Innovations

Determinants of Women heads non-farm participation in Western Ethiopia; Empirical Evidence in Horo Guduru Wollega zone

Wakuma Dufera, Amsalu Bedemo, Temesgen Kebede

1. PhD candidate in Economics, Department of Agricultural Economics, College of Natural Resource Management, Salale University, Ethiopia
2. Associate Professor of Economics, School of Policy Studies, Ethiopian Civil Service University, Ethiopia
3. Assistance professor of Economics ,Department of economics, College of Business and Economics, Haramaya University, Ethiopia

Corresponding author: **Wakuma Dufera**

Abstract; Introduction; *Women have an important role in business participation that has a great impact on improving households' livelihoods.* ***Objectives****; The main objective of this study was to describe factors determining women's non-farm participation in non-farm activities.* ***Methodology;*** *For analyzing the data, the researcher used the binary log it model,* ***Results****; The result of the study shows that the determinants of women's participation in non-agricultural activities were age, family size, household property ownership, land size, non-farm training, lack of access to credit, membership in Idir, women's participation in local community affairs, and distance from the market location. Among these determinant variables, land size, family size, and distance from market location negatively influence women's participation, while the rest positively influence women's participation in non-agricultural activities. Furthermore, socioeconomic factors such as society's backward attitude toward women and women's low participation in education have been identified as major issues.* ***Recommendation****: Accordingly, the study recommended that the government, NGOs, and various religious leaders work together to minimize the socio-economic impact on women, and the women's and children's affairs office in the study area should work with the university researchers to identify the problems faced by women.*

Key words*; 1.non-farm, 2.women, 3.logit, 4.iqub, 5.saving, 6.culture*

1. Background

Rural women have an important role in agricultural and non-agricultural activities. According to researchers Alemu et al.,(2021);Endiris et al.,(2021)and Kasaye, (2021), women who work independently, free of social pressure and their husbands, earn more money for their families. The motivations for womenparticipation in non-farm are not mutually exclusive: rather, they reinforce each other. Closing the gender gap in assets—allowing women to own and control productive assets—increases both their productivity and their self-esteem. A woman who is empowered to make decisions regarding what to plant and what (and how many) inputs to apply on her plot will be more productive in agriculture as well as non-agricultural activity. An empowered woman will also be better able to ensure her children's health and nutrition, in no small part because she is able to take care of her own physical and mental well-being(Iqbal et al., 2017).

Women participation in administrative, political, agricultural, and non-agricultural activities makes them successful side by side. If all these activities are done in harmony with women's participation, it is possible to improve family life and move the country's economy as a whole and the lives of rural families to a higher level. On the other hand, if women's participation in formal and non-formal education increases, women will not even hesitate to fight for their nature and rights through empowerment and participation in non-agricultural activities.

But in rural family membership, women play a very minimal role in making decisions on available resources. This was due to the strain on women. Women do not have the full right to sell or make equal decisions on the property they already own, except as guardians of the available resources. On the other hand, women's tasks were limited to household chores such as cooking food, taking care of children, watching cattle or field crops. In addition, women are excluded from political participation, administration, and social organization(Nelson and Consoli, 2010). Rural non-agricultural activities cannot be successful without the participation of a partial community or men alone. The success of non-agricultural activities can only be achieved if women have equal decision-making power with men(Kaiyu et al, 2021).The objective of this study was to describe women's participation in non-farm activity in the study area.

Most rural women have no power to make household decisions. This is due to the fact that information is needed to resist men‘s dominance, social bias, and traditional norms. In rural areas, women are responsible for most of the household activities. This limits women‘s capacity to engage in income-earning activities, and, later, they are dependent on their husband‘s income. Therefore, this study was conducted to assess the determinants of rural women's economic empowerment in agricultural activities in the study area(Musa and Hiwot, 2017).

Women are not permitted by their spouses to engage in high-earning activities. Because of local conventions, they are considered housewives, and the lone spouse is required to participate in high-income-generating activities(Yenesew et al, 2015). As a result, some women work in small businesses such as animal sales, vegetable and fruit sales, poultry, petty trade, hairdressing, and wage labor(Wailes et .al, 1995). Age, husband's education, women's education, family size, land size, market distance, livestock holding, and access to credit all influence women's participation in income-generating activities in the study area. This research adds to the literature on women's participation challenges in income-generating activities by focusing on the experiences of rural women (Alemu et al., 2021).

Women's participation in non-farm activities is critical to the economic prosperity of their households. Women in Ethiopia, on the other hand, are not economically free, particularly in rural areas. Women frequently go against their male guardian's decisions since they rely on their husband's salaries (Asfaw, 2022). As a result, identifying and supporting women's obstacles are critical for their development or growth, as well as the realization of their economic potential. Because rural women are one of the world's most powerful untapped natural resources, despite the fact that they are frequently hidden, silent, and unappreciated (Tamrat et.al, 2020).

The dynamic changes in the development process over the last two decades have neither reduced poverty as envisaged nor lessened the vulnerability of women. The majority of the activities that women engage in as part of their livelihood strategy are not classified as economically active jobs in national accounting systems, despite being critical to the well-being of family members (Amare et al., 2017). Much of women's work is also undervalued because it is generally underpaid and restricted to the domestic or household world (Abdurezak 2020).According to CSA 2018 report, Ethiopia’s discriminatory political, economic, and social policies have prevented women from reaping the benefits of their labor. Women have fallen behind men in all spheres of self-advancement due to a lack of equal chances(Zewdu and Woldeyohannis, 2021). According to the researchers' understanding, while no studies have been undertaken in the study area of this subject, past research has focused on the contributions of entrepreneur women and factors influencing their performance on the other part of the country.

