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LIVELIHOOD DIVERSIFICATION STRATEGIES AND DETERMINANTS BY SMALLHOLDER FARMERS IN THE HIGHLAND AREAS OF NORTH SHEWA ETHIOPIA

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Abstract. In developing nations, farming is primarily subsistence, rain-dependent, not mechanized, and uninsured, making it subject to high crop losses caused by environmental and human factors. As a result, diversifying smallholder farmers' livelihood strategies helps them achieve financial stability, combat poverty, provide job opportunities, reduce rural-urban migration, and cope with environmental and socioeconomic shocks. This study was conducted to assess livelihood diversification strategies and identify the factors that affect households' decisions to diversify their livelihood strategies. It was carried out in Basona worana and Angolelana tera woreda of North Shewa in Ethiopia in 2021 using 201 randomly selected smallholder farmers. The descriptive result indicates that 33% of the households sampled diversify their livelihoods to on-farm and non-farm activities. 57% of the sample household engaged only in on-farm activities to sustain their life. The multinomial logistic regression model results showed that age, sex, formal education level, land ownership, livestock ownership, distance from the main road, access to stable food, and credit all significantly affected household livelihood diversification strategies. Raising awareness of livelihood diversification, avoiding bad traditional beliefs on some ignored jobs, creating access to credit, roads and markets, and promoting the crop-livestock mixed farming systems were the policy recommendations of this study.

Keywords: livelihood, non-farm, on-farm, off-farm, smallholder

INTRODUCTION

Agriculture is the primary driver of economic expansion, poverty reduction, and food security in Ethiopia. It makes up 33.3% of Ethiopia's GDP (NBE, 2020). Although agriculture contributes the majority of Ethiopia's GDP and provides the majority of the farming community's livelihood, crop and livestock production is subsistence-level and is impacted by biotic and abiotic factors like climate change, pests, diseases, erratic rainfall, or other shocks (Tegegne, 2020; Teshome et al., 2016; IPCC, 2014). The current ability of agriculture to achieve food and livelihood security is diminishing drastically, and farming communities are experiencing food insecurity due to a lack of access to proper education and a lack of job possibilities (WFP, 2020). Ethiopia's agricultural productivity is considered low, despite the existence of numerous agricultural policies, and it mostly focuses on on-farm agricultural growth. Non-agricultural livelihood solutions have not yet been incorporated into Ethiopia's policy framework (Kassie et al., 2017).

According to Haggblade et al. (2010) and Bezu et al. (2012), diversifying one's sources of income helps families maintain a steady income, create jobs for the unemployed, reduce poverty and rural-urban migration, and cope better with environmental stresses in a developing country. Livelihood diversification is attracting

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considerable interest as a tool to cope with economic shocks and resist vulnerability (Helmy, 2020), increase household income, and cope with different livelihood shocks (Gebru et al., 2018; Mekuria and Mekonnen, 2018). The ultimate goal of livelihood diversification is to bring sustainable livelihood outcomes like securing economic, social and environmental improvement (Tambe, 2022).

Studies by Admasu et al. (2022) and Muluneh (2022) indicate that different factors like the distribution of income and wealth status influence the choice of livelihood diversification alternatives. Further empirical research by Alobo and Bignebat (2017) classified the push and pull dynamics that influence livelihood diversification strategies. Push factors include seasonality in income, a failing credit market, and liquidity restrictions; pull factors include advancements in infrastructure, labor markets, technology, education and market access. Poor infrastructure, a lack of access to credit, a lack of market and marketing services, and a lack of employment prospects have an impact on the rural livelihood diversification initiatives (Asfaw, 2018 and Wondim, 2019). But in the North Shewa, there have not been enough empirical studies published on rural livelihood diversification strategies and determinant factors. Therefore, the objectives of this study were to assess the livelihood diversification strategies and identify the factors that affect households' decisions to diversify their livelihood strategies in the North Shewa.

