DETERMINANTS OF WOMEN'S PARTICIPATION IN NON-FARM INCOME GENERATING ACTIVITIES: THE CASE OF SEKA CHEKORSA DISTRICT, JIMMA ZONE, OROMIA REGION, ETHIOPIA

M.Sc. THESIS

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Determinants of Women's Participation in Non-Farm Income Generating Activities: The Case of Seka Chekorsa District, Jimma Zone, Oromia Region, Ethiopia

By

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Thesis

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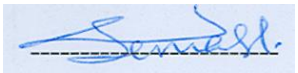
Major Advisor: Prof. Jema Haji  13/09/2018

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To my beloved friends and families especially my father: you have been great source of blessing for this attainment. Thank you very much, may ALLAH bless you and give you eternal peace.

STATEMENT OF AUTHOR

I, Asiya Ahmed, hereby declare that, this thesis entitled with Determinants of Women's Participation in Non-Farm Income Generating Activities: The Case of Seka Chekorsa District, Jimma Zone, Oromia Region, Ethiopia, is my own work and that all sources of materials used for this thesis have been exactly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for M.Sc. degree at Jimma University and to be made available for end users and borrowers at the University's Library under rules and regulation of the Library. I solemnly declare that this thesis should not be submitted to any other institution anywhere for the award of any academic degree, diploma, or certificate.

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BIOGRAPHICAL SKETCH

The author was born on January 19, 1995 in rural village called Beke Gudo, Seka Chekorsa district, Jimma Zone of Oromia Regional State. She attended her elementary and high school education at Mendera Primary School and Seto Semero Secondary School, respectively. She completed her preparatory school education in 2011-2012/13 academic year at Jimma. Upon successful completion of her preparatory studies, she joined Adama Science and Technology University in October 2013 and graduated with B.Sc Degree in Agri-business and value chain management in June 2015. Immediately after graduation, the author was employed in Arsi University and served for one year in graduate assistant I. Thereafter, she joined the school of graduate studies at Jimma University in 2017 to pursue her M.Sc. in Agri-business and value chain management.

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ACRONYMS

ADB	Asian Development Bank's
DAs	Development Agents
EDHS	Ethiopian Demographic and Health Survey
FGD	Focus Group Discussion
FHH	Female Headed Household
GIS	Geographical Information System
GO	Government Organization
HH	Household
IFAD	International Fund for Agricultural Development
IGA	Income Generating Activities
JICA	Japan International Cooperation Agency
MHH	Male Headed Household
MoFED	Ministry of Finance and Economic Development
NFIGAs	Non-Farm Income Generating Activities
NGO	Non-Governmental Organization
OLS	Ordinary least square
ONRS	Oromia National Regional State
SNNPR	Southern Nation, Nationalities and People
UDEC	University of Dar Es salaam Entrepreneurship Centre

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ABSTRACT

Women constitute nearly half of the Ethiopian population and they are involved in different sectors of the economy. Although poor women are engaged in heavier and highly time consuming workloads, they never obtain the commensurate earnings. This study was conducted in Seka Chekorsa district of Jimma Zone and to analyze the determinants of women's participation in non-farm income generating activities. Both primary and secondary data were used. Primary data were collected through survey interview schedule, FGD and key informant interview. Two-stage sampling method was used to select 149 sample respondents (60=participants, 89=non-participants). The data were analyzed using both descriptive statistics and econometric model. The major sources of income for sample respondents were petty trade, collecting and selling fire wood, selling charcoal, handicraft, grain trading, tailoring and hair dressing saloon. About 83.3% of women in the study area engaged in low income generating activities. Heckman regression analysis shows that education, amount of credit and membership to formal organization increases the probability of women's participation in NFIGAs while age, average time spent in domestic work and distance from market have significant negative effect. Similarly, the OLS regression results assured that education, total land holding, amount of credit and average time spent in domestic work were significantly related to the level of women participation in non-farm income generating activities. Therefore, the findings of the study suggest that efforts should focus on encouraging and empowering adult women, find ways of uneducated member better benefit from the service, provide better access to credit, introducing new technology that reduce women work load, developing the transport infrastructure and encourage women to be member of formal organization.

Key words: *Seka Chekorsa, Non-farm income generating activities, Women participation, Heckman model.*

1. INTRODUCTION

1.1. Background

Women comprise 50 percent of the world's total population and perform two-third of the world's work hours, receive 10 percent of world's income and own less than one percent of total assets (Elkhalil *et al.,* 2014). They are the mothers of the other half. As mothers and careers, as producers and farmers, the work of women supports their families and communities (Ancy, 2004 cited in Ayferam, 2015). About 70 percent of world's poor are women and they have no access to credit and other financial services (Khan and Noreen, 2012). As FAO (2011a) pointed out, women are less likely than, men to own land and livestock, adopt new technologies, access credit and other financial services, particularly formal services, or access education and extension services.

While remunerated work is important for women, it is important to remember that women still undertake the bulk of unpaid work in the home. They have the primary responsibility for caring children and older people. Despite the contribution of women to the household economy, they are less acknowledged by the government because such contribution is undervalued, just because it is home based and unpaid (Women Watch, 2005). The burden of combining productive and reproductive responsibilities inevitably affects rural women's access to paid employment, often increases their stress levels and has an impact on power dynamics within households (Fontana and Paciello, 2010).

Overburdened household activities, large family size and primary responsibility of family health care and support lead women to be economically dependent, because they face shortage of time to engage in income generating activities. According to World Bank (2011), more than half of the world's women are the poorest and among them approximately about-three fourth are Africa. These show that focusing on women in all development agenda is the best means to achieve pro-poor economic growth. Unless women are educated, get employment opportunity, access to resources, right to property ownership, equal political and social participation as that of men, it is not possible to reduce poverty in Africa (World Bank, 2011). Rural women are over loaded and over burdened by domestic and productive works that reduce their income earning capacity. The traditional beliefs and customs that are

practiced in rural societies are playing important role for discrimination (Pathfinder, 2007 cited in Bedru, 2011) because, this patterns put women in disadvantaged positions relative to men (including limiting women's access to productive inputs, and decent work) regardless of their contribution (FAO, 2011b).

Ethiopian women are also actively involved in all aspects of their society's life. Women are both producers and procreators and they are active participants in the social, political, economic and cultural activities of their communities. However, the varied and important roles they play not always been recognized. The discriminatory political, economic and social rules and regulations prevail in Ethiopia have barred women from enjoying the fruits of their labor (Ayferam, 2015). Rural women are also participating in all the steps of agricultural production spanning from seed sowing to harvesting. Not only that, their participation is also scrutinized in both on farm and non-farm activities directly and also incidentally, in fact, they utilizes extensively small farmlands and homestead areas for production and income (ADB, 2004).

Non-farm self-employment activities are common by the women as an important IGA and income earning (Hasan *et al*., 2015). Women earn an attractive return by participating in self-employment activities like weaving/spinning, making and selling firewood, dung cakes, charcoal, collecting and selling straw, pottery, general trade, income from share cropped out land, preparing food and local drinks such as *arake, tella, injera*, and *dabbo* (Woldenhanna and Oskam 2001; Beyene, 2008). Thus, introducing non-farm income generating activities (NFIGAs) for women is becoming imperative in order to maintain sustainable livelihood of household. Moreover, increased income of the rural women help them, to improve their cash savings, asset ownership of both productive (cattle, goat, poultry) as well as non-productive assets (jewelry, TV/radio, small vehicle). Non-farm IGAs can be a particularly important strategy for meeting subsistence needs as well as absorbing shocks to agricultural income. Additionally, participation in non-farm activities has been found to empower women, increasing their bargaining power within the household and increasing household welfare (Sultana and Hasan, 2010). Generally, studies on the non-farm participation of women in Ethiopia farm households are limited (Beyene, 2008 and Mezid, 2014). Therefore, this study

adds to the literature through identifying the determinants of women's participation in non-farm activity and the participation rate.

1.2. Statement of the Problem

Many of the activities in which rural women engage in their livelihood strategies are not defined as economically active employment in national account systems, yet are crucial to the wellbeing of household members (FAO, 2010). Much of women's work is also undervalued because it is typically un- or under-remunerated and often confined to the domestic, or household, realm (Fontana and Paciello, 2010). Therefore, women are generally less able than men to participate in economic opportunities because they face a work burden that men do not. They are usually responsible for childcare and household chores as well as rearing of small livestock although, norms differ by culture and over time. Depending on the household structure and size, these tasks may be extremely time intensive.

Women's working hours in economic activities were found to be low due to their substantial involvement in noneconomic household work (Shariful and Mainuddin, 2015). Time allocation studies have shown that women work significantly more than men do if care giving is included in the calculations (Ilahi, 2000 and Kabeer, 2003). It is estimated that women provide 85 to 90 percent of the time spent on household food processing and preparation across a wide range of countries (Acharya and Bennett, 1982; Fontana and Natalia, 2008; Wrangham, 2009; FAO, 2011b). This additional work burden is unpaid and limits women's capacity to engage in income-earning activities, which often require a minimum fixed time before being profitable (Lanjouw and Lanjouw, 2001). Regarding this issue, Chinwe (2015) had affirmed that in many countries the ability of women to work outside the home is limited because they face shortage of time. Gender differences become clearer when looking at women's workloads. Fernando (1998) affirmed that activities, resources and opportunities of people are significantly influenced by gender that is, by the socio-economic and cultural dimension of being male or female.

