European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.15, No.3, 2023

Determinants of Rural Youth Participation in Non-Farm Employment: The Case of Ubadebretsehay Woreda, Gofa Zone, Ethiopia

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Abstract
The aim of this study is to assess the determinants of participation of the rural youth in non-farm employment in Ubadebretsehay Woreda of Gofa zone, Ethiopia. Multistage sampling technique was used to select 136 respondents from five rural Kebeles. Interview schedule, key informants interview, focus group discussions were employed for primary data collection. The Binary logistic and Tobit regression models were used. The binary logit model results revealed that marital status, experience of non- farm employment and educational status of the youth, economically productive household size, land holding size and livestock holding of the youth's family, distance from the main market and business advisory service significantly affected the participation status of youth in nonfarm employment. Likewise, educational status, economically productive size, live stockholding of youth family, experience of non-farm employment and amount of money borrowed have statistically significant and positive effect on share of income from non-farm employment whereas land holding size of youth's family, marital status and distance from main market have statistically significant and negative effect. Rural infrastructures like electrification and roads as well as design of special package programs are necessary to improve participation of the youth in non-farm employment.
Keywords: Rural Youth, Non-farm, Participation
DOI: 10.7176/EJBM/15-3-03
Publication date: February 28th 2023

1. INTRODUCTION

Ethiopia is experiencing the second-largest youth budget in Africa, after Nigeria; the median age in Ethiopia is estimated to be 19 (Zeru, Anne& Jack, 2018). Of 94.352 million Ethiopians projected to be in 2017, an estimated 34.62 million are aged 15-34, of these 26.4 million are in rural areas, and the number of young people in this age group could rise to 42 million(30 million in rural areas) by 2027 (Central Statistical Agency (CSA), 2016). Despite the recent economic growth witnessed in Ethiopia, youth unemployment is high and rising (Martha, 2012). Ethiopia is still struggling in the face of a developing economy and the country is still lagging behind in socioeconomic transformation and the ability to create sufficient job opportunities for its unemployed citizens. The role of the private sector, particularly small and micro enterprises (SMEs) have improved in recent years, but compared to the daunting economic and social problems the country is experiencing, much remains to be done. Rural nonfarm activities, accounting for 35 percent to 50 percent of rural income in developing countries, are an important part of rural poor households' complex income strategies. Research has demonstrated that the rural nonfarm sector can, and often does, contribute to economic growth, household income diversification, rural employment, poverty reduction, and a more spatially balanced population distribution (World Bank, 2017). In Ethiopia the sector contributes about 42% of the participant household income and 25% of the rural employment (Loening and Imru, 2009).

Youth unemployment is a pressing issue in Ethiopia where almost two-thirds of the population is younger than 25 years. The level of unemployment of a country is widely used as an overall indicator in evaluating the current performance of its economy. There can be various factors explaining unemployment, such as a low level of general economic activity, recession, inflation, rapid changes in technology, disability, willingness to work and discrimination (Amanuel, 2016).

The majority of the youth in Ethiopia live in rural areas where farming has been traditionally the main livelihood of the people. These areas, in Ethiopia, are sensitive to changes in the natural environment, and recurrent droughts coupled with fragmented land size severely affect the ability to maintain stable livelihoods. These climatic changes are particularly detrimental to youth and women in rural areas (Zeru *et al*., 2018).

Recent findings of scholars such as Demissie & Legesse(2013), Demie & Zeray(2015), Kalalto(2016) and Asfaw, Simane, Hassen,& Bantider(2017) examined the determinants of non-farm employment and livelihood diversification of rural households in different study areas of Ethiopia. However these studies were focused on farm households in general but not on rural youth issues in specific. Others have evaluated the factors of non-farm

labor engagement and effects of income or wealth on non-farm labor choices (Mduma and Wobst, 2005 and Bezu and Christopher, 2010). However, largely missing from the literature on Ethiopia is an in-depth evaluation of the transition of youth from employment in on-farm into the non-farm sectors.

At present most of rural youth in Ubadebretsehay Woreda were engaged in on-farm employment even though the land holding of the youth or their parents is being very fragmented and decreasing from time to time with highly affecting climatic variability on the livelihood of the households (WANRO, 2016). The study area is one of the areas where there was limited empirical studies conducted on the issue related with rural youth participation in non-farm employment as it is development focus in study area as well as at country level. Hence, it contributes its part to fill this gap.