Definition and conceptual framework of livelihood diversification strategies

Researchers have employed both the household economic model (Singh and Strauss, 1986; Taylor and Adelman, 2003) and the livelihood approach (Ashley and Carney, 1999; Chambers and Conway, 1992; Scoones, 1998) to examine how households diversify their sources of income, as cited in Tagesse et al. (2020). The livelihood approach has advantages in terms of understanding the varied nature of livelihoods (Ellis, 1998; 2000; Ellis and Biggs, 2001) and was successful in examining the diversity of farming systems (Sourisseau et al., 2012). It also uses the framework for sustainable livelihoods to evaluate the diversity of people's sources of income. Given the aforementioned advantages of the livelihood approach, the present study employed it to evaluate livelihood diversification strategies and determinant factors of farmers in the highlands. Livelihood encompasses the

capabilities, assets (including both material and social assets), and activities required for a means for living (Chambers and Conway, 1992). It is possible to define livelihood as a combination of the resources used and the activities carried out in order to survive (DFID, 2000). Livelihood strategies include the variety and combinations of choices and actions people take to achieve their livelihood goals. The three types of livelihood activities are on-farm, off-farm, and non-farm. On-farm activities are those that are centered on both crop production and animal husbandry operations and are directly tied to agricultural production. Non-agricultural wage or salary employment, self-employment, rent income, transfers, and remittances are all examples of non-agricultural, non-farm activities. Off-farm operations are defined as agricultural endeavors that are conducted for pay or exchange of labor outside of a person's own farm, as well as the extraction of natural resources (Ellis, 2000).

The livelihood approach focuses primarily on individuals. In order to analyze how people attempt to convert their assets into beneficial livelihood outcomes, it is crucial to have an accurate and realistic understanding of people's strengths, referred to as "assets" or "capital" (Bebbington, 1999). The livelihood approach adapted from DFID (2000) (Fig. 1) clearly shows the farming households in the North Shewa area of Ethiopia their vulnerability (crop losses, drought occurrence, livestock diseases outbreak, household emergency, civil war and conflicts, national policy reform, price inflation and others), livelihood assets (human capital, social capital, natural capital, physical capital and financial capital), livelihood strategies (on-farm, off-farm, non-farm, on-farm + off-farm, on-farm + non-farm, on- + off- + non-farm activities) and livelihood outcomes (more income, increases household wellbeing, reduce vulnerability, increases food and nutrition security, more sustainable use of natural resources, money saving, increases total household assets etc.). As a result, households can support themselves using their assets and potential through different livelihood strategies, whether they experience vulnerability or not to achieve their better livelihood outcomes.

MATERIALS AND METHODS

The study was conducted at Basona worana and Angolelana tera woreda of North Shewa, Ethiopia (Fig. 2). The woredas are located 140 and 110 kilometers north-east
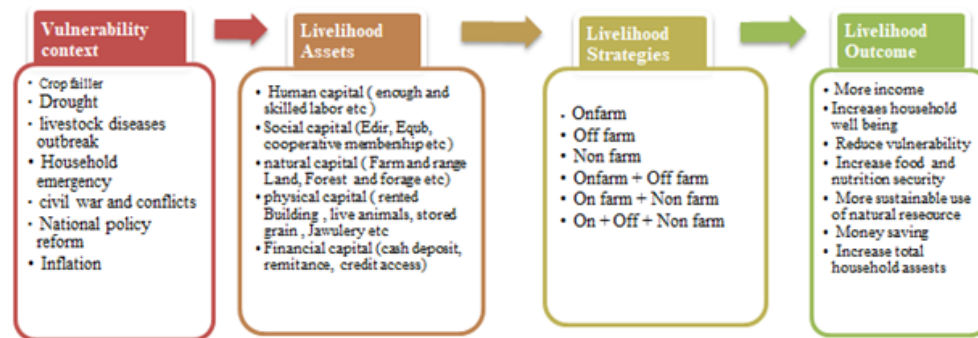
Fig. 1. Livelihood approach source: Adapted from DFID (2000)

*Equb or Iqub (Amharic: እቁብ) is an association of people in Ethiopian culture with the aim of mobilizing resources, especially finance, and distributing them on a rotating basis. It is distinguished from Eder by duration of time; Equb is temporary or permanent, while Eder is long-term association.