Moreover, different types of activities and tasks are generally allocated to women and men within the family in terms of subsistence production and production for the market. In most societies, reproductive tasks or tasks related to child bearing and care and maintenance of the

household (cooking, fetching water and firewood) are assigned to women. In addition, women also manage community resources while men participate in formal community politics. Gender division of labour in rural Ethiopia varies in terms of farming systems, cultural settings, location and the different wealth categories. Gender roles in the country also vary according to ethnicity, income and status. Ethiopian women have longer working hours than men; they carry much of the burden of reproductive work in addition to their productive activities (JICA, 1999). Accordingly, Desta (1999) contended that Ethiopian women spend 13-17 hours a day in productive, reproductive and community activities but are denied access to important resources. However, gender norms and patterns put women in disadvantaged positions relative to men (including limiting women's access to productive inputs, and decent work) regardless of their contribution (FAO, 2011a).

Ethiopian women have played a traditional role of motherhood and homemaker in both rural and urban areas. However, their work has never been limited to the household and the family. They are actively involved in all aspects of their social life and actively participant in the social and cultural activities of the community. However, the important roles they play have not always been recognized. Without, equal opportunities, they have lagged behind men in all fields of self-advancement. Economic development is unthinkable without women participation; however, because of their participation in the economy has not been valued, Ethiopian women have not received even their share of the nation wealth (The Ethiopian Herald, 2004). Women also face gender disparities in access to productive resources such as land, agricultural inputs (fertilizer, pesticides, water, etc.), extension service and all public service and benefits. Particularly land, a major input in agricultural production, is disproportionately controlled by men that is why most women are pushed to non-farm income generating activities and put them in subordinate position.

Women participation in non-farm activities helps to empower women, increasing their bargaining power within the household and increasing household welfare (Sultana and Hasan, 2010). However, their participation level in development and income generating activities is very low (Biruk and Mesfin, 2017). Households and individuals in rural areas face different constraints on their choice of income-generating activities and diversification patterns which in turn determines the likelihood of benefiting from non-farm employment (Ashebir and

Negussie, 2015). However, empirical studies done on the determinants of non-farm income generating activity in the study area are scarce. The available studies in this regard are limited to some geographical areas. With a view to bridge this gap, this study undertaken in Seka Chekorsa to assess the factors affecting women's participation in non-farm income generating activities.

1.3. Objective of the Study

The general objective of the research was to assess determinants of women's participation in non-farm income generating activities in Seka Chekorsa district.

The study has the following specific objectives:

- To identify the non-farm income generating activities in which women in the study area are involved in;
- To analyze determinants of women's participation in non-farm income generating activities and level of their involvement.

1.4. Research Questions

In this study, the following basic research questions were answered.

1. Which non-farm income generating activities are experienced by women?
2. What are the determining factors affecting women's participation in non-farm income generating activities and their level of participation?

1.5. Significance of the Study

Women's participation in NFIGAs has a significant effect on their status and greater role in the society. Their participation is potentially important in order to achieve sustainable gender sensitive development. The findings of this study could be significant for decision makers in providing valuable information with regard to women's participation in non-farm income generating activities and hence formulates gender sensitive development projects. It creates awareness among the society GO, NGO and other related stakeholders on the role played by women and give due respect to their contribution. Moreover, it may also serve as a benchmark for further research on similar topics and other related subjects. In general, various actors for development intervention in the sector can use the result as a guideline.

1.6. Scope and Limitation of the study

The main objectives of the study were to analyze factors that affect women's participation in non-farm income generating activities. However, due to constraints that arise from shortage of financial and time related problems, the study is carried out only in one woreda, Seka Chekorsa, and an attempt was made to interview 149 respondents selected from four-kebele administration out of the thirty-six found in the woreda. The sampling frame was confined to rural women, only. The study did not cover the entire rural women population in the area. Ethiopia is a diverse population in terms of culture, agro-ecology, ethnicity, resource endowment, the farming system and non-farm business varies from location to location. Hence, the research does not claim to provide conclusive findings for women's participation in NFIGAs in Ethiopia in general and the Zone in particular. However, recommendations and policy implications of the study could be used in other locations having similar context.

1.7. Organization of the Thesis

The rest of the paper is organized as follows: Next chapter presents the pertinent literatures of relevant empirical studies that are related to women's participation in non-farm income generating activities. Chapter three describes the data and the method used in estimating the factors that affect women's participation to engage in non-farm activity whereas, chapter four presents and discusses the empirical findings on results and discussions. Finally, last chapter summarize, conclude and recommend the finding of study.

2. LITERATURE REVIEW

2.1. Definition of Basic Concepts

Off-farm activities: Off-farm activities, defined as the participation of individuals in remunerative work away from a plot of land. It has been considered as an alternative income source for the agricultural sector and as an essential way to increase overall rural economic activity and employment in many developing countries (Norsida, 2009). Off-farm income mainly refers to wage or exchange of labour in cash or in-kind away from one's own land within agriculture. It also includes some self-employment in natural resource extraction activities (Ellis, 2007).

Non-farm Activities: Refers all income-generating activities except crop and livestock production and fishing and hunting, located in areas that are mainly servicing agricultural activities (Lanjouw and Lanjouw, 2001). It can also be defined as income derived from rural non-agricultural activities including waged or salaried employment, self-employment, rents and remittances (Barrett *et al.*, 2001).

Income generating activities (IGAs): Are all activities, which are self-supporting where the benefits or profits go to women either through sale of goods or services or through wages in the form of cash, food or the yields from agriculture. Consists of all activities whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals (ILO, 2003). And also activities that generate income for the family and such activities may include: agriculture, livestock rearing, petty trade, fishing, postharvest processing and others (Alana, 1994; Rena, 2008; Yusuf *et al.*, 2009; Zeweld *et al.*, 2010; Otoo, 2012; Okibo & Makanga, 2014).

Participation: Participation refers to taking or having a part in activities in various events often with others (Farid *et al.*, 2009a). If there is a need there is participation. It was not possible to investigate into all kinds of participation by the rural women. Accordingly possible kind of participations are participation in various agricultural/on-farm activities, and Participation in various non-agricultural/non-farm activities.

Women's Participation: Women's participation is the active involvement of women in all spheres of affairs such as economic, social, environmental and political and their role in decision making and empowerment (Tasew, 2001).

Gender: Gender can be defined as a set of characteristics roles and behaviors that distinguish women from men socially, culturally and relations of power between them (Women Information Center, 2005). These characteristics, roles, behavior, patterns and power relation are dynamic. They vary over time and between different cultural groups because of different constraints, shifting cultural variation and subjunctive meaning of gender (Habtamu, 2004).

Sex: Refers to the biological characteristics that define men and women, which are natural and unchanged, determined at birth (Wallace, 1991).

Gender roles: Gender roles are learned behaviors in a given society/community or other social group that condition the gender division of labor i.e. which activities, tasks and responsibilities are perceived as male or female. Gender roles vary considerably across settings and also change over time. It is all types of work done by women and men. In all societies, men and women are assigned tasks, activities and responsibilities. It varies from one society to another, and within each culture, also changes with external circumstances and overtime. The gender-based division of labor ascribed in a given socio-economic setting determines the roles that men and women actually perform (March *et al*., 2005).

Gender equality: It does not mean that women and men have to become the same, but that their rights, responsibilities and opportunities will not depend on whether they are born male or female (KIT *et al.,* 2012).

Gender discrimination: Gender discrimination is defined as any situation that directly causes or is indirectly associated with a woman/girl being less well treated than a man/boy (EU, 2015). There are socio-economic indicators of gender inequality. These include measure of employment, education, health, ownership of property and income disparities. Gender gap results from inequality in decision making power which leads to inequality in access to resources and by the differential treatment given to women and girls as compared to that given to men and boys. Gender discrimination exists as part of the social system and runs

through all aspects of life and at different levels such as at family level, community level and institutional level (Bogalech, 2000).

2.2. Theoretical Review

2.2.1. Women's participation in NFIGAs in Ethiopian perspective

In Ethiopia, 10-35 percent of rural households are engaged in non-farm enterprise activities where some 20 percent of rural income originates from off-farm sources (Davis, 2003). Nevertheless, Beyene (2008) contended that since more than 85 % of the total population of Ethiopia is dependent on agriculture, the performance of the sector relies on the labor of both genders. Rural women provide a substantial contribution to agricultural production. In addition to farming and home activities, they also participate in non-farm activities. The same report asserted as an average of 36.6% farm households have one or more female members participating in off-farm activities. Commonly a farm household involves in wage employment and self-employment non-farm activities (own business). Wage employment includes paid farm work, professional (Teacher, government worker and administration), skilled laborer (manual work in construction, masonry, and carpentry). Self-employment includes petty trading (brewing local alcohol and food, grain trading), fuel wood selling, charcoal making and unskilled non-farm work (weaving, handicrafts and milling) (Mezid, 2014).

As of Beyene (2008), females can participate in both wage and self-employment. They are also employed as farm workers and laborers in other activities. The difference in the off-farm participation rate of females as compared to males is not significant. The author confirmed that the average wage rate ranges from 0.02 to 1.68 birr per hour. In addition they are getting income by participating in self-employment activities like weaving/spinning, making and selling fire wood, dung cakes, charcoal, collecting and selling straw, pottery, general trade, and income from share cropped out land, etc. Preparing food and local drinks such as *arake*, *tella*, *injera*, and *dabbo* are also common (Beyene, 2008). Another study also shows in many rural areas, agriculture alone cannot provide sufficient livelihood opportunities; rural non-farm employment can play a potentially significant role in reducing rural poverty (Helina, 2015).

