaining non-farm jobs (Adugna, 2011). According to Babatunde and Qaim, (2009); Reardon (1997) household can diversify sources of income to increase income when the resources needed for the main activity is too limited to provide a sufficient livelihood, to reduce income risks in the face of missing insurance market, and to exploit strategic complementary and positive interactions between different activities.

The reasons behind livelihood diversification in rural communities are many. Currently, the resource-base of the production system cannot accommodate and absorb the human and livestock resources, and, consequently, calls for livelihood diversification. Increased human population and urbanization; increased in livestock marketing opportunities which stimulate diversification, farm families themselves will continue to diversify to include waged employment, agriculture where this is feasible, and trading activities as supplements to livestock-based incomes (Adugna, 2011).

Income diversification, generally in the rural Nigeria is very well known and has been widely documented. For instance (Babatunde and Qaim, 2009; Oluwatayo, 2009) opined that Nigerians diversify their livelihood strategies, including on-farm (crop, livestock, fisheries) and off-farm activities or market and non-market activities, to mitigate risks inherent in unpredictable agro climatic and politico economic circumstances. Few studies have addressed the impacts of non-farm income on household farm activities in general and specifically among the livestock producers. This study therefore focuses on income diversification among the small-scale poultry producers and the implication on poultry production in Oyo State, Nigeria. The specific objectives are to determine the effect of non-poultry income on small-scale poultry production, and determine the factors responsible for income diversification among the small-scale poultry farmers in the study area.

Knowledge of socio-economic characteristics, effects of non-poultry activities and their contribution to

poultry production could be of great value for policy makers in designing anti-poverty strategies in Nigeria. This study could also provide information that could assist the rural dwellers to diversify their income activities to mitigate the effect of poverty. The paper can also contribute to the existing literatures on the economies of poultry production and rural livelihood diversification.

METHODOLOGY

This work utilizes data collected in a survey of 104 small-holder poultry farmers selected from five local government areas of Oyo State. These are Afijio, Atiba, Iseyin, Oyo East and Oyo West; this is due to the relative concentration of small-scale poultry production in the area. The respondents were randomly selected from the lists of Poultry Farmers of Nigeria in the State. The state has a total population of about 5.6 million and covers a total of 27,249 km² of land mass. Majority of the smallholder farmers are living in the rural areas (NPC, 2006). The data were collected in 2012, using interview guide with structured questionnaire. A two-stage simple random sampling technique was used to select the sample for the study. The first stage involved the random selection of five Local Government Areas in the state. The second stage involved the random selection of 104 small scale poultry producers. Efforts were made to collect the lists of poultry farmers from Poultry Association of Nigeria in the study area. The lists were stratified into three strata namely small, medium and large scales. The small-scale stratum was chosen for random selection of the respondents. In the second stage of data selection, the small-scale poultry farming households were selected by simple random selection method. Ikheloa and Inedia (2005) classified poultry farm size of 1-999 birds as a small-scale, 1000-2999 as a medium-scale and 3000 and above as a large scale. Information on socio-economic characteristics of smallholder poultry farmers, inputs and outputs, as well as management practices in poultry production were collected. To determine the effects of non-poultry income on poultry production, the comparative analysis of the farm size between the poultry farmers with and without other sources of income was modelled using z-test or difference of means. Determinant of farm size was modelled using ordinary least squares (OLS) regression method and determinant of diversification of income was modelled using multinomial logistic regression method.

ANALYTICAL TECHNIQUE

Descriptive analysis was carried out with the use of descriptive statistics such as frequency table and percentages to determine socioeconomic characteristics of the respondents. Difference of means was used to compare the farm size which is the proxy for poverty reduction, of the poultry farmers with other sources of income and poultry farmers without any other source of income. Difference of means was computed to test for the significant difference between the farm sizes of two categories of farmers. Z-test was used and

calculated with the formula below to analyze if there is any difference in farm sizes between the two categories of respondents.

COMPARISON OF MEANS USING Z - TEST

The Z-statistic can be calculated as shown below.

$$Z = \frac{\bar{U}_1 - \bar{U}_2}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} \quad \dots\dots\dots (1)$$

Where

$\bar{U}_1$ = Mean farm size of the farmers with other source of income

$\bar{U}_2$ = Mean farm size of the farmers without other source of income

σ_1^2 = Standard deviation of farm size of the farmers with other income

σ_2^2 = Standard deviation of farm size of the farmers without other income

n_1 = Number of respondents (with other income)

n_2 = Number of respondents (without other income)

Hypothesis

$H_0: H_1 = U_2$

$H_A: U_1 \neq U_2$

H_0 : There is no significant difference between the farm size of the farmers with and without other sources of income.

H_A : There is significant difference between the farm size of the farmers with and without other sources of income.