*Ethiopia's regions is divided into zones; the zones, in turn, are divided into districts (woredas); the districts are divided. into sub-districts (kebeles).

of Addis Ababa (the capital of Ethiopia). The Basona worana woreda is one of the 27 administrative woredas in the North Shewa Zone. Its neighbors include the Angolelana tera woreda to the south, the Oromia Region to the southwest, the Siyadebrna wayu woreda to the west, the Moretina jiru woreda to the northwest, the Mojana wedera woreda to the north, the Tarmaber woreda to the northeast, and the Ankober woreda to the east. The woreda has 120,930 (59,006 women) inhaitants and has 32 administrative kebeles (CSA, 2007). High-, mid-, and lowland as well as mixed farming practices define the woreda agroecology and farming system. The average annual rainfall is 897.8mm with a mono modal. The average elevation of the woreda is 2,975 masl and the yearly temperature fluctuates between 6.1 and 19.67 0C. The main field crops of the woreda are barley wheat, faba beans, and teff (CSA, 2007).

The Angolelana tera woreda is one of the 27 administrative woredas in the North Shewa Zone. It is bordered on the south by Hageremariam, the west by the Oromia Region, the north by Basona worana, and the southeast by Asagrt woreda. Chacha city serves as the administrative hub of Angolelana tera woreda. There are 82,349 (40,500 women) people living in the woreda, which has a total size of 782.49 km2 and 19 (including 3 urban) administrative kebele (CSA, 2007). The woreda is composed of 84% Dega and 16% Weina Dega agricultural climate zones. The elevation ranges between 1,450 and 2,800 m.a.s.l. The annual rainfall ranges from 930 to 1500 mm and has a bimodal trend. The woreda's average annual temperature is 14°C (woreda MOA, 2006). The mixed farming system provides the means of subsistence for the majority of the population (both farming and animal production). Barley, faba beans, and wheat are the woreda's three main field crops.

Data type and source

For this study, data from both primary and secondary sources and qualitative and quantitative data type were gathered and utilized. Primary data like demographic, socio-economic, perception, and production status were collected from sample households. The secondary data such as the description of the study areas and others were collected from agriculture office reports, experts, and other unpublished documents.