According to the Global Competitiveness Index (2015), Ethiopia ranked 33rd out of 144 countries for the percentage of women in the labor force, a rate higher than those of women in many advanced economies, such as Singapore (76th), Germany (45th), the Netherlands (37th), and the United States (49th). About 94% of rural women and 85% of rural girls aged 10–17 were involved in extended earnings- related activities, spending an average of about 6 hours. Women were not owners of the means of production except when they inherited out in to employment areas. Women now fill jobs in the construction industry and in factories as well as in sales and marketing services. In contrast, most rural women have no independent budget, but depend on their husband's income even though they participate in different income generating activities. After the husband gives them the monthly budget of the family, they exchange this little amount of money to fulfill others family needs that could not be covered with what they are given by their husbands.

2.3. Empirical Review

2.3.1. Factors affecting women's participation in NFIGAs

Labour allocation between agricultural and non-agricultural activities at household and outside the household was influenced by economic and socio-cultural factors, and this deserved more attention because women's participation on outside activities was not so high (Farid *et al.,* 2009b). Farmer in the rural area participated in off-farm activities either by push factor (inadequacy of land, liquidity constraint and surplus labor in the family) or pull factors (higher skill and experience, education and attractive return) (Mezid, 2014). Using survey data from Tigray region, Woldenhanna and Oskam (2001) argue that farm households diversify their income sources into off-farm wage employment motivated by low farm income and availability of surplus family labour, whereas they enter into off-farm self-employment to earn an attractive return. According to UDEC (2000) and Charles (2014), the participation of women in IGAs varies according to age, religion, ethnicity, wealth, education level, literacy, marital status, social status, experience and social economic position. Ellis (2000) and Aziz (2011) also affirmed that seasonality of agricultural activities, risk, labor market, credit market, age, gender, marital status, education, land size and livestock ownerships are the main determinants of rural off-farm income diversification.

2.3.1.1. Demographic factors

Age and women's participation in NFIGAs

Age was one of the most significant factor influencing women's participation in agricultural and non-agricultural activities when participation increased with the increase of age of the respondents (Farid *et al.,* 2009a). As of Naher (2000), there was no relationship between age and participation in income generating activities are mostly participated by the rural women. The study conducted by Rahman and Momen (2009) found as age of female increases, income of the household also increases; but after a certain level it starts dropping. Faridi *et al.,* (2011) claim that, women's self-employment is positively related with age and experience. Elias *et al.,* (2013) based on Logistic regression analysis the results show that age of the women (AGE) is a significant factor, which influences women to participate in non-farm activities. The coefficient of the variable 'age' has negative sign reflecting that women with higher age are less likely to participate in non-farm activities compared to those with lower age.

Corral and Reardon (2001) and Mezid (2014), analyzed farm wage employment, nonfarm wage employment and nonfarm self-employment separately through applying probit regression analysis and ordered logit model respectively. Their result shows that age and age square influence the probability of off-farm participation for individual positively and negatively, respectively. Bhatta and Årethun (2013) study on barriers to rural households' participation in low-skilled off-farm labor markets: theory and empirical results from northern Ethiopia through applying Heckman two stage model argued that, amount of wage income and the level of participation increased with the number of males and females in working age within the household.

Education and women's participation in NFIGAs

Faridi *et al.,* (2011) confirm that educational attainment is an important determinant of labor force participation decision. The results depicted that female labour force participation rises with the increase in the level of education. The results of their study showed that women who have low level of education are highly tended towards self-employment than women who have high level of education. Charles (2014) affirmed that, majority of the respondents has

low level of education and this can be a disadvantaged in relation to access to economic resources such as credit facilities and market information. As of Umunnakwe (2014), using multiple linear regression model to determine factors influencing involvement in nonagricultural income generating activities among rural youth. There is a significant negative influence of respondents' education on rural youth involvement in non-agricultural income generating activities indicating that the higher the rural youth's education, the lower the influence on their involvement in non-agricultural income generating activities. An increase in education of rural youth by one class resulted in decreased involvement in non-agricultural income generating activities by 0.200. Ovwigho (2014) found similar finding regarding relationship between education and nonfarm income generating activities. This is possibly because higher education leads to specialization.

Ethiopian women's literacy rate also varies by income level and depending on whether women live in urban or rural areas. The higher women's income, the higher their literacy rate; in 2013, the literacy rates for women in the wealthiest households was 72%, compared to 17% for women in the poorest households. For instance, in Shinile district women are involved in firewood selling rather than other income generating activities due to lack of formal educational qualification (Elizabeth, 2008). Low level of education can disadvantaged in relation to access to economic resources such as credit facilities and market information (Charles, 2014), 33% of microenterprise and small enterprise owners had primary level of education (ILO, 2003).

Average Time spent per day in domestic work and women's participation in NFIGAs

Women have tremendous domestic workloads. In 80% and 70% of urban households, women were solely in charge of water and firewood collection and rural women carried out 78% of water and 81% of firewood collection. All domestic work fell heavily on women in both urban and rural contexts, although more urban men (20%) shared domestic responsibilities than rural men (10%). These gender imbalances have great significance for women's and girls' access to and participation in knowledge systems, leaving them little time to pursue education and seek out information to advance their skills and pursue better opportunities. In both urban and rural areas, women and girls expended less time on learning activities and on non-productive/leisure activities. Hence, directly or indirectly, the limitation on women's

times prevents them from being workers, informed decision-makers, and innovators in knowledge societies (Helina, 2015). Esayas and Tolossa (2015) confirmed that women carry a double or even triple burden of work as they cope with housework, childcare, and subsistence food production, in addition to an expanding involvement in paid employment. As time spent in doing homemade activities, increase the probability of participating in non-farm activities

Dependency ratio and women's participation in NFIGAs

As of Mishra and Goodwin (1997), family size increases households desire to participate in off-farm work. Households with a larger family size have relatively higher marginal utility of income and a stronger desire to participate in off-farm work, which is consistent with the theory. Akter (2003) reveled that there was significant association between family size and the extent of participation in decision-making role in the family with regard to development activities and Faridi *et al.*, (2011) shows presence of children reduces the female labour force participation.

2.3.1.2. Policy-institutional factors

Amount of credit use and women's participation in NFIGAs

Households that use credit have 9.12% higher probability of being participated in local off-farm activities than households that do not use credit Eshetu and Mekonnen (2016). This implies that the formal and informal credit facilities that avail for rural farmers are a very important asset in rural livelihoods diversification. The result of the study, therefore, strongly suggest that farmers' access and use of credit would play important role in promoting rural income diversification than agricultural production. Meron and Samson (2015) study also shows that family size being participant of microfinance, are significant at 1%. Therefore, it is concluded that it have a positive relationship and significant with women economic empowerment which means that it increase women decision and their level of participation in different income generating activities.

Total land holding and women's participation in NFIGAs

Mezid (2014) study shows that there significant relationship between land title holder and non-holder in participating in off farm activities. Therefore, land ownership matter in the off

farm participation decision of farm households with negative effect to access credit service. The size of the landholding was negatively associated with the women's involvement in economic activities. Women's participation decreased with the increase of size of landholding (Farid *et al.*, 2009b). Other study shows that the landholding coefficient was negative and significant for both male and female farmers this indicate that males and females with less land are likely to seek some non-farming employment (Akhter *et al.*, 2012). The size of cultivated land has the expected sign and is statistically significantly, i.e. different from zero. It increases the reservation wage of both male and female members of a farm household. This might also indicate that farmers involved in off-farm activities for push reason, i.e. because of shortage of land to support their livelihood. This result is consistent with other studies. The number of draft animals in the household has a positive impact on the probability of working off-farm (Beyene, 2008).

2.3.1.3. Market related factors

Access to market information and women's participation in NFIGAs

Available infrastructures that influenced NFIGA decision of farm households are roads, electricity and communication facilities (Escobal, 2001). Abdulaziz and Nura (2015) confirmed that determinants of households residing in communities near to market are more likely to diversify into NFIGAs than those living in areas far from market. The same also Abdullai and Crolerees (2001) results shows households with access to market are in a better position to overcome market constraints and develop private market initiatives that promotes NFIGA activities. Therefore, access to market information has positive relation with women decision and level of participation in non-farm income generating activities.

Generally, the existing studies have identified many possible factors that influenced farm household to engage in non-farm enterprise activities in developing countries (Ellis, 2000; Barrett *et al.*, 2001; Abdulai and Crolerees, 2001; Woldenhanna and Oskam, 2001; Owusu, *et al.*, 2011). From the review, the factors that influence non-farm participation decision of the women have been grouped into household characteristics, community characteristics, entry barriers and geographical location. Household characteristics that influenced non-farm diversification behavior of the household are socio demographic factors like age, gender,

education of the household head, family size and marital status (Reardon, 1997; Abdulai and Crolerees, 2001; Loening *et al.*, 2010; Owusu *et al.*, 2011; Ali and Peerling, 2012).

Available infrastructures that influenced participation in NFIGA of farm households are distance road from and distance road from the market as Community related characteristics (Lanjouw *et al.*, 2001; Escobal, 2001). The reviewed also suggests that there are barriers or constraints that mitigate some farm households from diversifying into non-farm enterprise activities. The identified barriers include lack of access to formal credit and market information. Geographical location is another key determinant of household NFIGA participation decision. The location captures the differences in socio- economic characteristics and resource endowment like access to land of individual households (Ali and Peerling, 2012).