Conceptual framework of the study

In the following figure, the relationship between dependent and independent variables is presented as follows:-

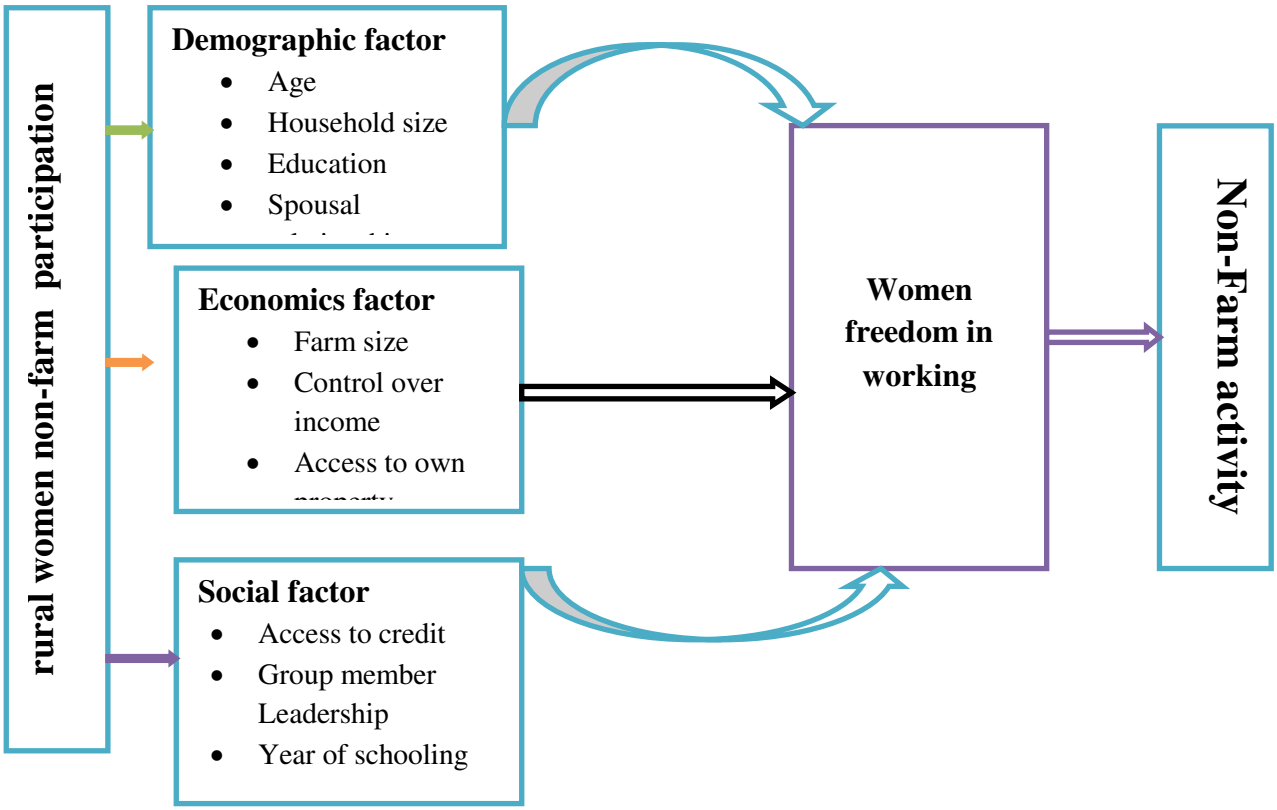

Figure 1: Conceptual frame work[1]

Source :Own developed from the review of (Endiris et al 2021 and Kimty, 2015**).**

3. Research Methodology

3.1. Description of the study area

Horo Guduru Wollega zone[2] is one of the eighteen administrative zones in Oromiya National Regional State. The capital of the administrative zone, Shambu, is located 315 km west of Addis Ababa. It has twelve administrative districts and one town municipality. The 2013 population and housing projection of the Central Statistical Agency (CSA) of Ethiopia shows that the zone has a total population of 511,737, out of which 50.1 percent are male and 49.9 percent are female. Rural areas are home to approximately 89 percent of the zone's population(Ahmed et al., 2018).

[1]The factors that affect women's participation in non-farm work are depicted in Figure 1. It demonstrates that women are more likely to work and engage in non-farm activities if they have freedom in demographic, social, and economic activity.

The total area of the Horo Guduru Wollega zone is 712,766.22 hectares. In terms of agro-ecology, the highland comprises 37.9 percent, the mid-highland comprises 54.75 percent, and the lowland comprises 7.86 percent (HGWOARD, 2022)[3]. Its rainy season occurs between May and September, and the dry season lasts from October to April. The rainy season in the area actually fluctuates from year to year, but it covers about five months. Clay and sandy soils are the major soil types of the zone(Danso et al, 2020).
The agricultural system in the Horo Guduru Wollega zone is predominantly a mixed farming system (crop and animal production). The major crops grown in the area include wheat, Teff, maize, and pulses. In the 2020/2021 cropping season, about 235,262.8 hectares of the cultivated land were under cereal crops, more than 56,133 hectares were under oilseeds, and 17,016.44 hectares were under pulses (Horo Guduru zone 2021 annual report). Livestock production is virtually an equally important economic activity in this zone .This implies that the major rural households' source of income is based on both crop production and livestock rearing. According to(Ganamo and Astatike, 2019), crop trade, petty trade, and local beverage trade are additional sources of income in addition to the main source of income for rural households in the area.

3.2 Non-Farm activities in the study area

In most regions of the country, including the study area, economic opportunities outside agriculture are limited, yet many rural households do not derive their livelihood exclusively from agriculture(Adeoye et al., 2019). According to(Ermias, 2019), farming is the most important and reliable source of income for most households. However, non-farm income has also become one of the major sources of income for rural households.