Data collection method

This study used a cross-sectional survey methodology. Semi-structured questionnaires and focus group discussions were used to gather the main data. The questionnaire was pre-tested and revised for a final draft after the data collectors received orientation training. Following that, during the second week of May 2021, the necessary primary data were gathered from a randomly chosen sample households by Debre birhan agricultural research center researchers. Four focus group discussions
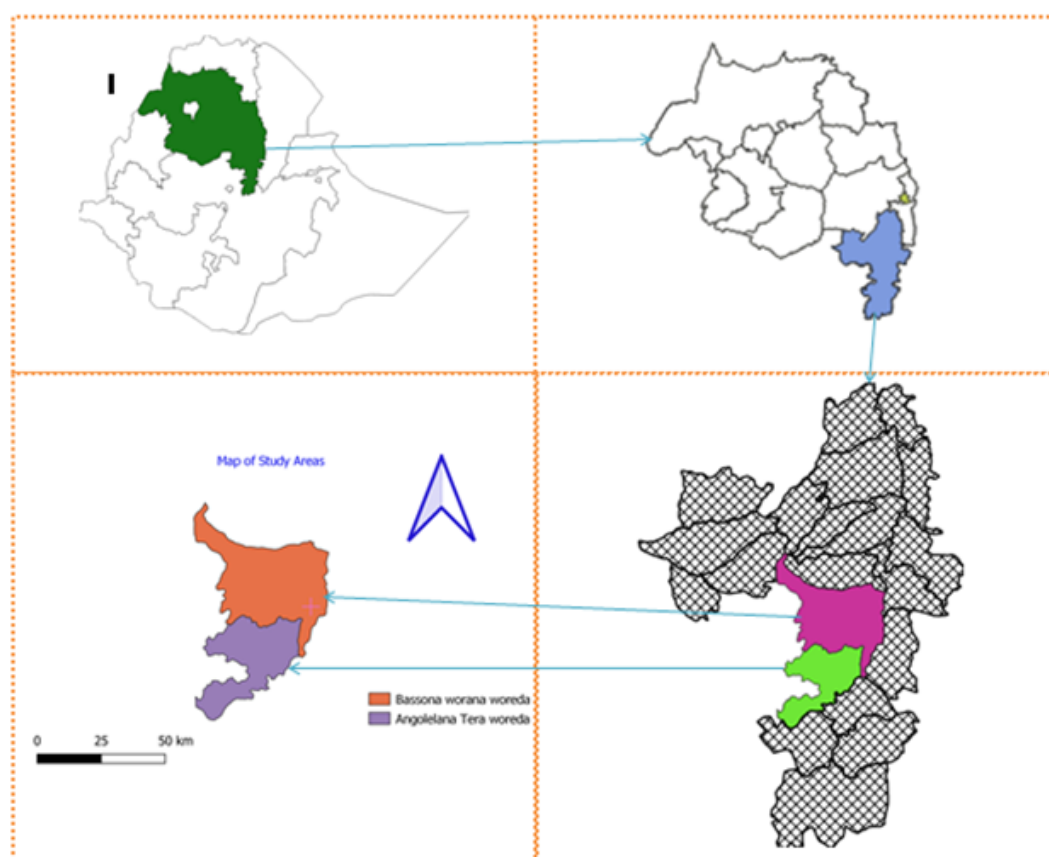
Fig. 2. Map of study areas

(one per each kebele) were conducted following the entry of the collected data into the SPSS program during the final week of June 2021. The focus group discussions were carried out using randomly selected seven to ten household heads from each kebele after creating a checklist. The focus group discussion mainly focused on how the participant sustains their life and their perception of livelihood diversification strategies. The job preference and attitudes of the local farmers on some ignored jobs and youth unemployment were collected.

Sampling method and sample size

To choose the right respondent households, a multi-stage sampling technique was adopted. The two woredas in the first stage were chosen expressly for their accessibility (Table 1). In the second stage, two kebele were randomly chosen from each chosen woreda, and in the third stage, using simple random sampling techniques, the required number of sample households were selected from a sampling frame with lists of smallholder farmers in each chosen kebele (sourced from kebele agriculture office), with the likelihood of this sampling frame being proportional to the sample size of the chosen kebele. Because the study population was finite, the sample size for this study was determined based on the following formula (Yamane, 1967).

$$n = \frac{N}{1 + N(e)^2}$$

where n is the sample size to be computed, N is the total number of households in the study area, and e is the level of precision, which is about 0.07 in this study. Because the total number of households in the selected kebeles was different, the number of samples was based on their proportions.

Table 1. Number of sample households and their proportion from each kebele

Kebele	Total number of households per kebele			Distribution (No)
	male hHH	female hHH	%	
Tsigereda	2 175	149	37	75
Abamotie	1 222	402	21	42
Wushawushgn	1 449	351	25	50
Chefanen	994	210	17	34
Total	5 840	1112	100	201

Source: agriculture office report of kebeles studied.
Notes: male hHH = male-headed household and female hHH = female-headed household.
% – indicate the proportion of samples from each kebele in a percentage, No – number of samples from each kebele.