2. OBJECTIVES OF THE STUDY

The general objective of the study is to assess the factors that determine the status of participation in non-farm employment as well as the contribution of it on income of the rural youth. The Specific objectives of this study are:-

1. To identify rural youth non-farm employment activities in the study area;
2. To identify factors affecting rural youth participation in non-farm employment and
3. To identify factors affecting share of income from non-farm employment of rural youth in the study area.

3. RESEARCH METHODOLOGY

Ubadebretsehay is one of the Woredas in Gofa Zone of South Nations, Nationalities and People Regional State (SNNPRS), Ethiopia. According to CSA (2016), in 2019 the population of the Woreda was projected to be about 90287(Male 45481 and Female 44806). The Woreda is divided into 20 Kebeles, 1 urban (Beto) and 19 rural. The livelihood of the people living in Woreda mainly depends on mixed agriculture. Non-farm activities of the Woreda are petty trades including local food and beverage making and sales, transportation service using motor bike and cart, hand crafts local carpentry and building works, etc. (WANRO, 2016)

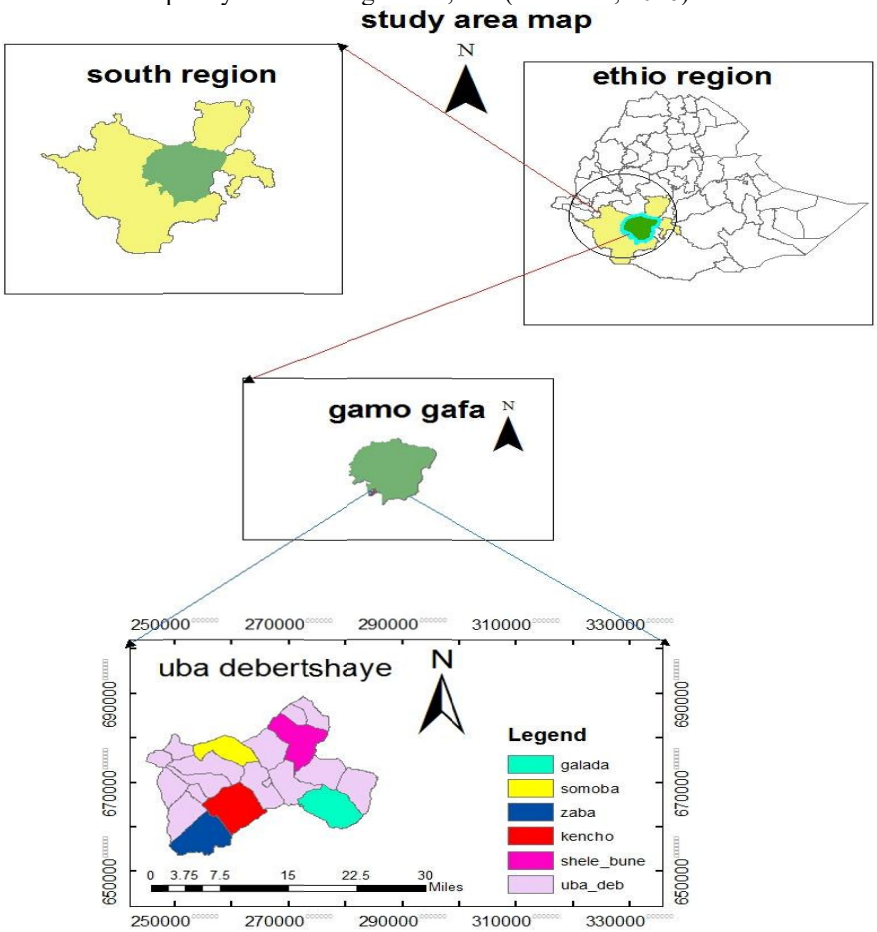

Figure 2: Location Map of Ubadebretsehay Woreda in SNNPRS, Ethiopia

The study design for this study was descriptive survey method. The multi-stage sampling technique was employed for the study. The study was employed a simplified formula provided by Kothari to determine the required sample size at 95% confidence level and desired level of precision(e)= 5% (0.05);

$$n = \frac{Z^2.p.q.N}{e^2(N-1) + Z^2.p.q}$$

Where; n= sample size, Z=value of standard deviation at 95% confidence level (In this case 1.96), e=desired level of precision (±5%), p=sample proportion in target population which equals to 0.10, q=1–p which equals 0.90. Since the population of the study target was 9604, using the above formula, the sample size of the study was 136. This sample size was allotted to five kebeles using proportionate stratified sampling method as indicated in the table below.