In Horo Guduru Wollega zone, non-agricultural wage employment, local beverage selling (*katikala* and Tella)[4], and daily labor employment in non-farm activities like manufacturing, construction, and petty trade are some of the most important types of non-farm activities and are commonly used as a coping strategy for most poor households in the crucial hungry period between the time when food stores run out and the next harvest(Gideon et al., 2020). "Farm wage" is a term commonly used in the Horo Guduru Wollega zone (for uneducated labor) to describe a variety of short-term rural labor relationships that are paid in cash or food crops. Agricultural wage employment is the common type of daily labor work provided on [5]less poor smallholders' farms (on commercial estates), and this involves preparing fields, seeding, weeding, harvesting, and threshing.

[3]HGHWOARD :-it is Horo Guduru Wollega zone Agricultural and Rural Development Report
[4]Katikala and tella ;The native beverages that rural women sell to make money so they can survive.

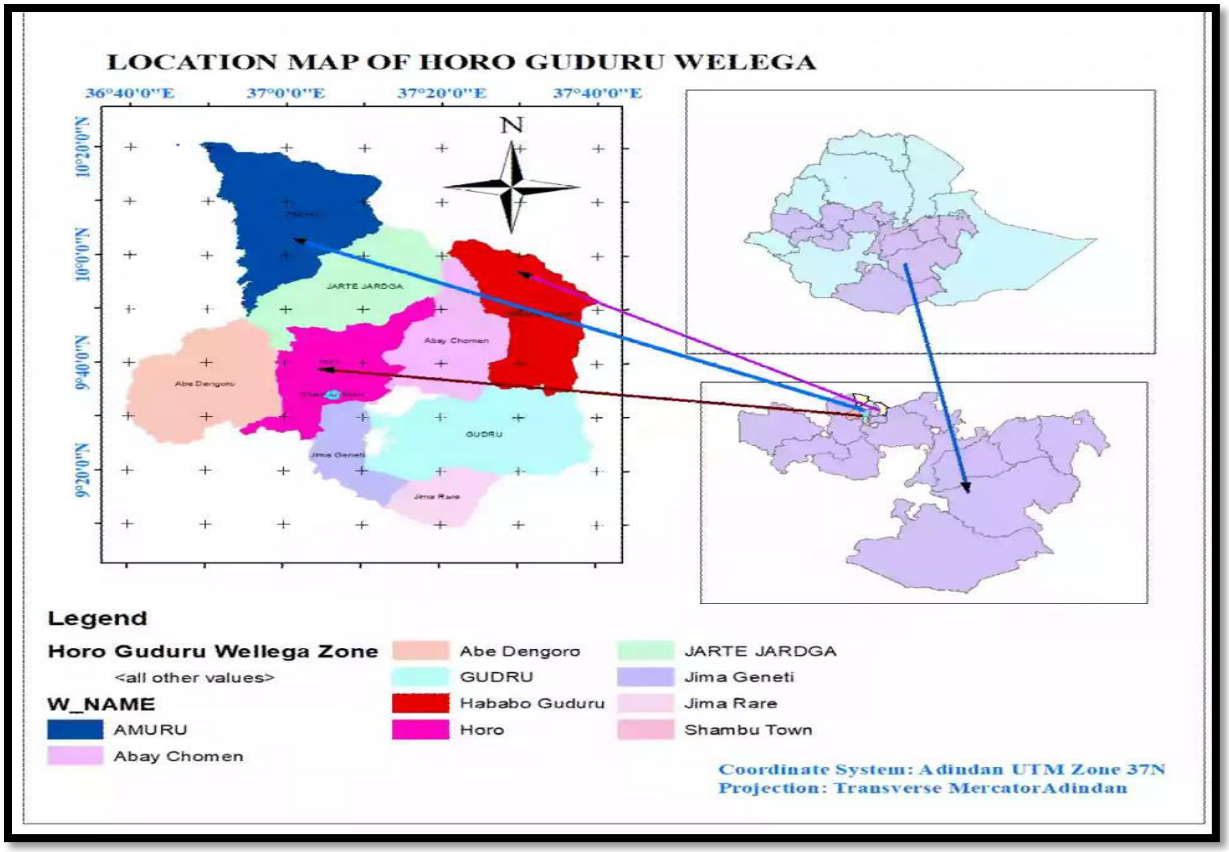

Figure 2: Map of the study area[6]

Source: HGWPECO (2022)[7]

Formal-sector employment is an official job paid with a salary or wage, and it is also another source of income for the farm. It includes working in a governmental organization (like a primary school or clinic) as watchmen, messengers, gardeners, and others. Small-scale businesses are also important sources of income for the study area of rural households. These include trading cattle, selling firewood, and building and carpentry. Other people also make their living by making different handcrafts like weaving, knitting, and others (leatherwork, metalwork, metalwork, woodwork, pottery)(Gazuma et al., 2019).

3.3 Research design

It is well known that the use of secondary data sources is budget and time-saving for analyzing research Kothari (2004). However, there are two main reasons why secondary data sources were not suitable for this research. On one hand, Horo Guduru Wollega Zone has been out of the spots of researchers, and there is a risk of a lack of sufficient secondary data (time series) for research. On the other hand, the type of information the researcher needed most for this study was the qualitative data type.

To collect this information, a cross-sectional research design was selected for this research in a way that the researcher can describe the current and up-to-date information about consumption expenditure, household characteristics, farm/non-farm linkages, and the determinants of non-farm from primary data,

[6] The study area from figure 2 indicates that Horo Guru Wollega zone is located in Western country. This zone has 10 administrative and one municipality.

[7] HGWPECO=it is the office of Horo Guduru Wollega zone economic cooperative zone annual report from west part of the country

rather than secondary data, through direct interviews with stakeholders. This model includes both qualitative and quantitative data, which includes the 2021/2022 production year, and was applied to this research work.