Methods of data analysis

Both descriptive statistics and multinomial logistic regression analysis were applied in this study using SPSS software. Descriptive statistics like mean, percentage, standard deviation and chi square test were used. According to Maddala and Lahiri (1988), when the dependent variable has more than two nominal categories that are unordered and the regression or analysis includes a variety of explanatory variables, such as variables of the scale or nominal type (particularly alternative invariants), multinomial models are appropriate. Using multinomial logistic (MNL) regression analysis, the predictors of smallholder farmers' methods for diversifying their sources of income were calculated in this study. The MNL model's estimation was performed using the on-farm alone livelihood strategy as the reference category for study when the dependent variable has multiple outcomes [$j = 0,..., 3$] and a household chooses to rely on $j(0)$=on-farm alone, $j(1)$ = on-farm + off-farm, $j(2)$ = on-farm + non-farm, and $j(3)$ = on-farm + off-farm + non-farm income generating activities.

Hypothesis and definition of variables

Table 2 shows both the independent and dependent variables used in this study and also the expected effect of each independent variable on dependent variables by multinomial logistic regression. This study hypothesizes that each of the listed explanatory variables affects the dependent variables positively and negatively, as indicated in the right-side column of Table 2.

Table 2. Description of dependent and explanatory variables used in the model

No	Variables	Description and unit of measurement	Expected sign
1	2	3	4
1	Age	Continuous variable, age of household head in years	−
2	Sex	Binary variable, 1 if the household head is male and otherwise 0	+
3	Household Size	Continues, the total number of individuals living in the house in the number	+
4	Education	Continuous, formal education level of the household head in years	+
5	Farming experience	Continuous, farming experience of the household head in years	−
6	Land size	Continuous, total own land of the household in hectares	−
7	Livestock	Continuous, livestock ownership in TLU	−

Table 2 – cont.

1	2	3	4
8	Income	Continuous, total household income in ETB	+
9	Asset	Continuous, Total estimated household assets in ETB	+
10	Cooperative	Binary, household membership to a local cooperative	+
11	Extension	Binary, household contacts with extension agents	–
12	Market	Continuous, household residence a market in walking minutes	–
13	Road	Continuous, household residence distance from the main road	–
14	Credit	Binary, household access to credit	+
15	Food	Binary, household access to sufficient stable food	–
Dependent Variables		Description of the livelihood diversification strategies	
On farm		Households participated only in farm activities (0)	
On farm + off farm		Households participated in both on farm and off farm activities (1)	
On farm + nonfarm		Households participated in both on farm and nonfarm activities (2)	
On farm + off farm + nonfarm		Households participated in on farm, off farm and nonfarm activities (3)	

Source: adapted from Gebru et al., 2018 and Emeru et al., 2022.
TLU – tropical livestock unit, ETB – Ethiopian birr and Das – development agents.

RESULTS AND DISCUSSION

Demographic and socio-economic characteristics of the respondents

Table 3; summarize the demographic, socio-economic and institutional characteristics of the sample households for continuous variables. The average age of the sample household head was 45.55 years. However, this result was higher than that of the national rural areas people average age of 44.9 (FAO, 2019). The average formal education level of the household head was 2.49, which was very small compared to the national rural area average education level of 5.6 years of schooling (FAO, 2019). The average household size of the sample was 4.88, which was almost similar to that of the national average of rural dwellers household size of 4.9 as

Table 3. Characteristics of respondent households by continuous variables

Variables	Mean	Std. Deviation
Age of Household head (years)	45.55	14.22
Formal education level (years)	2.49	3.33
Household size	4.88	1.92
Total owed land (hectare)	1.82	0.97
Livestock ownership (TLU)	5.25	2.72
Distance from the nearest market (walking minute)	102.72	69.76
Distance from the main road (walking minute)	27.86	28.43

Source: own data summarized from the 2021 survey.

stated by food and agricultural organization of the united nation during 2019. The average owned land of the respondents was 1.82 hectares, which was higher than the national average of 1.1 hectare. The sample household had more livestock (5.25 TLU on average), due to their participation in dairy farming and small ruminant rearing, especially sheep production and fattening. This result was higher than the national rural household average livestock holding of 2.7 (FAO, 2019). The sample households were far from the market (102.72 minutes' walk on average) and on average the household far from main roads by 27.86 minutes' walk (Table 3).