2.3.2. Factors affecting women's level of participation in NFIGAs

Different authors find determinants of level of income in different area for instance, Ashebir and Negussie (2015) finding on determinants of participation in the rural nonfarm economy in Eastern Ethiopia, shows that age of the household, number of adults in the household, total cultivated land size, access to irrigation, amount of credit borrowed and total livestock owned influenced income significantly, the level of income from rural non-farm employment. the age of the household head, as a measure of human capital accumulation gained from experience in the given sector, was found to positively influence the income obtained from rural non-farm employment. The number of adult members in the household, being engaged in rural non-farm employment, was also found to significantly affect income. Total cultivated land was found to influence the level of income from non-farm economic activities significantly, Having participated in rural non-farm employment, an increase in landholding, which indicates an increase in wealth, would enable the household to obtain the capital necessary to engage in lucrative nonfarm employment through providing liquidity to start own business. Moreover, as households with a better wealth status are more likely to be risk lovers compared to the landless or relatively very smallholders, they tend to invest in more diversified businesses (Reardon 1997, Reardon *et al.*, 1998, Barrett *et al.*, 2000). The possibility of getting access to credit solves the liquidity problem of households being fortune, for credit helps the farmers buy agricultural inputs and equipment, thereby raise productivity

of farm whose income could shift to nonfarm enterprise development and also the cash obtained from credit can serve as starting business for new enterprises.

Similarly, Nishad and Tanjila (2015) finding on contribution of rural non-farm activities in household income generation: A study on Khulna Region, show that household size, land holding, years of schooling, occupation type of non-farm/ farm, credit availability, organizational participation, working hour and working experience have significant effect on income of respondents. Accordingly, household size is negatively related with income i.e. if household size increases, it may decrease monthly household income. The co-efficient of land holding is negatively related with income probably this is because when a person has more land may feel reluctant to involve in other economic activities and generally it is well known that land holding may less contribution in their household income generation. Probable reason of positive relation of years of schooling might be that with higher education people become more conscious about getting higher income, being more skilled and use their expertise in their particular occupation. occupation type is also statistically significant which implies that if a respondent involves in nonfarm activities then respondent's monthly household income will be increased.

The authors also get positive relation of credit availability and income of respondents that means if respondents credit availability increases, it increases monthly household income. The positive coefficient of organizational participation with income, this might be because when they had organizational participation, they get new idea from organization. This may lead to increase in their household income. The other variable is that working hour, which is positively related with income for respondents. It implies that, 1 hour increase in working hour would result in increase in monthly household income of respondent. Probably this is because of working an extra hour income leads to increase income by the households. Their finding is ending with showing positive relation of working experience and income for respondents. This might be because with increasing experience respondent acquire more knowledge and skills about their activities, which may lead to increase in their income. Beside this different authors have almost similar result regarding to factor affecting non-farm income such as Wanyama *et al.,* 2010; Rahman, 2011; Madaki and Adefila, 2014 and Ovwigho, 2014, has found the same relation in their finding.

2.4. Conceptual Framework

Participation decision of women in NFIGAs influenced by different demographic, policy institutional, socio-cultural and market related factors. In order to analyze those determinants of women participation in NFIGAs, the following conceptual framework is developed. Demographic factors, like education, religion, age, dependency ratio and average time spent in domestic household work can influence women's participation in NFIGAs. Market related factors like distance from market and access to market information similarly affects women's participation. On the other hand, extension contact, amount of credit, total land holding, membership to formal organization also influence women participation decision. Moreover, the conceptual framework presented below describes the variables expected to influence women's participation in NFIGA in study area.

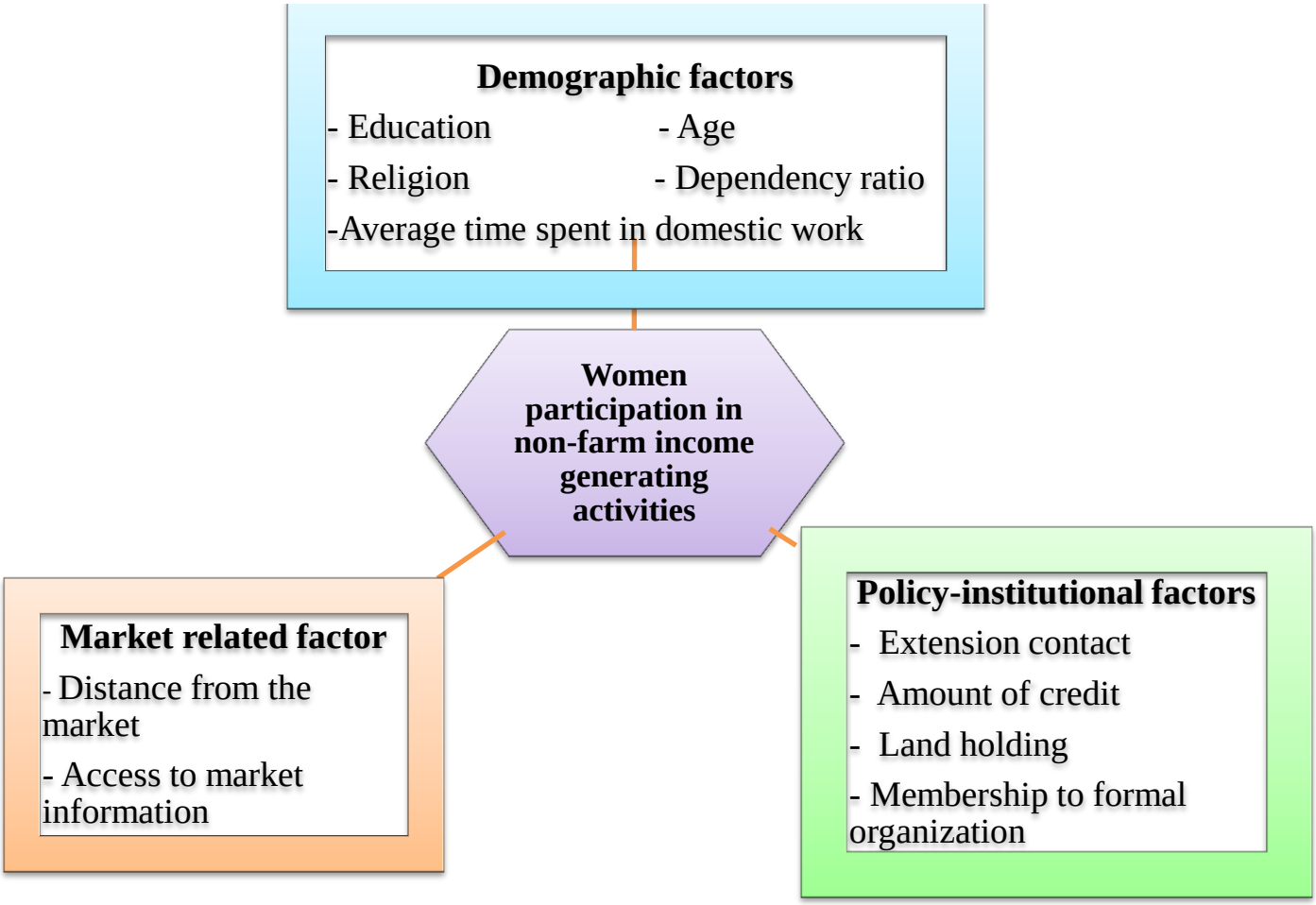


Figure 1: Conceptual framework
Source: Own sketch

3. RESEARCH METHODOLOGY

3.1. Description of the Study Area

The study was conducted in Seka Chekorsa district of Jimma Zone, Southwest Ethiopia. Seka Chekorsa is one of 21 districts in Jimma Zone. Seka Chekorsa is located on 368 km away from the capital Addis Ababa and 18 km from Jimma town. It is bordered on the South by the Gojeb river, on the West by Gera, on the Northwest by Gomma, on the North by Mana, on the North East by Kersa and on the East by Dedo. The district has total population of 258,100. From the total population, 9,138 are in urban and 248,962 are in rural area which about (124,166 female) and (124,796 male). Out of urban (9,138) population, 4,759 are female and 4,379 are male. Within the total populations, the compositions of young, economically working and old aged are 45.6%, 51.5% and 2.9%, respectively (CSA, 2007).

The district has an altitude ranges from 1580 to 2560 meters above sea level. Survey of land in this district show that 45.3% is arable or cultivable, 6.1% pasture, 25.8% forest and the remaining 22.8% considered as swampy, degraded or otherwise unusable. Khat, coffee, peppers, fruit and grain are crops produced in the district. The major fruit grown in this area are avocado, orange, lemon, banana, mango, papaya. Coffee and maize are important cash crops in the district. According to (CSA, 2005) the five largest ethnic groups in the district are Oromo (71.72%), Yem (16.36%), Amhara (4.82%), Kefficho (4.54%) and Dawuro (1.45%). Oromiffa is spoken as a first language by 88.36%, 5.68% spoke Amharic, 2.63% spoke Yemsa, 2.21% spoken Kafa, and 0.76% spoke Dawuro, the remaining 0.36% spoke all other languages reported. The majorities of the inhabitants were Muslim; with 86.66% of the population observed this belief while 10.93% of the population follows Ethiopian Orthodox Christianity and 2.27% were protestant.