Decision Criteria

If $Z - \text{cal} > Z - \text{tab}$: reject null hypothesis and accept the alternative hypothesis (H_A) and if otherwise accepted the null hypothesis (H_0) and reject the alternative hypothesis.

ECONOMETRIC ANALYSIS

Ordinary Least Squares Method

The following econometric model was postulated to investigate the effect of predetermined variables on flock size, a proxy for the poverty alleviating potential of smallholder poultry production.

Model estimation

$F_s = f(Y_{NP}, HH_z, GEN_{HD}, EDU_{HD}, FME, U_i) \dots\dots\dots (2)$

F_s = Farm size (head)

Y_{NP} = Non-poultry income (₦)

HH_z = Household size

GEN_{HD} = Gender of the Household Head (Male=1, Female=0)

EDU_{HD} = Education level (Year)

FME = Farming experience (Year)

U_i = Error term

Multinomial Logistic Regression

The multinomial (polytymous) logistic regression model is a simple extension of the binomial logistic regression model (Bayaga, 2010). A multinomial logistic regression model is a form of regression where the outcome variable (livelihood diversification-dependent variable) is binary or dichotomous and the

independents are continuous variables, categorical variables, or both. The model assumes that the outcome variable, Y_i is categorical (e.g. dichotomous). The dependent variable (Y_i) is dichotomous and takes the value 0 for the households with other sources of income and 1 for the households without other sources of income.

Model estimation

$$\text{Log} [P / (1 - P)] = \alpha_0 + \sum \alpha_i X_i + \varepsilon \quad (3)$$

Where P = probability that the dependent variable $Y_i=1$;

$(1-P)$ is the probability that $Y_i=0$

α s are parameter estimates for the independent variable, X

And ε is the unexplained random component.

$Y_i = f(X)$

X is a vector of socioeconomic characteristics which are Farming experience (years), Education level (Years) Household size, Gender of the Household (1= male, 0=female), Access to Credit (Yes=1, No=0), Cooperative membership (Yes=1, No=0), and Household head age (Year).

The parameter estimates of the MNL model provide only the direction of the effect of the independent variables on the dependent (response) variable, but estimates do not represent either the actual magnitude of change nor probabilities (Fatuase and Ajibefun, 2012). Differentiating equation (3) with respect to the explanatory variables provides marginal effects of the explanatory variables given as:

$$\frac{\partial P_j}{\partial X_k} = P_j (\beta_{jk} - \sum_{j=1}^{J-1} P_j \beta_{jk}) \quad (4)$$

The marginal effects or marginal probabilities are functions of the probability itself and measure the expected change in probability of a particular choice being made with respect to a unit change in an independent variable from the mean (Green, 2000; Koch, 2007; Deressa *et al.*, 2008).

RESULTS AND DISCUSSION

SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

The descriptive statistics were used to determine the socio-economic characteristics of the respondents obtained, they include gender, marital status, household size, education level, age, cooperative society membership, farming experience, farm size and credit accessibility.

Table 1 shows that majority of the small-scale poultry operators are male, 86.5 percent with few female. This may be due to the high risks involved in poultry business and women are not good risk takers as observed by Ironkwe and Ajayi (2007). The result also shows the household size of the respondents, table 1 shows the mean to be 5.45. The household compositions of the respondents include husband/wives, children and other dependents. This suggests that, other things being equal, family labour is likely to be available, in the study area. The size of the family can determine the availability of family labour on the farm. The result reveals that the majority of the smallholder poultry operators have formal education. The level of education includes HND/ND, NCE, and bachelor degree, and table 1 reveals that the mean is 10.29. The high levels of education would contribute to their ability for efficient resource management in their business. It could also positively affect the farmers' access to useful information that may help them increase their productivity.

Table 1: Descriptive statistics

Variables	Description	Mean	Std.dev.
Household size	Total number of individuals comprises a family.	5.45	2.149
Gender (1= male, 0= female)	Sex of the head of the poultry farming household.	0.86	0.342
Age (Years)	Age of the individual household heads Operating poultry production.	44.35	10.38
Farming Experience (Year)	Total number of years spent in poultry production by each household.	7.51	4.45
Farm size	Number of birds that are kept by each Poultry farming household	405.42	69.8
Credit to access (1= Yes, 0= No)	this is an indication that a poultry farmer has accessed credit from any source for poultry business.	0.461	0.500
Cooperative Membership (1= Yes, 0= No)	This is to indicate whether a poultry farmer belong to member a cooperative society or not.	0.442	0.499
Education (Year)	Level of education attained by poultry Farming household heads.	10.29	5.486
Diversification (1= Yes, 0=No)	Number of sources or investments through which an individual can generate income.	0.3654	0.483