Table 4 also summarizes the demographic, socio-economic and institutional characteristics of the sample households for dummy variables. More than 96% of the household head was male, 94% of the household had contact with the local development agents, only 37% of the sample household had access to credit, 73 % of the sample household had a membership of the local co-operatives and also 85% of the household had access to enough stable food for their household consumption (Table 4).

Table 4. Characteristics of respondent households by dummy variables

Variables	Categories	No	Proportion
Sex of household head	Male	194	96.5
	Female	7	3.5
Contact with Development Agents	No	10	6
	Yes	191	94
Access to credit	No	126	62.6
	Yes	75	37.4
Membership in local agricultural cooperative	No	54	26.8
	Yes	147	73.2
Household access to enough stable food	No	30	15
	Yes	171	85

Source: own data summarized from the 2021 survey.

Household's livelihood diversification strategies

Diversifying livelihood is the main strategy of the households to overcome various natural and man-made disasters as well as crops and animals damage in addition to the mixed farming system in the highland of North Shewa Ethiopia. Although there were different factors
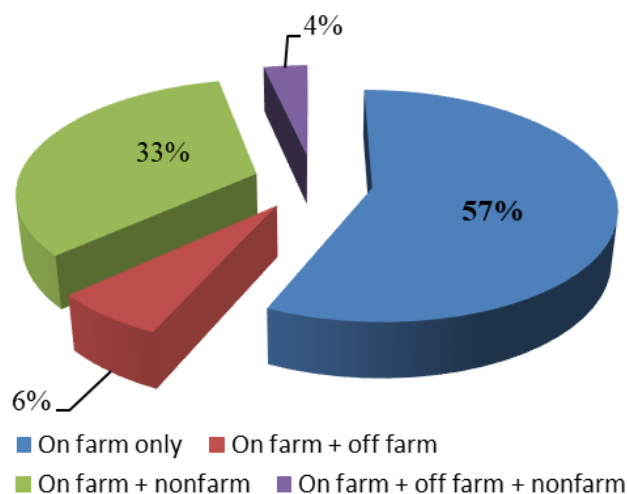
Fig. 3. Livelihood diversification strategies of sample households

which affect their ability to diversify their livelihoods, 33% of the sample households diversify their livelihood to on-farm + non-farm activities, 6% of them diversify their livelihood to on-farm + off-farm, 4% of them diversified their livelihood to on-farm + off-farm + non-farm but, 57% of the sample household engaged only on-farm activities as their livelihood strategies (Fig. 3).

Perception of farmers on livelihood diversification strategies

The majority of the farmers who participated in the focus group discussion believed that off-farm and non-farm activities were not the responsibility of rural farming communities. They thought that these activities were performed by urban and unemployed residents. Due to their traditional beliefs, they are less interested in participating in off-farm and non-farm activities. Individuals who participate in some traditional art works such as carpentry, metal work, and masonry have been given bad names by locals, which discourages them from actively participating in such jobs. However, due to cultural mixing and globalization, these negative ideas are increasingly being overlooked in peri-urban areas. On the other hand, the participating farmers stated that they lack the necessary capital to engage in non-farm and off-farm activities such as trading. In addition to this, most of them are preoccupied with farming activities from year to year due to the traditional farming system,

which necessitates a large amount of labor for all farm chores. According to the farmers who took part in the focus group discussion, their main coping mechanisms for natural and man-made hazards are mixed agricultural systems (crop and animal production), forest production, and engagement in social institutions such as equb and eder. Some participants stated that they engage in occasional grain and livestock trading, as well as part-time employment in non-farm activities to support their household lives.