Table 4: Sample size from each kebeles

Kebele	Youth population	Sample size
Zaba	2884	40
Kencho	1933	27
Shellebune	2379	36
Galada	1101	15
Somba	1307	18
Total	9604	136

Source: own compilation, 2020.

The study relied on both primary and secondary sources that included both qualitative and quantitative types of data to generate relevant and valuable information. Primary data were collected through interview schedule, key informants interview as well as focus group discussion. The study also used secondary data, mainly collected from official records of *Woreda* level, archived researches, books as well as journals.

Data was analyzed using the statistical package for social science (SPSS) and STATA 13. Inferential analysis like chi-square test and t-test and descriptive statistics methods such as frequency, means and percentages were used to analyze and present the data.

A. Specification of binary logistic model to ascertain factors affecting rural youth participation in non-farm employment

A binary logistic regression is a special type of logistic regression model which is used to describe the relationship between one or more independent variables and a binary outcome variable that has only two possible values. The response variable in this study is dichotomous which is Bernoulli random variable with two possible values, $y_i = 1$ with probability to be participant in non-farm employment $P_i = P(y_i = 1|X_i)$ and $y_i = 0$ with probability to be not participant in non-farm employment, $1-P_i = 1-P(y_i = 1|X_i)$.

The logistic model is defined as follows. Let $Y_{n\times 1}$ be a dichotomous outcome random variable as explained above and let $X_{(n\times(k+1))}$ denote the collection of k-predictor variables.

$$X = \begin{bmatrix} 1 & X11 & X12 & \dots & Xk1 \\ 1 & X21 & X22 & \dots & X2k \\ . & . & . & \dots & . \\ . & . & . & \dots & . \\ . & . & . & \dots & . \\ 1 & Xn1 & Xn2 & \dots & Xnk \end{bmatrix} = [X1\ X2 \dots Xn]$$

Where, **X**is called regression matrix, and without the loading column of 1's, is termed as predictor data matrix. Then, the conditional probability that the **i**th individual is participate in non-farm employment activities given the vector of predictor variables $\mathbf{X_i}$is denoted by $\mathbf{P_i} = P(y_i=1|X_i)$. The expression Pi in logistic regression model can be expressed in the form of:

$$Pi = P(Xi) = \frac{e^{Xi\beta}}{1+e^{Xi\beta}}, i = 1,2,3 \dots \dots .. n \text{----------} \quad \text{---3.1}$$

Where P (y_i=1|X_i) is the probability of i^{th} individual is participating in non-farm employment given his/her individual characteristics $\mathbf{x_i}$,and $\beta = (\beta_0, \beta 1, \dots \beta k)^T$ is a vector of unknown coefficients with dimension of (k + 1) × 1.

However, the relationship between the probabilities of i^{th} individual participating in non-farm activities and his/her characteristics are nonlinear. In order to make meaningful interpretation, it should be written as a linear combination of predictors. This is computed using the logit transformation which is given by:

$$logit[Pi] = log\ log\ (\frac{Pi}{1-Pi}) = \sum_{j=0}^{k} \beta j Xij,\ i = 1,2,\dots n,\ j = 0,1,2,\dots k \dots\dots\dots\dots\dots\dots 3.2$$

Where X_{io}= (1, 1, 1----------1) ^{T}

The parameter β_j refers to the effect of X_j on the log odds that Y= 1, controlling the other X"s in the model.

The model classification established the goodness-of-fit of the model, where 94.8% of respondents were correctly classified by the model.

B. Specification of *Tobit* Model for analysis of determinants of the share of income from non-farm employment of participant youth

The econometric model applied for analyzing factors influencing the contribution of non-farm activity on income level of rural youth using the *Tobit* model is shown in equation (3.2). Following Amemiya (1985), the *Tobit* model can be specified as

$$Yi^* = \beta_i x_i + u_i$$

$$Y_i = \{Yi^* if\ Yi^* > 0\ 0\ if\ Yi^* \leq 0 \quad for\ i = 1,2,3,---,n$$

where Yi is the observed dependent variable; Yi* is the latent variable which is not observable; Xi is vector of characteristics affecting earning income from nonfarm employment and the amount of income from the nonfarm employment; βi is a vector of unknown parameters to be estimated; ui are residuals assumed to be independently and normally distributed with mean zero and a common variance σ2 (i = 1, 2, … n).