Source: Field survey, 2012

Table 1 also shows the age of the respondents, the mean age of the respondent is 44.35 years. This means that the majority of the respondents are middle age farmers, with their mean age of 44.35 years old. They are relatively young and fall within the active age bracket. They belong to economically active population category which is between 25-59 years according to FAO (1997). The table also presents the farming experience of the respondents showing mean farming experience as 7.52 years. The level of experience would contribute to their ability for efficient resource management in their business. Farming experience could also relate to the acquisition of good skills in the use of any technological innovation. The result reveals that minority of the respondent have access to credit for their poultry activities at a time or the other, the credit sources include Agricultural bank, commercial banks cooperative societies microfinance banks and relatives. The result also shows that minority of the respondents (44.2%) belong to other cooperative societies apart from being a member of poultry farmers association

(PAN). This implies that they have other means to access credit, sell their products or purchase inputs in bulk and obtaining information on their business, these can also reduce the total cost of operation.

The respondent farmers raise pullets for eggs production, broiler and cockerel for meat. Majority of them operate on deep litter while few operate on battery cage systems with mean farm size of 405 birds. This is an indication of low levels of technology and production, which are also the characteristics of most farmers in the study area. The members of the farming households contribute family labour to production activities on the farm to complement hired labour, which is also used. The result shows that minority of the respondent farmers have other income activities apart from poultry production. The mean for diversification of income activities is 0.3654 which is 36.54%. This implies that many of the small-scale poultry farmers did not diversify their income sources which are not good for a household during the period of financial shock.

FARM SIZE OF THE POULTRY FARMERS WITH AND WITHOUT OTHER SOURCES OF INCOME

In order to compare the farm size between the small-scale poultry farmers with other sources of income and those without other sources of income, difference of means was used. Difference of means was computed to test for the significant difference between the farm sizes of the farmers with and without other sources of income.

Table 2: Difference of means of farm size

Farm size	Category 1	Category 2
Mean	590.55	298.82
SD	286.49	192.51
Observation	38	66

Z-Statistic(cal.) = 5.592, Z- critical (tab) two tailed = 2.626, Level of significance = 1%

Hypothesis Testing: Two Tail Test

Null hypothesis: H_0 : There is no significant difference between the farm size of the small-scale poultry farmers with other sources of income and those without other sources of income i.e. $H_0: U_1 = U_2$

Alternative Hypothesis: H_A : There is significant difference between the farm size of the small-scale poultry farmers with other sources of income and those without other sources of income i.e. $U_1 \neq U_2$

If $Z - cal > Z - tab$: reject (H_0) null hypothesis and accept alternative hypothesis (H_A)

If $Z - cal < Z - tab$: accept (H_0) null hypothesis

The above Z- test shows that at 1% level of significance, Z- cal is greater than Z- tab. Therefore, the alternative hypothesis (H_A) that states that there is significant difference between the farm size of the small-scale poultry farmers with other sources of income and those without other sources of income is accepted whereas the null hypothesis is thus rejected, meaning that, there is significant difference between the farm size of the small-scale poultry farmers with

other sources of income and those without other sources of income. This implies that the income received from other sources has significant effect on their level of production, that it significantly increased their scale of production. It can be due to the ability of the poultry farmers with other sources of income to reinvest that extra-income to boost their scale of production. They have other occupations which they are engaged, they finance their farms from the money realized from these occupations. By these reasons the farm size of the small-scale poultry farmers with other sources of income and those without other sources of income could be significantly different.

DETERMINANTS OF FARM SIZE

In this section, we analyze the determinants of farm sizes among the sampled small-scale poultry producers. We carried out an Ordinary Least Squares regression analysis to model the farm size in head as a function of non-poultry income, household size, farming experience gender and the education level of the household head. The regression estimate is shown in table 3.

Table 3: OLS estimates of determinants of farm size

Variables	Coefficient	t-value
Non-poultry income (Y_{NP})	0.188*	1.878
Household size	0.045	0.504
Gender of the household head (male=1, female=0)	0.012	0.141
Education (Year)	0.266***	2.750
Farming experience (year)	0.242***	2.641
Constant	95.514	0.976
R ²	0.272	
F-value	7.341	

Note: Dependent variable is the farm size of small-scale poultry farm in heads of animal
 *, **, *** indicate coefficient significant at 10 and 1% level respectively.