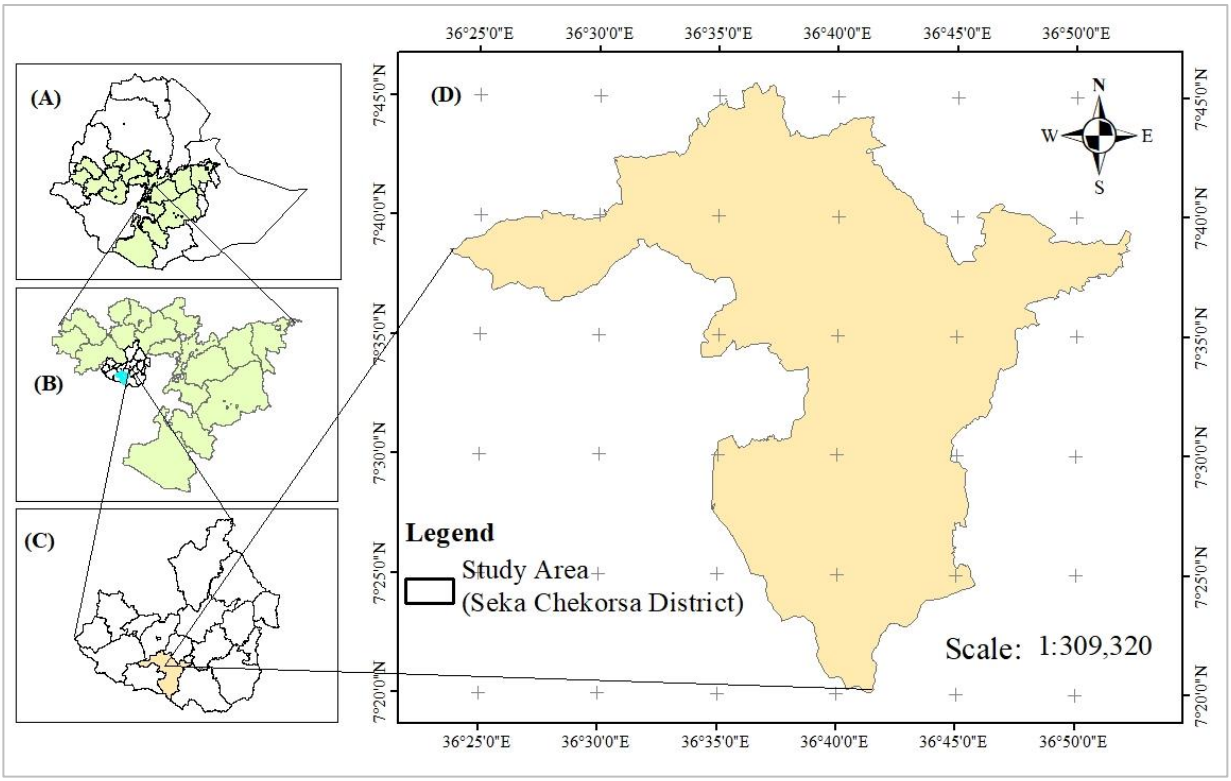


Figure 2. Location Map of the Study Area: (A) ONRS Zones in Ethiopia, (B) Jimma Zone in ONRS, (C) Seka Chekorsa District in Jimma Zone, and (D) Seka Chekorsa District.
Source: Own sketch from GIS

3.2. Data Sources and Methods of Data Collections

3.2.1. Data sources and types

Two types of data sources, primary and secondary were used to obtain the desired qualitative and quantitative data type in order to meet the study purpose. Formal and informal sample survey methods was used to collect primary and secondary data. Primary data was collected from women respondents who are participating in NFIGAs and non-participants, beside this primary data were gathered through group discussion with different women participants and non-participant groups and key informant interview. Secondary data was collected from district agriculture office, land administration office, women's and children's affairs office, small and medium enterprise office, cooperative and marketing office, healthy office and education office moreover, the secondary data was gathered from books, different published materials (Journals or Articles and reports).

3.2.2. Methods of data collection

Primary data were collected using individual interview from randomly selected women respondents from four *kebeles,* using structured interview schedule questionnaire. While focus group discussion was undertaken to meet the two specific objectives with participant and non-participant groups in four selected *kebeles* with a total of 8 groups which means, each kebele have two groups (one participant and non-participant), each groups also have 9-12 members. key informant interview was also used for primary data collection. The major key informant interview groups in this study was women's and children's affairs office, cooperative and marketing office as well as small and medium enterprise were interviewed regarding to both specific objectives. Secondary data were gathered from books, different published materials (Journals or Articles and reports), district agriculture office, land administration office, women's and children's affairs office, healthy office, small and medium enterprise office, cooperative and marketing office and education office.

3.3. Sampling Method and Sample Size Determination

In this study, two –stage sample design was employed for the survey. There are 36 *kebeles* in the district. At first stage from the total 36 *kebeles,* 4 *kebeles* were selected purposively based on the availability of highest number of women participants and at the second stage appropriate number of sample respondents from each *kebeles* are selected randomly based on probability proportional to population size (PPS) using Yemane (1967) formula.

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

$$n = \frac{N}{1+N(e)^2} = n = \frac{3{,}101}{1+3{,}101(0.08)^2} \approx 149$$

Where: n= designates the sample size the research uses;

N= designates total number of women in four kebele;

e= designates maximum variability or margin of error 8%;

1= designates the probability of the event occurring;

Therefore, 149 sample respondents were selected for this study. According to *Seka Chekorsa Woreda* Agricultural Office, a total population consists of 3,101 women who were in productive age (above 18 years); out of these 1,240 women were participants in non-farm

income generating activities from those selected *kebeles.* Having this information from the total of 149 sample respondents, 60 were participants and 89 were non-participants (table 1).

Table 1: Population and sample size determination by using PPS

Selected *Kebele*	Total(Ps)	Total(NPs)	Proportion(Ps)	Proportion(NPs)	Sample of Ps	Sample of NPs
Seka-01	**355**	**533**	0.29	0.29	**17**	**26**
A. Allaga	**190**	**285**	0.15	0.15	**9**	**14**
Kusaro	**394**	**592**	0.32	0.32	**19**	**28**
B.Kechema	**301**	**451**	0.24	0.24	**15**	**21**
Total	1,240	1,861	1	1	60	89

Note: Ps= participants, NPs= Non-participants, A. Allaga= Andode-Allaga, B. Kechema= Buyyo-Kechema

3.4. Method of data analysis

Both descriptive statistics and econometric analysis were used to analyze the data collected from all women participants and non-participants in NFIGAs of the study area.

3.4.1. Descriptive and inferential statistics

Descriptive statistics such as mean, standard deviation, percentages and frequency of occurrence were used to explain different demographic and socio-economic characteristics of the sample respondents. In addition, inferential statistics such as t-test and chi-square test were employed to test statistical significance of continuous and dummy variables, respectively, among participants and non-participant women.

3.4.2. Specification of Econometric Models

Different studies employed different models in order to identify the factors that determine participation in economic activity (Behrman, 1996; Bardhan, 1970; Strauss, 1984 and Geoz, 1992). The commonly used models are the well-known Tobit and Heckman's sample selection model. The disadvantage of the Tobit model is the assumption that both the decision to participate and the level of non-farm income given participation are determined by the same variables i.e., a variable that increases the probability of participation also increases the

level of non-farm income. This problem can be overcome using the Heckman's sample selection model where a Probit model for the participation or 'selection' equation is estimated and a regression model, which is corrected for selectivity bias, is specified to account for the level/ the magnitude of women's participation in non-farm income. Therefore, in order to analyse the factors affecting women's participation in NFIGAs and their level of participation Heckman two-step procedure was employed.

The Heckman two-step procedure: This study uses the two-step Heckman's procedure to estimate both the decision of women's participation in non-farm income generating activities and the level of participation in non-farm income generating activities. The first step of the Heckman's procedure involves estimation of the Probit equation (women participation equation) to explain the participation decision, with the dependent variable equal to "1" if the women participates in non-farm income generating activities, "0" otherwise. The Probit estimation, which includes information that affects participation equation, was used to obtain the inverse Mill's ratio (Lambda). For this purpose, generally a Probit model is estimated (because the error term of this model is normally distributed, one of the assumptions underlying the Heckman model). Inverse Mills ratio is a summarizing measure, which reflects the effects of all unmeasured characteristics.

In the second step of the Heckman procedure, OLS estimation equation (level of participation in non-farm income equation) was performed by using the selection bias control factor Lambda (predicted inverse Mills ratio) as an additional independent variable, which produces consistent OLS estimates of non-farm income level. Because this factor (Lambda) reflects the effect of all the unmeasured characteristics, which are related to the participation decision, the coefficient of this factor in the substantial analysis catches the part of the effect of these characteristics which is related to the level of participation.

Probit Model: In some applications explanation of the behavior of a dichotomous dependent variable, the probit model has been found useful (Gujarati, 1995). Using a binary decision model, a random variable Y (dependent variable) takes the value of "1" if the woman participates on non-farm income generating activities and "0", otherwise. The probability of a women to participate on NFIGAs depends on a vector (s) of independent variable (s) X_i and a vector of unknown parameters β. The vector X_i represents women demographic, socio-

economic and institutional factors. Assuming that for each women "i" its characteristics can be summarized by an observed index I, which is a function of those characteristics; the probit model used to examine the women participation on NFIGAs is specified as follows:

$$Y = 1 = X_i\beta + e_i \quad \text{If} \quad X_i\beta + e_i > I \quad \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots 2$$

$$Y = 0 \quad \text{If} \quad X_i\beta + e_i < I$$

Where: I = Observed index

i = 1, 2…N

The index I, is a linear combination of explanatory variables and might take any value between - ∞ and ∞, and its transformation ensures that all corresponding probability values lie between 0 and 1. In the probit model the critical values are assumed to be distributed normally among individuals (Kennedy, 1979 cited in legesse, 1992).