3.4 Sources of data and methods of data collection

This study used the data collected from primary sources. To supplement the primary data, secondary data was collected from concerned district offices (like Woreda[8] Agricultural Office, Zonal .Agricultural Office, and Central Statistical Authority) and from published and unpublished sources. The data collection for this study was qualitative in nature. Primary data contains detailed information on households' characteristics, socioeconomic characteristics, demographic characteristics, farm characteristics, agricultural inputs utilization, output produced, and production problems encountered. It was collected from 383 selected sample farm households using structured and semi-structured questionnaires filled by trained data collectors who are good at local language.

The interview questionnaire was filled out by trained data collectors because it is assumed that rural households may not be able to read and write by themselves to fill it out. In addition, an interview questionnaire was translated into Afan Oromo to make it easy and understandable for both respondents and data collectors. The target population of this study was rural household heads in the selected sample woreda of the zone, and the data was collected from a sample taken from three districts (woreda) in the study area; namely Hababo Guduru, Horo, and Amuru woreda, by using an interview schedule.

3.5. Sample size determination and sampling procedure

Table 1: Data of population and households in Horo Guduru Wollega by woreda

S.N	Woreda	Male head	Female head	Total household heads
1	Jima Genet	9988	1518	11506
2	AbayChoman	2782	351	3133
3	ChomanGuduru	4108	466	4574
4	Amuru	6436	1450	7887
5	Jima Rare	12096	1405	13501
6	JardagaJarte	10326	9005	19331
7	Abe Dongoro	14337	1653	15990
8	Horo woreda	4903	800	5703
9	Horo Buluk	6940	712	7652
10	Guduru	9408	625	10033
11	Hababo Guduru	6073	655	6728
	Total	87,397	18,640	106,038

Source: Horo Guduru Wollega zone plan and economic cooperative office (2022)

The most commonly used formula for a questionnaire analysis is sample size determination when the population is large and finite. According to Kothari,(2004), a representative sample is needed to analyze proportion.

[8]A woreda is a subordinate political subdivision of a region's zones that is analogous to the term "district" elsewhere.

The formula is:

$$n = \frac{Z^2 pqN}{e^2(N-1) + Z^2 pqN} \quad [1]$$

Where, n= the required numbers of sample

z =the value of the desired confidence level or confidence interval (95%=1.96),

The maximum variability among the population p= (0.5), q = 0.5 which is equal to (1-p)

And e=±5 % margin of error/precision by looking the expected criteria

When we apply the formula

$$n = \frac{(1.96)^2 0.5(0.5)106{,}038}{(0.05)^2(106{,}037) + (1.96)^2\,(0.5)(0.5)} = \frac{101{,}838.8952}{266.0529} = 382.7 \approx 383$$

Therefore, the required sample sizes of this study were 383 households. But, the question is how can these individuals be selected? These sample sizes allotted to the three woreda were based on proportionate sampling method. Though with this method each woreda was fairly represented, a proportional allocation of the sample was made based on the size of households in each woreda. This means, sample size was allotted to three woreda (districts)using proportionate stratified sampling formula. Through this formula, each woreda was fairly represented as follows:

1. Sample size of Horo Woreda = $\frac{5703x383}{20{,}318} = 108$ household heads
2. Sample size of Hababo Guduru Woreda $\frac{6728x383}{20{,}318} = 127$ household heads
3. Sample size of Amuru Woreda =$\frac{7887x383}{20{,}318} = 148$ household heads

Table 2: Total sample of households allocated to the selected woreda

S.N	Sample selected woreda	Total rural household heads	Sample household heads
		Total	Total
1	Horo district	5,703	108
2	Hababo Guduru district	6,728	127
3	Amuru district	7,887	148
	Total sample	20,318	383

Source: own computation from HGWPECO (2022)

Thus, information from these 383 households was collected by using a multistage sampling technique. In the first stage, the Horo Guduru Wollega zone was chosen from the Western Oromiya region deliberately because the area is characterized by highly populated areas and high landlessness when relatively compared to other western areas of the country(Musa and Hiwot, 2017). In the second stage, three districts were selected by systematic sampling because all districts in Horo Guduru Wollega zone have almost similar socio-economic and cultural characteristics. Thus, the woreda was selected systematically at the interval of four from the list of twelve districts by using the fourth as a reference point for starting. By taking the fourth woreda as the first selected part of the sample from the list of all woreda, Horo, Hababo Guduru, and Amuru were selected .There are 11, 12 and 21 rural kebeles in Horo, Hababo, Guduru and Amuru districts respectively, and the total kebeles in these three districts is 44. It is possible to allocate the determined sample households to all 44 kebeles. But due to time and budget constraints and for the simplicity of the data, 16 kebeles were determined from all 44 kebeles by convenience sampling based on(Ahmed et al., 2018).

To reduce the biasness of the convenience sampling problem, the selected kebeles were allocated to each woreda proportionately, as 4 kebeles from Horo district, 4 kebeles from Hababo Guduru district, and 8 kebeles from Amuru district. In the third stage, sample households were allocated to each of the selected kebeles proportionately based on the total household number in each sampled kebele. In the fourth stage, a simple random sampling technique was used to select a total of sample households from the list of households in each kebele by using a random number table because all households have an equal chance of being selected. Therefore, this study was based on the use of both probability and non-probability techniques for sampling. The proportionate sample in each kebele was:-

$$n_{ki} = \frac{N_{ki}}{\sum N_k} X n_k \qquad [2]$$

Where i=1,2,3….list of each kebele and k=represents name of each kebele

n_{ki} =sample in each kebele

N_{ki} =total household head number in each kebele

$\sum Nk$ =Total household head number in given woreda of kebele (total population)

n_k=total sample of household head in a given district that means 108 for Horo Woreda,127 for Hababo Guduru and 148 for Amuru Woreda .[9]

3.5Econometric Model for women participation in non-farm work

The survey data on women's participation in non-farm work activities were gathered from members of rural households led by women. STATA Version 15 software for Windows was used for statistical analysis in this study to analyze women's participation and household members' actions in non-farm labor. Non-farm engagement by women leads to economic development. When transfer payments are made to women rather than their husbands, spending on children rises. Higher education spending boosts human capital accumulation, which leads to economic growth(Abdurezak and Adinan, 2020).