The zero threshold value in the model is not a very restrictive assumption, because the threshold value can be set to zero or assumed to be any known or unknown value. The model parameters will be estimated by maximizing the Tobit likelihood function of the following form (Amemiya, 1985).

$$L = \prod_{y>0} \frac{1}{\sigma} f\left(\frac{Y_i - \beta_i x_i}{\sigma}\right) \prod_{y\geq 0} F\left(\frac{-\beta_i x_I}{\sigma}\right)$$

where f and F are the density probability function and cumulative distribution function of Yi*, respectively. ∏y≤0 means the income over those i for which Yi*≤ 0, and ∏y≥0 means the income over those i for which Yi* >0.

Maximum likelihood estimation would use logarithmically transformed versions of Equation. It may not be sensible to interpret the coefficients of a Tobit in the same way as one interprets coefficients in an uncensored linear model. Hence, one has to compute the derivatives of the estimated Tobit model to predict the effects of changes in the exogenous variables.

Greene (2003) proposed the following techniques to decompose the effects of explanatory variables into the probability and intensity effects. Thus, a change in Xi (explanatory variables) has two effects. It affects the probability that the observation will fall in positive part of the distribution and it affects the conditional mean of Yi* in the positive part of the distribution. This decomposition approach is used in this study.

The change in the probability of income change from nonfarm employment as independent variable Xi changes can be computed as:

$$\frac{\partial F_{(z)}}{\partial X_i} = f(z)\frac{\beta_i}{\sigma}$$

The marginal effect of an explanatory variable on the expected value of the dependent variable is:

$$\frac{\partial E(Y_i)}{\partial X_i} = F(\beta_i)$$

Where $\frac{\beta_i X_i}{\sigma}$ is denoted by z.

The change in income with respect to a change in an explanatory variable among nonfarm income earners will be

$$\frac{\partial E(Y_i / Y_i^* > 0}{\partial X_i} = \beta\left[1 - z\frac{f(z)}{F(z)} - \left(\frac{f(z)}{F(z)}\right)^2\right]$$

whereas F(z) is the cumulative normal distribution of Z, f(z) is the value of the derivative of the normal curve at a given point (i.e., unit normal density), Z is the z-score for the area under normal curve, β is a vector of Tobit maximum likelihood estimates and σ is the standard error of the error term.

The first dependent variable in this study was rural youth participation status in non-farm employment activities. It was classified as participant and non-participant because of the focus of this study was to identify the factors which affect participation but not about the intensity or other issues as other studies (Asfaw et al., 2017; Amanuel, 2016) which focus in this area of study similarly used this way of classification. In the regression analysis, it was denoted by 1 if the respondent is participating in non-farm employment activities and 0 otherwise at the time of the survey. Therefore, the outcome for the ith individual was represented by a random variable Yi with two possible values (participant in non- farm employment activities and not participant in non-farm employment activities).

The second dependent variable of the study was the share of non-farm income calculated from total income of individual youth who participate in non-farm activities. In the regression analysis it was represented by the continuous variable which is the value of share of income from non-farm activities which ranges from **0 to 100%.** Zero percent does not mean that the respondent has no income, but it means the respondent does not get income from non-farm activities at time of the survey and the reverse was true for 100%.

Independent/explanatory variables

The explanatory variables that were expected to influence the dependent variable(s) were the following:-

Age: Age of youth in years is a continuous variable which is expected to affect the participation and contribution on income of youth positively and as it increases.

Sex: Sex of the youth is a dummy variable which is denoted by 1 for male and 2 for female. It affects participation and share of income from non-farm employment positively for females and negatively for male.

Educational status: Educational status of the youth is a categorical variable which was expected to affect the participation of rural youth in non-farm activities positively and it is expected to affect the share of income from non-farm activities negatively. It is denoted by 0 for not reading and writing, 1 grade 1-6, 2 for those who are studied grade 7- 12 and 3 for those who studied above 12 and college level studies. Educated individuals are more likely to participate in all types of nonfarm employment.

Marital Status: Marital status of the youth is a dummy variable which is denoted by 1 for married and 2 otherwise. Marital status has a positive effect on the participation of youth and it is expected to have a negative effect on share of income from non-farm employment.