To analyze the factors that women to participate in NFIGAs, the probit can be defined in terms of the level of the unobserved index.

$$I_j = \beta_0 + \beta_1 X_{1j} + \beta_2 X_{2j} + \cdots\cdots \beta_i X_{ij} + e_i \cdots\cdots\cdots\cdots\cdots\cdots 3$$

Where: j is 1, 2…j observation

I_j is the unobserved index for the j^{th} observation

X_{ij} is the value of the i^{th} explanatory variable for the j^{th} observation

i = 1, 2…N

βi is unknown parameter to be estimated

The participation Probit model (participation decision function) is used to develop an index (Z) of factors affecting women participation in NFIGAs. From Z, LAMBDA, which is related to the conditional probability that a women would participate (given a set of independent variables) is determined.

$$\lambda_i = \frac{\phi(Z_i)}{1 - \Phi(Z_i)} = \frac{\phi(Z_i)}{\Phi(-Z_i)} \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots 4$$

$$Z_i = \frac{X_i\beta}{(\delta_e)^{\frac{1}{2}}}$$

Where: λ_i is the inverse Mill's ratio

ϕ And Φ is the density and distribution functions for the standard normal variable

β is a vector of regression parameters for variable X, and

δ_e is the standard deviation of the error term

Then the parameters that determine the level of participation can consistently be estimated by OLS over n observations reporting values for Y_i by including an estimate of the inverse Mills ratio, denoting λ_i as additional regressor. More precisely the model is specified as:

$$Y_i = \beta_i X_i + \mu\lambda_i + \eta_i \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 5$$

Where: Y_i is the amount of annual non-farm income,

X_i is the explanatory variables determining the level of participation,

β_i is unknown parameters to be estimated,

μ is a parameter that shows the impact of participation on the level of non-farm income,

η_i is the error.

Finally, before proceed to regression model, Multicollinearity problems was checked. Multicollinearity problem arises due to a linear relationship among explanatory variables; and becomes difficult to identify the separate effect of independent variables on the dependent variable because there is strong relationship among them (Gujarati, 2003). Variance inflation factor (VIF) was employed to detect multicollinearity of continuous variables. According to Gujarati (2003), VIF (X_j) can be defined as:

$$VIF = (X_i) = \quad \frac{1}{1 - {R_i}^2} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 6$$

Where: R_i^2 represents a coefficient of determination in the subsidiary or auxiliary regression of each independent variable X.

As a rule of thumb, if the VIF is greater than 10 (this will happen if $R^2 > 0.90$) variable is said to be highly collinear (Gujarati, 2003). In addition, multicollinearity of dummy variables was detected using contingency coefficient, this measure shows the relationship between the raw and column variables of a cross tabulation. It indicates that if the value is 0 it shows as there is no relation between column and raw variables. However, if the value approaches to 1 it indicates as there is association between the variables.

The contingency coefficient computed as;

$$C = \sqrt{\frac{x^2}{N + x^2}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

Where, C= coefficient of contingency, $\chi 2$ = a Chi-square random variable and N = total sample size. Moreover, if C is greater than = 0.75 the variable are said to be collinear.

3.5. Definition of variables and working hypothesis

3.5.1. Dependent variables

In this study two dependent variables are assigned, the first dependent variable is the participation decision of women or women's participation in NFIGAs and secondly, women's level of participation in NFIGAs which is measured by level of annual non-farm income earned from NFIGAs by participants. By assigning women's participation in NFIGAs and level participation as two different dependent variables, the following variables were selected to analyze whether they explain women's participation in NFIGAs and the level of participation.

Y_1: The probability of women's participation in NFIGAs. It is a dichotomous dependent variable in the model and it takes '1' if a women participates in NFIGAs and '0', otherwise (in probit model).

Y_2: The level of annual non-farm income earned from participants in NFIGAs in Eth Birr. It is a continuous dependent variable in the model which measure the level of women's participation in NFIGAs (in OLS regression).

3.5.2. Independent variables

A range of demographic and socio-economic variables that are expected to influence women's participation in NFIGAs were selected and defined below.

Age of women (AGE): It is a continuous variable referring to the age of the women measured in years. Farid *et al.,* (2009a) affirm that the most significant factor influencing women's participation in agricultural and non-agricultural activities was the age. Therefore, age of

household were hypothesized to influence women's involvement in non-farm activity and their level of participation positively.

Dependency ratio (DMEM**)**: It is a continuous variable referring to the total number of dependent members living in the household. Abdulaziz and Nura (2015) finding indicated that larger household size increased the likelihood of participation in non-farm activities and the probability of engaging in multiple activities. So, it is expected to influence women's participation in NFIGAs positively.

Education level of the women (EDU): It is a continuous variable. According to Esayas and Tolossa (2015), an increase in women's level of education plays a significant role on the knowledge of business management to NFIGAs i.e., women with better education [above high school] were more beneficiary compared with those with lower level of education [below high school or elementary school] in handling their businesses. In this study, education was hypothesized to influence women's involvement in NFIGAs and level of participation positively.

Total land holding (LAND): This is a continuous variable. It is the total land size, which is cultivated by the household in hectare. According to Ashebir and Negussie (2015), an increase in landholding, which indicates an increase in wealth, would enable the household to obtain the capital necessary to engage in lucrative nonfarm employment through providing liquidity to start own business moreover, Mezid (2014) contend that land ownership matter in the non-farm participation decision of farm households with positive effect to access credit service. Hence, in this study, total land holding was hypothesized to influence women's involvement in non-farm activity and level of participation positively.

Amount of credit (AMCREDT): This is continuous variable that measured in birr. As of Woldenhanna and Oskam, (2001) women who have access to credit service engage in different IGAs, which has high value and increases their involvement. Thus amount of credit was hypothesized to influence women's involvement in non-farm activity and level of participation positively.

Average Time spent per day in domestic work (AVTDW): It is a continuous variable referring to the total time devoted by the women in household chores. Esayas and Tolossa (2015) confirmed that women carry a double or even triple burden of work as they cope with housework, childcare and subsistence food production in addition to an expanding involvement in paid employment. As time spent in doing homemade activities increase, the probability of participating in non-farm activities expected to decrease as participation requires time to generate yet another income and be profitable. Hence, this variable was expected to influence women's level of participation and their involvement in NFIGAs negatively.

Extension contact (EXT): This is continuous variable that is the number of days contact with DAs. Asfaw A. *et al.,* (2017) contented that households having contact with DAs five and more times a year were 15.5% more likely to participate in non-farm income-generating activities. Therefore, the variable was hypothesized to influence women's involvement in non-farm activity positively.

Distance from the market (DMKT): This is a continuous variable, which refers to the distance of the market from home, measured in kilometer. Households residing in communities near to market are more likely to diversify into NFIGAs than those living in areas far from market (Abdulaziz & Nura 2015). Hence, women's nearer to the main market towns are more likely to participate in NFIGAs. Therefore, this variable is expected to influence women's involvement in non-farm activity negatively.

Access to market information (MKTINF): This is a dummy variable that takes a value 1 for women access to market information and 0 otherwise. Vein *et al.,* (2005) confirmed that the lack of Proximity to Market information concerning non-farm activities or prices of non-farm products has a negative influence on non-farm diversification behavior of the households. Therefore, in this study, access to market information was hypothesized to influence women's participation decision and level of participation positively.

Membership to formal organization (MEMFOROG): It is a dummy variable, which takes a value 1 if women are member and 0 otherwise. Abiyot (2010) affirm that becoming a member of a particular cooperative helps women members to undertake business of their own interest.

This creates the opportunity for women to exercise their potential and become economically independent. Therefore, access to formal organization hypothesized to influence women's involvement and level of participation positively.

Table 2: Summary of definitions of the variables and working hypothesis

Variables	Description of the variables	Types	Unit of measurement	Sign Y_1	Sign Y_2
AGE	Age of respondents	Continuous	Measured in year	+	+
DMEM	Dependency ratio	Continuous	Measured in number	+	+
EDU	Respondent level of education	Continuous	Measured in year of school	+	+
RELIGION	Religion of respondents	Dummy	1= Muslim, 0=otherwise	-	
LAND	Total landholding of the household	Continuous	Measured in hectares	+	+
AMCRDT	Amount of credit use	Continuous	Measured in birr	+	+
AVTDW	Average Time spent per day in household work	Continuous	Measured in hour	-	-
EXT	Extension contact	Continuous	Number of days contact with Das	+	
DMKT	Distance from main market	Continuous	Measured in Kilometer	-	-
MKTINF	Access to market information	Dummy	Have access=1, 0=other wise	+	+
MEMFOROG	Membership to formal organization	Dummy	Have access=1, 0=otherwise	+	+

Note: Y_1 and Y_2 are the two dependent variables i.e Y_1= The probability of women's participation in NFIGAs while Y_2= The level of annual non-farm income earned from NFIGAs by participants.