Determinants of smallholder farmer's livelihood diversification strategies

The decision to diversify the livelihood strategies of smallholder farmers in the study areas affected by different demographic, socio-economic, institutional and environmental factors. The likelihood ratio test for the nested model (Neyman and Pearson, 1928) was used to select the appropriate variables used in the multinomial logistic model. Using it, only twelve variables included in the multinomial logistic regression model after the likelihood ratio test reject the full model in favour of the model with twelve selected variables. The age of the household head, sex of the household head, formal education level of the household head, land ownership, livestock ownership, household residence distance from the main road, and household access to stable food and credit affected the household livelihood diversification strategies significantly at a different level of probability (Table 5).

Table 5. Multinomial logistic regression model results

| Variables | Livelihood strategies adopted by sample households | | | | | |
| | On farm + Off farm | | On farm + Nonfarm | | On farm + Off farm + Nonfarm | |
	Coefficient	St_ error	Coefficient	St_ error	Coefficient	St_ error
Age	–0.076**	0.04	0.01	0.02	0.06	0.04
Sex	16.33***	0.01	–1.03	0.85	14.92***	0.01
Formal Education level	–0.02	0.13	0.19***	0.06	0.17	0.18
Household Size	0.33	0.24	0.08	0.11	–0.12	0.31
Total own land	0.13	0.51	–0.41*	0.23	–2.82***	1.16
Tropical livestock unit	–0.43*	0.23	0.02	0.08	–0.19	0.26
Distance to market	0.01	0.01	0.02	0.03	0.01	0.01
Distance to road	0.01	0.01	–0.01*	0.01	–0.01	0.03
Contact with Das	–0.02	1.32	–0.01	0.82	14.81	4006.19
Access to Credit	–0.06	0.71	0.13	0.36	1.80*	1.03
Membership to cooperatives	–0.91	0.68	0.50	0.43	17.15	1659.04
Access to stable food	–0.02	0.81	0.99*	0.56	0.40	1.42
Dependent variable	Livelihood diversification strategies					
Number of observations	201					
The reference category is On farm only						
Degree of freedom	42					
Model fitting information (likelihood ratio test)	LR test result is significant at 5%					
Pseudo R_square (Nagelkerke)	0.326					

*, **, *** for 0.1, 0.05, 0.01.
Source: own data analyzed from 2021 survey.

The age of the household head negatively affects the household livelihood diversification into On-farm + off-farm activities with a 5% significant level. The possible reason is that older household heads had less education than younger ones; they have less access to information, they are conservative and are also physically unable to engage in additional income-generating activities. The youngest household heads are more energetic, active both physically and mentally to participate in off-farm activities in addition to on-farm income-generating activities. This result was in line with the findings of Gebru et al. (2018); the age of the household head negatively and significantly influences smallholder farmers' livelihood diversification into on-farm + off-farm income-generating activities.

The sex of the household head (being male) positively influences the household livelihood diversification into on-farm + off-farm and on-farm + off-farm + non-farm income generating activities with a 1% significant level. This is because male farmers were more active than females in participating in different off-farm income-generating activities. This was because of cultural traditions and also that women have a work overload compared to men and are unable to participate in different off-farm activities. This result was in agreement with the findings of Gecho, (2017); Debele and Desta (2016); the sex of the household head (being male) positively and significantly affects household livelihood diversification strategies.

The formal education level of the household head positively affects the household livelihood diversification into on-farm + non-farm income generating activities with a 1% significant level. The reason is that more educated households are actively involved in different non-farm income-generating activities in the study areas, such as in trading and working as a part-time security guard. As compared to uneducated or poorly educated households, more educated households have a better understanding of managing family and business in a better way. They also have better skills and information on how get involved in non-farm income-generating activities in addition to on-farm activities to improve the living standard of their family. This finding was in line with the findings of Emeru et al. (2022) and Gebru et al. (2018); the education level of the household head positively influences the household livelihood diversification into on-farm + non-farm income generating activities.