Once the elements that influence rural women's economic empowerment were identified, the binary logistic regression model was used to demonstrate the functional form and link of those factors with the dependent variable. In investigations incorporating qualitative aspects, the logit and probit models must usually be chosen. According toGujirat (2003), the logit and probit models are nearly identical, and the model chosen is discretionary. As a result of their statistical similarity, the two models are difficult to choose between. However, as(Apelike et al., 2021) point out, the logistic distribution (logit) has some advantages over the others in that the analysis of dichotomous outcome variables is externally flexible and relatively straightforward mathematically and lends itself to a meaningful interpretation.

Similarly, (William et al., 2005) claims that, while both models produce identical results, the logit model is easier to estimate. As a result, a binary logit model was used in this study to examine the characteristics that influence rural women's economic participation in non-farm activity. Logistic regression is a type of binary choice model (also known as a dichotomous model) that is used to model the 'choose' between two discrete alternatives. This model effectively reflects the probability of seeing a successful occurrence (Y = 1) and is directly dependent on observed explanatory variables that are exogenous to the model. Rural women non-farm participation is intrinsically a dichotomous problem; whether rural women are economically participants through non-farm activity in rural areas or not.

As a result, based on the aforesaid idea, the researcher used the logit model. Because the dependent variable (i.e., rural women's non-farm participation) is a binary outcome (dichotomous) variable and is treated as qualitative data, the researcher assumes one (1) for participant and zero (0) otherwise. However, as previously stated, the independent variables are both continuous and dummy. As a result,

[9]Kebele is a district's sub-administrative area.

logistic regression is an effective model for this data to examine how explanatory variables influence rural women's likelihood of being participating or not. Odds ratios can be used to generate the Logit function:

Log of odds ratio=$\log\left(\frac{success}{failure}\right) = \frac{y=1}{y=0} = \beta_0 + X_i\beta_i + \varepsilon$ [3]

Where yi = 1 represents an individual "i" is participating (success), and yi = 0 represents an individual "i" is not participating (failure), xi is a column vector of independent variables (age, family size, education, total children, access to credit, health condition, ownership of land, ownership of livestock, ownership of property, participation in community affairs, spouse relationship). is a column vector of parameters (coefficients) to be estimated (i.e. β_1, β_2, β_3 … β_{14}) and is the intercept term, constant. Equation 3 shows that the natural logarithmic form of the odds ratio depends on observed explanatory variables.

Where, e is stochastic error term which represents all unobservable factors of non-farm participation, and this model demonstrates that the odds ratio is affected not only by variables included in the model, but also by factors not included in the equation. By taking exponential (antilogarithm) on both sides of equation *(4)* and rearranging it we have a logistic function as follows:

$p\left(\frac{y_i=1}{y_i-1=1}\right) = exp^{(\beta_0+\beta_i X_i)}$ [4]

Equation *(4)* describes that the probability of being empowered depends on observed exogenous variables. Because the underlying model is logistic, this probability is positive and limited between 0 and 1. As a result, the predicted probability of participation can be expressed as:

$Y_i = Xi\ \beta$ [5]

3.6Methods of data Analysis

Two approaches were used to analyze the determinants of rural women's non-farm participation. The first approach was descriptive methods like mean and percentage to compare participants and non-participants of non-farm activity. The second approach was the logit model for analyzing the qualitative response whether to participate or not to participate. In using logit model, the dependent variable is y=1 if participate and y=0 for not participation

To provide a trustworthy conclusion, the STATA Software package version 15.0 was used to analyze the study's data. Table 3 lists the demographic, economic, and social independent variables that were employed in this investigation.

Table 3: Lists of dependent and independent variables

Variables	Definition of variables	Expected sign
Dependent variable		
Participation to non-farm	It is dummy variable that tak a value y=1 for participant and y=0 otherwise	
Independent variables		
Family size	Family Size; It is the total numbers of household members and the major determinants of consumption expenditure in the household.	-ve
age	Age; is continues and negatively affect farm participation	-ve
Education	Schooling year of rural household .It is continuous in years of attending school by family member	+ve
Membership to iqub	Membership of iqub; which dummy variable that takes y=1 if membership and y=0 if not membership	+ve
Land size	The total farm land owned by female heads in hectare (Ha)	-ve
Access to train	Access to train; This is dummy variable that takes training and zero	+ve

	otherwise implying to whether households have taken training on non-farm work activities or not.	
Distance from market	Distance of household location from the market area(town)or main road(Continues variable)	-ve
Membership to idir	Membership of idir "it is dummy variable that takes a value y=1 for membership and y=0 otherwise	+ve
Community participation	It is a dummy variable that takes a value Either 1for participant and 0 otherwise	+ve
Access credit	Access to credit from financial institutions (dummy variable)	+ve
Property ownership	Ownership of mobile phone by household heads(dummy variable)	+ve

4. Results and discussions

4.1 Demographic Challenges of women non-farm participation

This study aimed to organize families based on demographic and socioeconomic factors. This is due to disparities in the background characteristics and social and economic characteristics of rural women in the mix of rural non-farm activities. As a result, a description of the respondents' backgrounds and socioeconomic features is critical in order to provide basic information about the respondent's age, marital status, family size, education level, household status, and land holdings.