4. RESULTS AND DISCUSSION

This chapter presents and discusses the findings of the study from descriptive and econometric analysis. Accordingly, in the first part of this section, general characteristics of respondent are analysed. Moreover, different non-farm activities experienced by women in the study area are also discussed. In the second part, econometric analysis is made to analyze factors affecting women's participation in non-farm income generating activities and level of their involvement.

4.1. General characteristics of sample respondents

In any research, the background information of the respondent is considered very crucial not only for subsequent discussions of the findings but also for the authenticity and generalization of the results (Bernard and Ryan, 2010). This section, therefore, presents respondents background information considered crucial for discussions in this study. The general characteristics of sample respondents are presented in detail below.

4.1.1. Demographic characteristics

The survey result showed, from the total sample respondents near to 90% of respondents were married. The rest 12.8% and 2.7% of them were widowed and divorced, respectively. From married respondents, 86.7% were participants and 83.1% were non-participants. The FGD result with respondents showed that majority of the women who participate in income generating activities are married. This shows that when they are widowed or divorced, the responsibility of leading to family is loaded on them. Due to these, they were not able to participate more in income generating activities. What we can conclude hear is that, women who are married had more chance of participating in non-farm income generating activities than widowed and divorced women. The difference in terms of marital status of respondents among the two groups was not significant.

Regarding religious affiliation, majority 80.5 % of total sample respondents are Muslim. While the remaining 19.5 % are other followers. The difference in terms of religion among the participants and non-participants was not significant.

Table 3: Marital status and religion of sample respondents

Variables	Category	Participants (%)	Non-participants (%)	Total sample (%)	Pearson χ 2
Marital status	Married	86.7	83.1	84.6	0.533
	Divorced	1.7	3.4	2.7	
	Widowed	11.7	13.5	12.8	
Religion	Muslim	75	84.3	80.5	1.998
	Others	25	15.8	19.5	

Source: Own survey results, 2018

Age was one of the demographic factor that is useful to describe respondents and provide clue about the age structure of the sample and the population. The result given in table 4 revealed that the mean age of respondent was found to be 36.7 and 39 years with standard deviations 7.6 and 10.7 for participants and non-participants, respectively. The result of independent sample t-test show that, there was statistically significant difference between two groups at 5% probability level. In the study area, most of the respondents were at the productive age. Due to these, they were more initiated for participation in NFIGAs. Elias *et al*., (2013) contended that women with higher age are less likely to participate in farm and non-farm activities compared to those with lower age. In general, as age increase the decision to participate in non-farm activity decreases.

The mean number of dependent member for participants and non-participants found to be 4.9 and 5.3 person per household with standard deviations 1.7 and 2.3, respectively. Even though there is difference means in dependency ratio between participants and non-participants, the t-test indicates that it has insignificant effect to women's participation decision. From FGD result, the possible explanation from this result is that larger dependency ratio has relatively higher consumption needs or tends to incur higher expenditure this intensifies women participation in NFIGAs to increase the financial capacity and sustain family basic needs. The effect of household structure on the probability of participation in non-farm activities was consistent with expectations and the results of other studies (Reardon *et al.,* 1992; Mishra and Goodwin, 1997; Woldehanna *et al.,* 2000; Abdulaziz and Nura, 2015).

Table 4: Age and dependency ratio of sample respondents

Variables	Participants		Non-Participants		t-value	Total sample (N=149)	
	Mean	St. Dev	Mean	St. Dev		Mean	St. Dev
Age (years)	36.7	7.6	39	10.7	-1.982**	38.1	9.6
Dependency ratio	4.9	1.7	5.3	2.3	1.285	5.1	2.1

Source: Own survey results, 2018

Note: ** is 5 % level of significance

4.1.2. Socio-economic characteristics

Education is one of the key factors and the most powerful tool to bring the desired socio-economic changes in a given society. Without education and relevant training, the entire development of a given society is seriously hindered utmost (Esayas and Tolossa, 2015). Education attainment is one of the most important determinants of women's participation in non-farm activities. The mean grade levels for participants and non-participants were 6.3 and 2.4 with standard deviations 4.4 and 3.5, respectively. The grade level recorded by participants was high as compared with non-participants. Mean education level of total sample respondents was also 3.9, showing lower grade level. The result of independent t-test indicates that there are significant differences between participants and non-participants in terms of education level of respondents at 1% probability level (table 5).

From FGD result, non-farm activities require some skill and training. For instance, those who engaged in handicraft activity were take training before starting the business. Hence, respondents with some skill and educational background tend to engage in non-farm activities than others. From this it is observed that education is one entry barrier to non-farm activity. In the study area, majority of women can't read and write and the maximum non-farm annual income was also recorded by women having maximum grade level. Generally, women's with higher educational level has more success in their business ventures as compared to women's with low level of education (Esayas and Tolossa, 2016).

The result of the study indicates that average land size holding by participants and non-participants were 0.53 and 0.41 hectares with standard deviations 0.58 and 0.57, respectively. Table 5 shows that the average size of the total land holding of participants was relatively larger compared to that of the non-participants. Even though, there is difference means in total land size holding between participants and non-participants, the t-test indicates that it has insignificant effect to women's participation decision. The average amount of credit received by participants and non-participants was 2141.7 and 33.7 birr with standard deviations 3395.02 and 146.9, respectively. The result indicates that amount of credit received by respondents has significant differences between participants and non-participants at 1 % probability level. In the study area, one major factor influencing women participation (before and after starting business) is lack of credit.

Sallawu *et al.,* (2016) also contented that accessibility of credit institution and availability of adequate loan was important factors for the participation of household in non-farm activities. In the study area, majority of respondents (75.2%) had not received any loan due to collateral, having sufficient capital and interest rate while 24.3% of respondents had received loans to enable them to run their business (participants) and for different other purposes (non-participants). Respondents source of credit where: 40% of respondents got their credit from microfinance institution, about 35% from friends and relatives and 25% of respondents received credit from cooperative. Generally, micro-finance assisted income generating activities are seen to be quite helpful for opening economic opportunities for rural women who may not afford to be employed outside their home for socio-cultural reasons (Damesa and Ogato, 2016).

As the table 5 reveals the average day respondents contact with development agents (DAs) was 1.3 and 0.8 day per month with standard deviations 0.83 and 0.96 for participants and non-participants, respectively. The result indicates that there are significant differences between participants and non-participants in terms of extension contact of respondents at 1 % probability level. Asfaw A. *et al.*, (2017) also contented that households having contact with DAs five and more times a year were 15.5% more likely to participate in non-farm income-generating activities. As of FGD with participant groups shows the training that they take have bring a significant change to their business compared with before. As observed in the

area, trainings given by DAs especially demonstration and awareness creation have bring for women significant change to their business. The result is consistent with Beyene, (2008) who confirmed that, training on non-farm activities has positive effect on participation of the farm household.

The mean market distance from respondents home were near to 5 and 10 kilometer with standard deviations 3.4 and 3.7 for participants and non-participants, respectively. The result indicates that there are significant differences between participants and non-participants in terms of market distance of respondents at 1 % probability level. As table 5 shows non-participants record higher market distance compare with participants that is why they were apart from the business. As FGD result shows women especially in *kusaro kebele* face challenges with regard to market distance because there is infrastructure problem (unsuitable road), for this reason they transport their product with their foot and also they are women meaning when they back to home domestic work is their duty.

Respondents in the study area use different types of transportation service to transport their goods to nearest market such as foot 72 (48.3%), car 69 (46.3%), donkey 7(4.7%) and other type of transportation 1 (7%). But majority of respondents transport their goods by foot this is due to lack of suitable transport facility/road. As a result of this most of women are obligated to stop the business because as they says “it is very difficult”. What is observed hear is that those respondents closer to the market center will get better opportunity to participate in non-farm activities. The result is consistent with Babatunde R. (2013) confirmed that market distance plays a role with larger distances having a negative effect on off-farm income because market closeness is a location advantage for any economic activity, thus contributing to increased off-farm income. In support of this finding Abdulaziz and Nura (2015) contented that households residing in communities near to market are more likely to diversify into NFIGAs than those living in areas far from market. Abdullai and Crolerees (2001) also pointed out that households with access to market are in a better position to overcome market constraints and develop private market initiatives that promotes NFIGAs.

Average time spent in domestic work is the major socioeconomic as well as sociocultural factor affecting women’s participation in NFIGAs. In the study area, women spent more of their time in reproductive, productive and community managing activities, which is known by

triple role of women. The reproductive activities of women are also known as the domestic role. The reproductive tasks identified in the focus group discussion and survey were mostly domestic chores which are bearing and rearing for children, processing and preparing food, housekeeping, fetching of water from far places, gathering and collecting fuel wood and animal dung, caring of sick family members and olds.

FGD result shows reproductive work is labor-intensive and time consuming. It is always the responsibility of women and girls and has highly negative impact on non-farm business because; this additional work burden is unpaid and limits women's capacity to engage in income-generating activities. The survey result showed that an average time of 4.98 and 8.67 hour spent in domestic work per day by participants and non-participants, respectively. The result shows non-participants spent more of their time in domestic work than participants. We can conclude from the result, much of women's work is undervalued because it is typically un- or under-remunerated and often confined to the domestic, or household, realm (Fontana and Paciello, 2010). Generally, the descriptive statistics result of independent t-test shows average time spent in domestic work by women has significant differences between participants and non-participants at 1 % probability level (table 5).