Total land holding negatively affects the household livelihood diversification into on-farm + non-farm and on-farm + off-farm + non-farm activities with 10% and 1% significant levels respectively. This is due to the fact that households who owned sufficient lands have enough income, food secured and are not interested in participating in non-farm and off-farm income-generating activities. They are actively engaged in on-farm activities rather than non-farm and off-farm activities. They have also a heavier workload to manage their farm, compared to households with less land. The result of this study agreed with the findings obtained by Kaija (2007) and Khatun and Roy (2012); households having more of their own land have a low probability of engaging in non-farm and off-farm income-generating activities compared to households with less own land.

Livestock holding in TLU negatively affects the household livelihood diversification into on-farm + off-farm activities with a 10% significant level. Due to most of the households participating in small ruminant rearing and dairy farming in the study areas, their major source of income is from the selling of livestock and livestock products. As a result, the households in the study areas have less chance to participate in off-farm activities. They are actively involved in keeping and feeding their sheep and dairy cows and other farming activities. The result of this study was in line with the findings of Gebru et al. (2018); Adepoju and Obayelu (2013) and Asfaw et al. (2015); households having more livestock are less likely to participate in off-farm and non-farm activities to diversify their income.

Household residence distance to the main road negatively affects the household livelihood diversification into on-farm + non-farm activities with a 10% significant level. Households that reside far from the main road are less likely to participate in any non-farm activities due to the difficulty of transportation to the market to get inputs and also their outputs. In addition to this, households far from main roads have less access to non-farm activities like daily labor on non-agricultural activities, security guards and others. The result of this study was in agreement with the finding of Kassie et al. (2017) and Gecho (2017).

Household access to credit positively affects the household livelihood diversification into on-farm + off-farm + non-farm activities with a 10 % significant level. Households having more access to credit, their probability of engaging in off-farm and non-farm activities

increase due to their having initial capital to start any off-farm and non-farm activities and to improve their livelihoods. They were able to invest in off-farm and non-farm activities in addition to on-farm activities. The result of this study was in line with the findings of Gebru et al. (2018) and Teshager et al. (2019).

Household access to stable food positively affects the household livelihood diversification into on-farm + non-farm activities with a 10% significant level. This is because households have enough food for their household consumption; they can start-up businesses to improve their livelihoods. On the other hand, when households diversify their livelihoods, they have more access to stable food. The result of this study is contrary to the hypothesis of the study, which assumes that those households who have access to enough stable food are less likely to diversify their livelihood.

CONCLUSION AND RECOMMENDATION

In developing countries like Ethiopia, farming is subsistence, rain-dependent, non-mechanized, with a high crop filler by environmental and human factors, and uninsured. As a result, diversifying the smallholder farmer's livelihood into different strategies is the best way for sustaining the source of income. However, different demographic, socioeconomic, institutional and perception factors affect household livelihood diversification to different activities, in addition to on-farm activities. Some smallholder farmers diversify their livelihoods into off-farm, non-farm and both off-farm and non-farm, in addition to on-farm activities. In the farming community, it was not easy to diversify livelihoods into off-farm and non-farm activities except for some indigenous and homemade cultural activities. In the context of Ethiopia, most of the farming communities were less educated and have low awareness and bad traditional beliefs about off-farm and non-farm activities. They also engaged in subsistence farming and did have not surplus production and capital for further investment in off-farm and non-farm activities. Moreover, most of the rural farmers have no access to better transportation service credit and information and communication technologies. Therefore, as a coping mechanism for crop and livestock filler and also to improve the livelihood of smallholder farmers, diversifying the livelihood strategies of the farming community is the main entry point for both governmental and non-governmental organizations. Raising awareness of livelihood diversification, specifically for women, older generations and less educated farmers, avoiding bad traditional beliefs on some ignored jobs, creating access to credit, roads and markets, and promoting crop-livestock mixed farming systems are the policy recommendation of this study.

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