Household labor of youth's parents (AE): It is continuous variable and measured by adult equivalent (AE) size labor of youth's family. It was expected to positively affect the participation status and contribution of non-farm employment on income status of rural youth positively.

Membership in cooperatives: This is a dummy variable which is indicated by 1 for Yes response and 2 for No. Members of cooperatives have the opportunity of getting loans and training, in an organized way, for their business which may positively influence them to participate in non-farm employment.

Total land size in hectares owned by youth's parents: This is a continuous variable which is measured in hectares of land owned by the youth family. Its effect on participation of rural youth in non-farm employment and contribution of it on income is expected to be negative. Most households engaged in low earning jobs as the small farm size forces them to look for other sources of income for subsistence.

Livestock owned by youth's parents (TLU): This is a continuous variable which is measured for different types of livestock youth families owned by tropical livestock units (TLU). This variable was expected to have a positive effect on the participation of rural youth in non-farm employment and on contribution of non-farm employment on income of youth.

Distance from market center: This is a continuous variable which shows the distance of youth from the main market center in kilometers. This variable has positive effect on participation of rural youth in noon farm employment and negative effect on contribution of non-farm employment on income.

Amount of money borrowed by the youth: It is continuous variable expected to affect participation status and share of income from non-farm employment of rural youth positively.

Received Business Advisory Service: This is a dummy variable which is denoted by 1 for ''Yes'' and 2 for ''No'' and it is expected to have positive effect on both participation and share of income of non-farm employment.

Experience of Climatic shocks: This is a dummy variable which is indicated by 1 for ''Yes'' and 2 for ''No'' responses and which is expected to have a positive effect on participation of rural youth in non-farm employment.

Experience of non-farm employment: This dummy variable is denoted by 1 if the response is Yes and 2 if the response is No. It is expected to have a negative effect on both the participation and share of income from non-farm employment.

Table 5: Summary of Description, Type and Hypothesis of Explanatory variables used in the econometric models.

Variable	Description	Measurement	Type of the variable	Expected effect on	
				Participation status of youth	Share of non-farm income of youth
AGY	Age of the youth	Years	Continuous	+	+
EDSY	Educational status of the youth	-	Categorical	+	+
SXY	Sex of the youth	-	Dummy	+/-	+/-
MSY	Marital Status of youth	-	Dummy	+	+
YPFS	Household labour of youth's parents(AE)	Number	Continuous	+	–
FLFY	Total land size owned by the youth's family.	Hectares	Continuous	–	–
LHYF	Livestock owned by youth's parents in TLU.	ETB	Continuous	–	+
DMM	Distance from market center	Kilometers	Continuous	–	–
AMBY	Amount money borrowed by the youth	ETB	Continuous	+	+
RBAS	Received business advisory service	-	Dummy	+	+
ExSHk	Experience of Climatic shocks	-	Dummy	+	–
ENFE	Experience of non-farm employment	-	Dummy	–	–
ACE	Access to electricity	-	Dummy	+	+
MCoop	Membership in cooperatives	-	Dummy	+	+

Source: Own compilation, (2020).

Access to electricity: This is a dummy variable which denoted 1 for ''Yes'' and 2 for ''No'' response. It is expected to have a positive effect on both participation and share of income of rural youth in non-farm employment

4. RESULT AND DISCUSSION

4.1 Demographic and Socio-Economic Characteristics of the Respondents

The survey result (Table 6) shows that the majority of the respondents was males (accounts for 72.1%) and has not married (52.21%). The marital status of respondents was significantly associated with participation status at 1% level. The result also reveals that the educational statuses of respondents significantly vary between the participants and non-participants of non- farm employment at 1% level of significance.

Table 6: Sex, Marital status and educational status of respondents

Sex of the respondent			Marital status of the respondent			
Response	No	%	Response	No	%	χ2-value
Male	98	72.1	Married	65	47.79	
Female	38	27.9	Otherwise	71	52.21	18.418***
Total	136	100.0	Total	136	100.00	

Educational status of respondents								
Not read and write		Grade 1-6		Grade 7-12		Above 12		χ2-value
No	%	No	%	No	%	No	%	25.671***
23	16.9	48	35.3	62	45.6	3	2.2	

***and** represent significant at the 1% and 5%, level, respectively.

Source: Own survey, (2020)

The result of the survey in table 7 shows that the average age of the respondents of the study was 25.78 years with minimum age of 18 to the maximum of 34. There was a significant mean difference observed between participants of non-farm employment and non-participants with respect to age at 5% level. The mean of household labor of respondents' parents (AE) was 3.61 with minimum of 1 and maximum of 8.35 as shown in table 7. The difference was found to be statistically significant at 1% level between the groups.