Age, family size, and family status

Women's participation in non-agricultural activities is critical in economic, social, and political issues. Although women's participation outside of agriculture is crucial for increasing the country's growth and family welfare, it is complicated by several cultural truths and behaviors that are taken for granted. According to the focus group talks, women have no involvement in selling or buying assets or completing chores like their husbands, except for caring for children, cooking food, and maintaining the household. Based on this, questionnaires for the local sample respondents were created. The following are the problems and hurdles to women's non-agricultural participation based on these questions: In terms of age, education, family size, land area, and distance from the market, there is a statistically significant difference between farm participants and non-farm participants at the t-value statistically significant level. Women, on the other hand, own less land, have an average education of two years or more, live closer to roads or cities, and are more likely to engage in non-agricultural occupations, according to the statistics.

Table 4: Continues descriptive data summary (participation of women in farm activities)

Variables	Participants		Non-participants		t-value	p-value
	Mean	Std.Err	Mean	Std..Err		
Age	35.7	0.73	33.2	0.64	-2.64	***
Education	2.2	0.211	0.07	0.018	-10.54	***
Family size	5.2	0.11	6.65	0.17	6.7	***
Land size	0.67	0.66	0.92	0.076	2.37	*
Distance market	9.6	0.28	11.7	0.26	5.78	**

**** p<.01, ** p<.05, * p<.1*

Source: Own Computation Result Based on Survey Data (2022)

Table 3 shows that women with a median age of 35.7 are participants and those with a median age of 33.2 are non-participants. This suggests that women engage in non-farm activities in addition to

agriculture in order to support their families as their responsibilities increase as they get older. On the other hand, women whose homes are an average of 6 km from the city are non-farm participants, and those whose homes are more than 10 km away are non-participants. This explains that as the remoteness of women's residences increases, their participation in non-farm activities decreases. Regarding land holdings, women with small or medium holdings of 0.67 ha or less are participants in non-farm, and those with 0.92 ha are non-participants. The descriptive data implies that landless or small landholding women are more likely to be involved in non-farm activities for additional sources of income than those with extensive land holdings.

Table: 5 An overview of the discreet factors affecting women's participation in non-farm activities

Variables	Participants		Non-participants		t-value	p-value
	Mean	St.Err	Mean	St.Err		
Access to train	0.588	0.34	0.34	0.034	-4.2	***
Access to credit	0.48	0.04	0.09	0.021	-9.12	***
Membership to idir	0.93	0.02	0.72	0.032	-5.76	**
Community participation	0.6	0.02	0.12	0.22	12.9	***
Iqub membership	0.47	0.2	0.38	0.04	2.36	*
Property ownership	0.75	0.03	0.22	0.33	-12.2	**

**** p<.01, ** p<.05, * p<.1*

Source: Own Computation Result Based on Survey Data (2022)

Table 6: gender-based resource empowerment

Description		Response	
		Frequency	%
Do husband and wife have equal power to manage over property?	Yes	23	6.99
	No	306	93.01
	Total	329	100
Who is the strongest in farming?	Men	287	87.23
	Female	42	12.77
	Total	329	100
Who is the best at business?	Men	94	28.57
	Female	235	71.43
	Total	329	100

Source: Own Computation Result Based on Survey Data (2022)

According to the data in the table 6above, 6.99 percent of respondents said they and their spouse could handle the household's assets jointly, while the remaining 93.1 percent said they had no control over the entire family's assets. In general, a woman who has complete ownership rights over family property has the freedom to engage in non-farm activities that not only boost their income but also give them more self-assurance. According to the data in the table 6 above, 87.23 percent of men claimed to be actively involved in agriculture, whereas 71.43 percent of women said they were more actively involved in other trades than agriculture.

From the responses of these respondents, it is clear that men are more successful in agriculture and that women are more successful in business. It is statistically significant to say that there is a positive correlation between non-farm employment and family wealth occupation (chi2 =107.04, p=.000, at p < 0.05)[10]. Women who are able to control household assets on an equal footing with their husbands are free to work in non-agricultural occupations that generate revenue. The findings demonstrate that women who have control over the family's property engage in more non-agricultural activities than those who do not, as a result of having autonomous property responsibility.

4.2 Household livelihood practice by male and female

If both spouses can share equal freedom in household matters, they can do all the work by agreement without gender division. There is no work assigned to the family by law or regulation as husbands or wives. There is nothing that is despised as a woman's work or praised as a man's work. There is no gender-segregated work role except for what is becoming common in society. When a husband and wife work together, not only does family life succeed, but the love between family members increases. But according to information obtained from respondents, gender division of labor has existed in families for ages. The respondents reported that work in the kitchen and child care is the role of the woman, whereas work in the farm and farm field is divided as the work of the husband. This reveals that there is job division based on gender in the study area.

Table 7:Decision-making processes in the home and the sharing of spousal responsibilities

Description		Frequency	Percentage
Worked exclusively by women			
Raising a child ,food preparation		213	64.74
Selling of local beverage like tella, katikala, coffee ,tea		201	61.09
Petty trade like selling of butter, shiro powder, salt, pepper		252	76.6
weaving and various crafts such as pottery, home decorations		198	60.18
women's hair salon jobs		17	5.17
outdoor agricultural activities like weeding		207	62.92
worked exclusively by men			
Plaughing, sowing, harvesting and threshing		299	90.88
cutting down and clearing various trees from agricultural land to make it suitable for agriculture		271	82.37
Control, manage the general family property and sell or exchange it without anyone's permission if required		261	79.33
In your household who usually makes decisions about large household livestock purchases	Male	259	78.72
	Female	70	21.28

Source: Own Computation Result Based on Survey Data (2022)

This demonstrates that women don't make strong decisions or that they follow their husbands' lead rather than making their own decisions on how to amass riches alongside their spouses. The spouse is thought to be in charge of all agricultural fieldwork, including plowing the ground, removing trees from the field, planting seeds, and gathering grain into the barn. The idea that women should perform all of the supposed household responsibilities was viewed as a gift. In other words, women were naturally

[10]chi2 =107.04, p=.000, at p < 0.05 is the result of discreet factor to compare between participants and non-participants of women heads' non-farm activity from table B in appendix.

regarded as having heavenly gifts for household tasks like cooking, raising children, and serving the family. The results of this study show that roles assigned to men and women have historically been seen as divine or as divinely distinguished gifts.