The Linear production function was chosen as the lead equation. It was based on the significance of individual explanatory variables as expressed by their t-values and the appropriateness of the sign of regression coefficient based on *a priori* expectation. The magnitude of the coefficient of multiple determinations (R^2) and the significance of the overall production function as judged by the F-value. The (R^2) of the fitted function, is 0.272. This indicates in the function that the explanatory variables explained 27.2% of the variation in the farm size of poultry production. From the lead equation, the coefficients of all explanatory variables are positive conforming to *a priori* expectation. The result from the lead equation also shows that income from other sources apart from poultry (Y_{NP}) is significant at 10% level of significance. A 1% increase in non-poultry income will increase the farm size by 0.19%. Education of the household head (EDU_{HD}) and farming experience (FME) are significant at 1 percent level of significance each meaning that, 1% increase in the level of education and farming experience will increase farm size by 0.27% and 0.24% respectively. This indicates that non-poultry income has a positive impact on poultry farm size. This could be so, because

the farmers would have more cash to invest in poultry production and boost their production and lead to increase in household income. The level of significance of education shows the importance of education in poultry production, this could help the farmers adopt better technology and acquire better skills. Therefore, these can increase the farm size and transfer to the household income. Farming experience afford the farmers of gaining better knowledge of the production and could result into efficient resources management and improved production. However, since the F-value i.e. an overall test of significance of the function was significant at 1 percent level, non-significance of an individual regression coefficient could be permitted to a certain extent.

DETERMINANT OF DIVERSIFICATION OF INCOME AMONG POULTRY FARMERS

In this section, we analyzed the factors responsible for diversification of income sources among the sampled small-scale poultry households. Multinomial logistic regression analysis was modelled to carry out the analysis of factors determining diversification of income in the study area.

Table 4: Multinomial logistic regression of the determinants of livelihood diversification

Variables	Coefficient	Std. Error	Wald
Education level (Year)	0.565	0.203	7.785***
Household size	0.673	0.383	3.092*
Farming experience (Year)	-0.389	0.152	6.563**
Gender (1=male; 0=female)	1.504	1.417	1.127
Access to credit (Yes=1, No=0)	5.686	1.695	11.252***
Coop. membership (Yes=1, No=0)	3.255	1.119	8.461***
Age (Year)	-0.104	0.067	2.457

-2 Log Likelihood = 31.807

Chi-Square = 103.590***

Nagelkerke R-Square = 0.866

Sample size = 104

*, **, *** significant at 10, 5 and 1% probability levels

As indicated earlier, the parameter estimates of the MNL model provide only the direction of the effect

of the independent variables on the dependent (response) variable: estimates do not represent

actual magnitude of change or probabilities. Thus, the marginal effects from the MNL, which measure the expected change in probability of a particular choice being made with respect to a unit change in an independent variable, are reported and discussed.

Therefore, table 4 presents the marginal effects along with the levels of statistical significance. Education of the household head is positive and statistically significant at 1% level of probability meaning that it increases the probability of diversifying income sources. As observed in Table 4, a unit increase in number of years of schooling would result in 56.5% increase in the probability of income diversification. The result also shows that household size is positively and statistically significant at 10% level of probability meaning that it increases the likelihood of diversifying the means of livelihood. It shows that a unit increase in household size would lead to 67.3% increase in the probability of income diversification. Table 4 shows that access to credit is significantly positive at 1% level of probability, this indicates that a unit increase in credit accessibility would lead to 56.9% increase the probability of income diversification. The result also shows that cooperative membership is significantly positive at 1% level of probability; this indicates that a unit increase in cooperative society's participation would lead to 32.6% increase the likelihood of influencing income-generating activities diversification in the study area.

CONCLUSION

The study has shown that livelihood diversification is the daily reality of rural community in order to cope with risks. Livelihoods dominated by poultry income can be considered 'inferior' i.e. poor in terms of average income. The study had shown that average farm size (head) which is the proxy to poverty alleviating potential is higher among the small-scale poultry farmers with other income sources than the poultry farmers without other means of livelihood. The result also showed the major factors that determined the farm size to be non-poultry income, education of the household head and farming experience, they are positively significant among the considered factors. Among the factors influencing diversification status at household level, education of head plays a positive significant role in enhancing the likelihood of a livelihood diversification; household size, access to credit and cooperative society's participation also play positive significant roles in adopting several means of livelihood. Policies that reduce constraints to diversification and widen its possibilities are in general desirable. Enabling and facilitating environment for the spread of diverse non-poultry income-generating activities can be a solution especially for poor households. Non-

poultry income was found to be helpful in production improvement of smallholders' poultry. Education level is low in the area. A powerful way of coming up with new strategies is to expand education facilities and educate smallholder poultry farmers. Complementary investment on community level basic skills training programmes will have a substantial reward in this respect. Farming experience was found to be very important in small-scale poultry production, veterinary department of the ministry of agriculture should organize training programme for the new or inexperienced poultry farmers to get them acquainted with production techniques that will boost their production and improve their livelihood. Better credit accessibility and cooperative society participation are major tools for livelihood diversification in the rural areas. Therefore the rural dwellers should be encouraged to participate in rural based cooperative organizations to enhance micro credit accessibility to divest into other means of livelihood. This will improve their income especially the poor households in the area.

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