Table 7: Age and Economically productive size of youth family

Variables	Min	Max	Mean	Std. D	t-value
Age of the respondent	18.00	34.00	25.78	4.29	-1.997**
Household labor of respondents' parents(AE)	1.00	8.35	3.61	1.49	-2.747***

***and** represent significant at the 1% and 5%, level, respectively.

Source: Own survey, (2020)

The survey assessed socio-economic characteristics which are importantly expected to affect the participation status of rural youth in non-farm employment and the share of income from non- farm employment of the youth. Out of the respondents, 43.4% have received business advisory service on non-farm employment whereas 56.6% have not and it was significantly associated with participation of youth in non-farm employment at 5%.

The survey revealed that 59.6% of the respondents have no access to electric service while 40.4% have this access. It shows that 39.7% of respondents were members of cooperatives whereas 60.3 of them were not. The majority (66.2%) of the respondents have not faced climatic shocks which resulted in crop failure and loss of livestock productivity in the last two years.

Table 8: Business advisory service and electric service, membership in cooperatives of respondents, Experience of participation in non-farm employment and climatic shocks of respondents

Received business advisory service on NFE				Access to electric service of youth		Membership in cooperatives of youth	
Response	No	%	χ2-value	No	%	No	%
Yes	59	43.4		55	40.4	54	39.7
No	77	56.6	5.059**	81	59.6	82	60.3
Total	136	100.0		136	100.0	136	100.0

Experience of climatic shocks			Experience of youth participation in non-farm employment		
Response	No	%	No	%	χ2-value
Yes	46	33.8	60	44.1	
No	90	66.2	76	55.9	
Total	136	100.0	136	100.0	95.530***

***and** represent significant at the 1% and 5%, level, respectively.

Source: Own survey, (2020)

From table 8, the survey also revealed that 44.1% of the respondents have experience of non-farm employment whereas 55.9% have not. There was a statistically significant association between participation of youth in non-farm employment and previous experience of non-farm employment at 1%.

The average land holding size of respondent's parents was 1.17 hectare with maximum land size of 4 hectare (see table 9) showing that the majority of the respondent's parents have a small parcel of land which pushed the majority of the respondents participate both on farm and non-farm activities. The result of the independent sample t-test shows that the difference in mean land holding size of youth parents between the participants and non-participants of non-farm employment was found to be statistically significant at 5% level.

The mean livestock holding of the respondent's parents in TLU was about 6.98. There was significant mean variation between participants and non-participants with respect to livestock holdings of youth parents in TLU at 1%. The non-participant respondents' parents have about 5.60 of average livestock holding which is less than participant respondents' parents which is 8.40.

The survey shows that the mean amount of money borrowed by the respondents last two years was 3718.51 ETB. The average amount of money borrowed by the non-participant respondents (5132.35 ETB) was higher than that of participants of non-farm employment (2283.58 ETB) and the variation was statistically significant at 5% level.

The average distance from the main market of the respondents was 8.53 kilometers. This shows that the majority of the respondents were away from the main market in which major marketing of the study area is conducted. However, there was no statistically significant variation between participants and non-participants of non-farm employment with regard to distance from the main market.

Table 9: Land holding size and livestock holdings of the respondent's family (TLU), Amount of money borrowed by respondent last two years in ETB and Distance from main market

Variables	Min	Max	Mean	Std.D	t-value
Land holding size of respondents' parents in hectare	0.00	4.00	1.1743	1.02	-2.231**
Livestock holding of the youth's parents(TLU)	0.00	39.3	6.9870	6.1941	-2.697***
Amount of money borrowed by respondent last two years in ETB	0.00	40000	3718.51	8219.38	-2.037**
Distance from main market	0.00	26.00	10.72	8.53	

***and** represent significant at the 1% and 5%, level, respectively.

Source: Own survey, (2020)

4.2 The Non-Farm Activities Identified in the Study Area

As assessed in the study (table 11), petty trade is the major non-farm activity in the study area which is commonly related with marketing of agricultural commodities followed by transport service mainly using motorbike and local food and beverage preparation and sale. It is related with rural to rural mobility of people for different purposes and small startup capital.