It is clear from the above table 6 that working to get wealth or money was subject to gender discrimination. Husbands are the main decision-makers on an existing property, whereas women are less likely than males to make decisions on family property. Families in rural areas work either "female" or "male" jobs to support their families. According to the descriptive data result displayed above, women are empowered in non-farm activities to earn extra money, such as selling local alcoholic beverages and small businesses, while in agriculture activities like plowing, collecting trash from the fields, and household chores like cooking, watching children, and protecting household property.
To prevent such issues from taking root in society, the ruling body should take this issue seriously so that husband and wife can work together in consultation and cooperate to make their lives successful. The government and non-governmental groups can use this research as a starting point and work on the essential research to examine gender policy directly on what should be the issue of gender equality in the future and make improvements. The respondents to the aforementioned poll stated that, women's management of resource protection , both indoors and outdoors, is limited.

4.3Econometric Results of the Determinants of women participation in non-farm activity

The association between non-farm participation and a collection of explanatory factors was established using the binary logistic regression model. Due to its greater flexibility than other models, binary logistic regression has grown to be the favored method in the social sciences for predicting dichotomous outcomes. Therefore, a binary logistic model was used to determine the link between the dependent variable (women participating in non-farm) and the independent variables (demographic, socioeconomic, and institutional) influencing women's engagement in non-farm activity in the research area. In order to explain the dependent variable, 11 explanatory variables were chosen. Age, education level, size of farmland, family size, access to credit, membership in idir and iqub, involvement in the local community, ownership of personal property and distance from the market area are some of the determinants influencing the dependent variables.

4.3.1 Discussion of the result (Logistic result)

Age; the outcome of the binary logistic regression indicates that, in all situations, there is a significant association between the age of the women and the non-farm female heads' decision to engage in non-agricultural activities at p =0.05 statistically significant level. This conclusion is supported by earlier research**.** TheKasaye,(2021) study demonstrates that age has a substantial impact on farm household decisions to engage in non-farm activity. Studies by Yenesew et al,(2015)and Musana et al.,(2012)further demonstrate that age is a significant factor in decisions on non-farm labor.

Education;- The binary logistic result also revealed that engagement in non-farm activity increased the probability of participation by 0.65 for women with primary and secondary education or above as compared to those women who were illiterate. The result was statistically significant at $p < 0.05$ in all cases when all other factors were held constant. According to the findings of this study, women who had completed primary school or above were significantly more likely to engage in non-farm work. This finding is consistent with research byTshabalala,(2020), which demonstrates that those with higher education or vocational training are more likely to select entirely non-farming activities or a combination of farming and non-farming, mostly because they are better prepared for formal and non-farm jobs.

Table 8: logistic regression of the influencing variables for female NFA involvement

wompart	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
age	.052	.016	3.25	.001	.02	.084	***
education	.655	.324	2.02	.043	.021	1.29	**
Family size	-.309	.077	-4.00	0.00	-.461	-.158	***
Access train	.763	.319	2.39	.017	.138	1.388	**
accredit	1.083	.393	2.76	.006	.313	1.854	***
idir	1.728	.45	3.84	0.00	.847	2.61	***
Comm_Part	1.328	.43	3.09	.002	.485	2.171	***
Membership iqub	.942	.339	2.78	.006	.277	1.606	***
Own_HHPRO	1.491	.339	4.40	0.00	.826	2.155	***
Land size	-.441	.173	-2.56	.011	-.78	-.103	**
Distance market	-.127	.043	-2.97	.003	-.211	-.043	***
Constant	-2.212	1.008	-2.19	.028	-4.188	-.237	**
Mean dependent var	0.475		SD dependent var		0.500		
Pseudo r-squared	0.503		Number of obs		383		
Chi-square	266.667		Prob> chi2		0.000		
Akaike crit. (AIC)	287.341		Bayesian crit. (BIC)		334.718		

**** p<.01, ** p<.05, * p<.1*

Source: Own Computation Result Based on Survey Data (2022)

Access to train: Providing training to women on agricultural and non-agricultural issues will not only support their work but also make them economically independent. Regular training creates a change in mindset and culture of work habits. The results of the logit model indicate that this variable relates to women's participation in non-agriculture in a positive statistically significant way at p—value=1 percent. That is, if training is provided to women on a regular basis, their participation in non-agricultural and agricultural matters will increase. The interpretation of this is that if women receive various trainings, their attitude towards working and becoming self-reliant increases.