Table 11: The non-farm activities in the study area

No	Non-farm activities	Frequency	%
1	Marketing and petty trade of farm and non-farm products	51	37.5
2	Transportation of commodities and public	31	22.8
3	Manufacturing of metals and wood products	12	8.8
4	Construction works such as masonry, building houses, painting, pipeline maintenance and installation etc...	8	5.9
5	Hand crafts such as black smith, tannery, weaving etc…	10	7.4
6	Local food and beverage preparation and sale	16	11.8
7	Mining such as sand and stone quarrying and supplying	5	3.7
8	Light automotive service such as motor bike and small vehicle maintenance	1	0.7
9	Professional employment in public service institutions and private sector(For those who studied TVET and above)]	2	1.5
	Total	136	100

Source: Own survey, (2020).

Moreover, metal and wood work, hand crafts, construction works, sand and stone quarrying and supply, professional employment in public and private sector and light automotive service were among money other non-farm activities according to 8.8%, 7.4%, 5.9%, 3.7% ,1.5% and 0.7% of respondents of the study respectively. These non-farm activities were also confirmed by focus group participants.

4.3 Binary logistic regression analysis results

A binary logistic regression analysis was used to identify the most important determinant factors that were associated with the participation status of rural youth in the study area. Accordingly, fourteen variables that were assumed to have an association with the participation of youth in non-farm employment were selected and tested in the model (see Table 14). Among the variables, eight of them have statistically significant effects on participation status at 5% and 1% levels.

As shown in Table 14, prior experience of non- farm employment, educational status of the youth, household labor of youth's parents, livestock holding of youth's parents and business advisory service on NFE have statistically significant positive effect on participation at 1%,1%,5%,5% and 5% respectively. Whereas marital status, land holding size and distance from market center have statistically significant negative effect on participation at 5%. Other variables such as age of the youth, access to electric service, amount of money borrowed by the youth, membership in cooperatives of youth and experience of climatic shocks in the last two years have not significantly determined the participation status of rural youths in non-farm employment in the study area.

Table 14: Binary logistic model results on determinants of participation in non-farm employment

Variables	Description	B	P-value(sig.)	Exp(B)
SXY(1)	Sex of the youth	-2.534	0.051	0.079
AGY	Age of the youth	0.253	0.147	1.288
MRSY(1)	Marital status of the youth	-2.182	0.036**	0.113
EDUSY	Educational status of the youth	0.496	0.000***	1.634
HHLYP(AE)	Household labor of youth's parents	0.253	0.048**	1.288
EXNFE(1)	Experience of non- farm employment engagement of the youth	8.470	0.000***	4770.336
LhSYF	Land holding size of youth's parents	-0.561	0.025**	0.570
LSHYF(TLU)	Livestock holdings of youth's parents	0.072	0.045**	1.074
DMM	Distance from market center	-0.094	0.030**	1.098
AccES(1)	Access to electric service	0.596	0.426	1.815
MCoop(1)	Membership in cooperatives of youth	0.443	0.360	1.557
AMBY	Amount of money borrowed by the youth last two years	0.000	0.231	1.000
RBANFE(1)	Received business advisory service on NFE	0.919	0.043**	2.506
ExSHk(1)	Experience of climatic shocks last two years	-0.047	0.931	0.954
	Constant	11.898	.067	.000

***, and ** significant at the 1%, and 5% level respectively.
Source: Computed from own survey, (2020)

4.4 Tobit model analysis results.

Non-farm income is calculated as income derived from a certain non-farm activity as the result of participation of the household. Tobit model was applied for the analysis of determinants share of income from non-farm activities using STATA 13 software package. It was applied because of its superiority in identifying the effect of explanatory variables on non -farm employment incomes of participant youth.

The model result (table 15) showed that educational status, household labour of youth's parents(AE), livestock holding of youth's parents(TLU), land holding size of youth's parents, experience of non-farm employment and amount of credit have statistically significant positive effect on the share of income from non-farm employment at 5%,5%, 5%, 5%, and 1% respectively. Whereas, marital status and distance from market center have statistically significant negative effect on share of income from non-farm employment of the youth at 5% and 1% respectively. However, sex, age, membership in cooperatives, access to electric service, business advisory service and experience of climatic shocks have no significant effect on the share of income from non-farm employment of the youth.

Table 15: Tobit regression result of determinants of contribution of non farm income of youth (STATA 13)

MSHNFEI	dy/dx	Std. Err.	z	P>|z|	[95% Conf. Interval]	
SXY	19.9267	10.8952	1.83	0.127	-1.4275	41.2809
AGE	-2.16279	1.171867	-1.85	0.109	-4.45961	0.134029
MRSY	-2.059	11.1401	-0.18	0.03**	-23.893	19.7753
EDUSY	7.88387	7.79475	1.01	0.031**	-7.3936	23.1613
HHLYP(AE)	3.754879	3.27607	1.15	0.035**	-2.6661	10.17586
LSHYF (TLU)	1.658537	0.729804	2.27	0.040 **	0.228147	3.088926
LhSYF	-6.81886	4.679674	-1.46	0.048**	-15.9909	2.35313
EXNFE	57.524	11.4878	5.01	0.000***	80.04	35.008
AMBY	1.490	0.001178	1.27	0.035**	0.1038	0.20818
MCoop	-9.3412	10.6348	-0.88	0.38	-30.185	11.5027
DMM	-0.86527	0.627464	-1.38	0.008***	2.09508	0.364533
AccES	-10.213	16.3174	-0.63	0.531	-42.195	21.7684
RexSNFE	-18.638	10.9041	-1.71	0.087	-40.01	2.73355
ExSHk	-7.8357	12.8567	-0.61	0.542	-33.034	17.3631

Number of obs = 136
Log likelihood = -455.42995
LR chi2(7) = 29.13
Pseudo R2 = 0.0310
Prob > chi2 =0.0001

***, and, **significant at 1%, and 5% respectively.
Source: computed from own survey, (2020)

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

- Substantial number of residents of the study area was engaged in non-farm activities as supplementary and main sources of income. Petty trade, transport service mainly using motorbike, local food and beverage preparation and sale, metal and wood work, hand crafts, construction works, sand and stone quarrying and supply, and professional employment in public and private sector are identified as nonfarm employment undertaken in the study area. Among these, the first three are major non-farm activities in which 42.6%, 26.5% and 16.2% of youth are hired.
- Having better educated, having additional productive family size (AE), and more livestock holding of youth family (TLU), far distance from market center business advisory service and having prior experience on non-farm activities encouraged youth participation in non-farm employment, whereas, marital status and land holding size of the family discourage the participation in the study area.
- The contribution of non-farm employment is influenced by educational status, economically productive family size (AE), live stockholding of youth's family (TLU), experience of non-farm employment, amount of money borrowed, and land holding size of youth family, marital status and distance from market center.
- Rural non-farm employment in the study area is not well financed and lacks trained and skilled youth, infrastructures mainly road and electricity for creating jobs for the youth in the study area

5.2 Recommendations

Based on the findings of the study, the following recommendations are possible areas of intervention which might help to adopt the best way to improve the participation of rural youth in non-farm employment and share of income from it in the study area.

- In the study area, non-farm activities hired substantial numbers of youth as it would help rural youth to utilize their labor hours efficiently and contribute in absorbing surplus labor thereby increasing its productivity. The environment for the development of non-farm sources of income apart from farming should be conducive. Rural-based institutions like cooperatives, farmer training centers and agricultural extension programs should strengthen integrated non-farm activities technical support as part of their program in cooperation with rural job-creation facilitators.
- Out of the respondents addressed in this study about 60% of them have no access to any electric service which can facilitate production and in addition to this average distance of youth from market center was measured to 10.72km with unfavorable road access. Even though these factors are not significant and negatively affect the participation in non-farm employment, distance from the market center has exerted its negative effect on the share of income gained from non-farm employment in the study area. Therefore, rural infrastructures like rural electrification and rural roads should be expanded to minimize the cost of operation of these activities in the study area.

- Moreover, targeted interventions and all rounded support are needed to enable youth to participate in non-farm economic activities. Policy makers and other government stockholders should have to design special package programs to strengthen the role of facilitators of rural job creation, providing microfinance (which is among the entry barriers); entrepreneurial training and skill development through adult literacy programs and formal education would probably enhance the participation in non-farm activities. Besides, NGOs working in the rural areas should also support the development of non-farm activities as well.
- Promotion and mobilization of savings should get special attention in addition to injection of capital from the government for the sector to supply sustainable working capital for the youth in the study area.
- Further research needs to be done to fill the research gap in this area of study mainly on the intensity of participation in non-farm businesses and its impact on reducing joblessness in rural areas to support policy makers and responsible bodies.

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