Table 9: Marginal effect of the probit regression of the determinants of women non-farm participation

Marginal effects after regress
y = Fitted values (predict)
= .47519582

variable	dy/dx	Std.Err.	z	P>z	[	95%]	X
age	0.008	0.002	4.180	0.000	0.004	0.012	34.40
Education	0.012	0.011	1.020	0.307	-0.011	0.034	1.081
Farm size	-0.038	0.009	-4.470	0.000	-0.055	-0.021	5.961
Access train*	0.115	0.037	3.160	0.002	0.044	0.187	0.478
accredit*	0.153	0.049	3.140	0.002	0.058	0.249	0.282
iddir*	0.211	0.049	4.320	0.000	0.115	0.307	0.820
Comm_P~t*	0.248	0.055	4.510	0.000	0.140	0.355	0.326
Mem_iqub*	0.118	0.037	3.210	0.001	0.046	0.190	0.467
Own_HH~O*	0.242	0.045	5.430	0.000	0.155	0.330	0.470
Land size	-0.056	0.018	-3.100	0.002	-0.092	-0.021	0.801
Distance mark	-0.013	0.005	-2.610	0.009	-0.023	-0.003	10.72

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Source: Own Computation Result Based on Survey Data (2022)

Land size; the findings of the logistic regression model indicate that, when all other factors were held constant, women with larger landholdings had a 0.54 odds ratio lower likelihood of participating in non-agriculture. At p< 0.05, the outcome was statistically significant. This means that as women with

landholding development have income from agricultural activities and are compelled to participate in non-agricultural activities regularly, their participation in non-agricultural activities declines.

Family size: According to result logit regression shows that family size affects the participation of women in non-agricultural activities in a negative way with statistically significant level of at 5 %. This shows that if family size increases at home, women are busy preparing food for family members at home and do not have time to do non-agricultural work. The interpretation of this result indicates that as the size of the family increases, the opportunities for women to earn an income by independently engaging in non-agricultural activities decrease.

Access to credit: If women get loans from microfinance wherever they live, they can do various jobs and improve their lives. Women are able to support their families by doing some of the best jobs like sheep farming, vegetable and fruit trade, poultry production, local drinking. Access to credit is crucial to do all this and improve their lives. Access to credit affects female decision through positive statistically significant at 1 percent level. The interpretation of this is that women are more likely to make a higher decision to do business and transform themselves if they have access to credit facilities.

Membership to idir:-Women become members of idir to share sadness, and happiness on various humanitarian aid days. According to the practical situation in the study area, women become members of the idir to exchange humanitarian assistance. Meanwhile, the savings on the day of the idir are used for various purposes such as lending to each other with low-interest loans and helping each other in times of trouble. This variable positively affects women's decision to participate in non-agriculture. This is statistically significant at 10 percent. The interpretation of the results of this study is that women with idir membership can easily borrow money from their idir and start small businesses to improve their livelihoods.

Community participation: Women have full rights to participate in social institutions such as administration, politics, religious leadership, idir leadership, iqub. In contrast, women who have fallen under the domination of their husbands have no social participation or low decision-making power to participate in non-agricultural activities. This variable positively affects women's decision to give non-farm work at a statistically 1 percent significance level. The interpretation of this is that women empowered in the leadership of various social activities have greater independence and therefore have a greater determination to engage in non-agricultural activities as well as to run various businesses.

Membership to iqub; - this variable is a traditional savings organization where people voluntarily come together and save money collectively on a fixed day of the week. The logit evidence shows that membership to iqub is positively related to non-farm participation at a 10 percent statistical significance level. At the time at which the iqub members gather, the draw will be held in front of the iqub members. The lucky person calls a guarantor and signs the money he receives and uses it to support his family by doing whatever he wants, such as a business or other activities. Women who are members of iqub work in a local beverage or small businesses to support themselves and their families. The interpretation of the results indicates that membership for iqub encourages women in non-farm decision-making as it strengthens their financial capacity.

Own household property (Own_HHPRO): Women are under the oppression of their husbands and therefore do not have the supremacy to command the household property. On the other hand, women's command over the household property showed that mothers were equal to their husbands and not dominated by men. But the pressure is to use the backward proverb "a woman is tall but not wise" to

view the household property as a woman with no role in it. This variable affects the employment decision of women in non-farm in a positive way which is statistically significant at a 1 percent significance level. The interpretation of this is that women are perhaps free to improve their families by doing non-farm work if they are empowered in household property, and if they are engaged in non-farm work they have the courage to command property.

Distance market -If the women's residence is far from the market area, there is no convenient facility for them to go and trade whenever they want. If their residence is close to the marketplace, they can go and do business with little transportation cost. On the other hand, if their residence is far from the market, they will be exposed to social problems and transportation problems and their decision to participate in non-agricultural activities will be weak. Table 6 shows that the decision-making distance of females is negative which is statistically significant at a 5 percent level of significance. The implication of the results of this data is that women are often less likely to make decisions to travel long distances to trade or work because they are responsible for household chores and everything else.

Conclusion and Recommendation

Rural women have an important role in agricultural and non-agricultural activities. Closing the gender gap in assets increases both their productivity and their self-esteem. Women who work independently, free of social pressure and their husbands, earn more money for their families. In rural areas, women are responsible for most of the household activities. Women are not permitted by their spouses to engage in high-earning activities. Some women work in small businesses such as animal sales, vegetable and fruit sales, poultry, petty trade, hairdressing, and wage labor. Age, family size, land size, market distance, access to credit all influence women's participation in income-generating activities. Based on the results of this study, the following recommendations are made.

- Regular training should be provided to the community through government, non-government, and various religious institutions so that women can work equally with men and achieve results.
- The issue of agricultural land management should be reconsidered with respect to female and male participation
- Awareness training is essential for agricultural and non-agricultural activities and therefore it is necessary to focus on non-agricultural hub training for women in job creation.
- If the government facilitated the loan facility provided through microfinance in a manner that encouraged women so that women could work free from dependence on their husbands. This means that the loan bureaucracy and interest rates should be revised
- There is no gender-assigned job issue as male or female. Often gender-segregated jobs are still widening the gender gap. Therefore, the government should provide support to rural families so that there are no gender-segregated jobs and everyone works equally to improve their livelihood economically.
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