Table 5: Socio-economic characteristics of sample respondents for continuous variables

Variables	Participants		Non-Participants		t-value	Total sample (N=149)	
	Mean	St. Dev	Mean	St. Dev		Mean	St. Dev
Education	6.3	4.4	2.4	3.5	6.057***	3.9	4.3
Total land holding(ha)	0.53	0.58	0.41	0.57	1.235	0.46	0.57
Amount of credit(birr)	2,141.67	3,395.03	33.71	146.89	5.859***	882.55	2,384.06
Extension contact	1.3	0.83	0.8	0.96	3.156***	1.0	0.9
Market distance (km)	4.9	3.4	9.5	3.7	-7.527***	1.0	0.9
Average time spent in domestic work (hr)	4.98	2.25	8.67	1.53	-11.77***	7.18	2.61

Source: Own survey results, 2018

Note: *** is 1 % level of significance

The result of cross tabulation shows that in the study area, about 44 (73.3%) and 45 (50.6%) of participants and non-participants have access to market information, respectively. The rest 16 (26.7%) of participants and 44 (49.4%) of non-participants didn't get market information. Pearson chi-square indicates the significant difference between the two groups in terms of market information at 1 % significant level. As table 6 reveals participants record higher percentage than non-participants. Consistent with Vein *et al.,* (2005) confirmed that lack of proximity to market information concerning non-farm activities or prices of non-farm products has a negative influence on non-farm diversification behavior of the households. Similarly, the likelihood of participating in non-farm activities would be high for those individuals having a market and business-related information (Asfaw A. *et al.,* 2017).

Table 6: Access to market information

Access to Market information	Participant		Non-participant		Pearson chi-square
	Freq.	%	Freq.	%	
Yes	44	73.3	45	50.6	7.73***
No	16	26.7	44	49.4	
Total	60	100	89	100	

Source: Own survey results, 2018
Note: *** is significant level at 1%

In the study area, women get market information through different way. Out of 149 sample respondents, about 89 (59.7%) of them get market information through radio, telephone, personal observation and from neighbors (table 7). However, 31 (34.8%) of total respondents get market information through telephone, which was the maximum type of market information recorded in the area. As of Asfaw A. *et al.,* (2017) radio and mobile phone are dominant sources of information in most rural areas of Ethiopia. Yenesew *et al.,* (2015) had also reported the likelihood of smallholder farming rural households participation into non-farm livelihood strategies was positively and significantly affected by the extent of listening radio and watching television.

Table 7: Sources of market information

Source of market information	Non-participants		Participants		Total
	Freq.[a]	%	Freq.[b]	%	**a+b**
Radio	12	26.7	6	13.6	18
Telephone	14	31.1	17	38.6	31
Personal observation	6	13.3	8	18.2	14
Neighbors	13	28.9	13	29.5	26
Total	45	100	44	100	89

Source: Own survey results, 2018

Membership to formal organization was one factor affecting women's participation in non-farm income generating activities. Table 8 reveals that 28 (46.7%) of participants and 14 (15.7%) of non-participants were member of organization found in the study area. While about 32 (53.3%) and 75 (84.3%) of participants and non-participants was not member of any formal organization, respectively. The result of pearson chi-square indicates the significant difference between the two groups in terms of membership to formal organization at 1 % significant level.

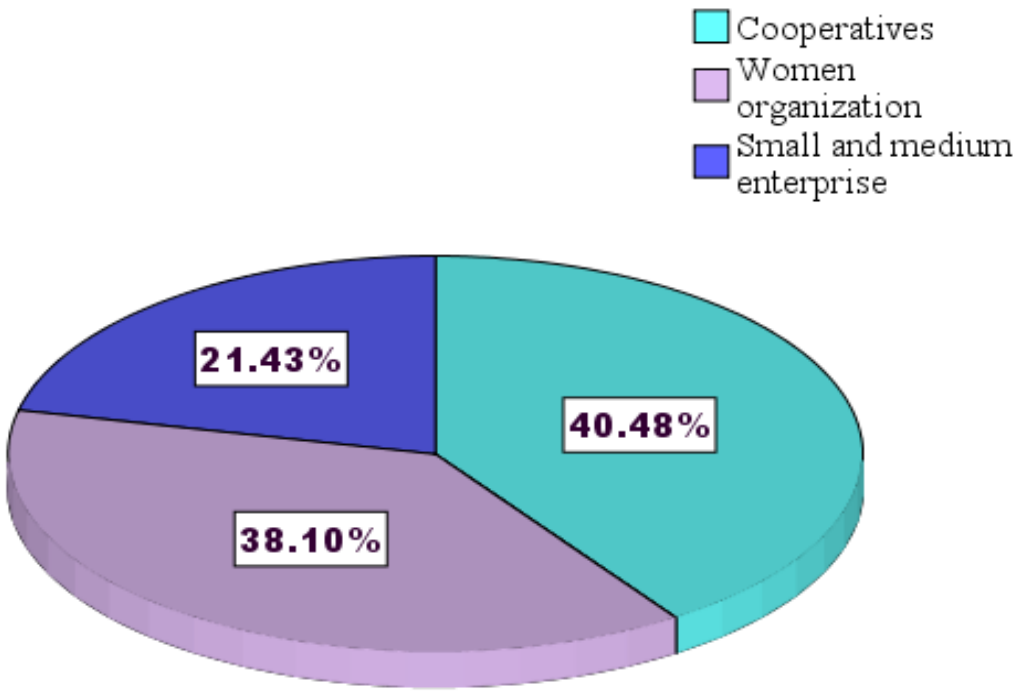
Table 8: Membership to formal organization

Membership to formal organization	Participants		Non-participants		Pearson chi-square
	Freq.	%	Freq.	%	
Yes	28	46.7	14	15.7	16.95***
No	32	53.3	75	84.3	
Total	60	100	89	100	

Source: Survey results, 2018
Note: *** is significant level at 1%

The result of survey shows that out of total respondents 42 (28.2%) of women in the study area were member of different formal organization and the rest 107 (71.81%) were not member of any formal organization. Cooperative, women organization as well as small and medium enterprise were the three type of organization found in the study area. About 17 (40.48%), 16 (38.10%) and 9 (21.43%) of respondents were member of cooperative, women organization as well as small and medium enterprise, respectively (Figure 3).

Figure 3: Type of formal organization



Source: Own survey results, 2018

4.2. Non-farm income generating activities experienced by women in the study area

Out of the total sample respondents 60 were participants and the remaining 89 were non-participants. In the study area, women participants were participating in different non-farm income generating activities as discussed in detail below.

4.2.1 Types of non-farm income generating activities

Non-farm IGAs can be a particularly important strategy for meeting subsistence needs as well as absorbing shocks to agricultural income. Non-farm activities have an important role in household economy. Participation in non-farm activities has been found to empower women, increasing their bargaining power within the household and increasing household welfare (Sultana and Hasan, 2010). Women in the study area were taking part in various non-farm income generating activities. The major non-farm income generating activities which were done by women include petty trade, collecting and selling firewood, selling charcoal, handicraft, grain trading, tailoring and hair dressing saloon. Accordingly 26 (43.33%), 24 (40%), 5 (8.33%) and 2(3.33%) were engaged in handicraft, petty trading, selling of charcoal,

collecting and selling firewood, respectively. The rest; grain trading, tailoring and hair dressing saloon were account for 1 (1.67%) each. Table 9 reveals that the participation of women in handicraft was highest followed by petty trade. Participation in selling charcoal, collecting and selling firewood, grain trading, tailoring and hair dressing saloon are lowest in comparison with handicraft and petty trade.

Table 9: Types of non-farm activities

Types of NFIGAs	Frequency	Percent
Handicraft	**26**	**43.33**
Petty trading	**24**	**40.00**
Selling charcoal	5	8.33
Collecting and selling firewood	2	3.33
Grain trading	1	1.67
Tailoring	1	1.67
Hair dressing saloon	1	1.67
Total	60	100.00

Source: Own survey results, 2018

As Table 9 shows majority of women in the study area are engaged in low income generating activities (handicraft and petty trade). The minimum annual non-farm income (1500) was recorded from handcrafters while the maximum non-farm income (240,000) is found from grain traders. From the result handicraft have higher participation rate compared with the rest activities, surprisingly the minimum income was also recorded under this activity. Women involved in handicraft activity were known by making *eelee* and *geemmoo.* The result of Focus group discussion shows, women have a potential in making handicraft products (*eelee* and *geemmoo)* but they face different challenges to do more and generate higher income.

Workload, infrastructural problem and lack of money were the major problems mentioned by women. For instance after they make *eelee* they transport it to near market by their foot i.e. about 45 min to 1 hr far from the residence. But the problem is *geemmoo* it is difficult to transport by foot and they deliver it by car once a year during dry season. This is because of infrastructural problem. As a result of this, most of them were leave from making this

product. Generally, without solving this common problem it is difficult to meet the millennium development goal i.e. promoting gender equality and women empowerment. On the other hand, the maximum non-farm annual income was recorded by grain traders but the number of women engaged in this activity were very small compared with handicraft and petty trade.

4.2.2 Respondents annual non-farm income

The amount of income generated from non-farm activities varied among sample respondent ranging from a minimum amount of birr 1,500 to a maximum amount of birr 240,000 per annum. From those different NFIGAs, respondents earn a mean of birr 24,909.3 annual incomes with a standard deviations 35,139.5 (table 10).

Table 10: Descriptive statistics of annual non-farm income

Respondents non-farm annual income	N	Mean	Min	Max	Std.
Participant	60	24,909.3	1,500	240,000.00	35,139.5
Non-participant	89	0	0	0	0

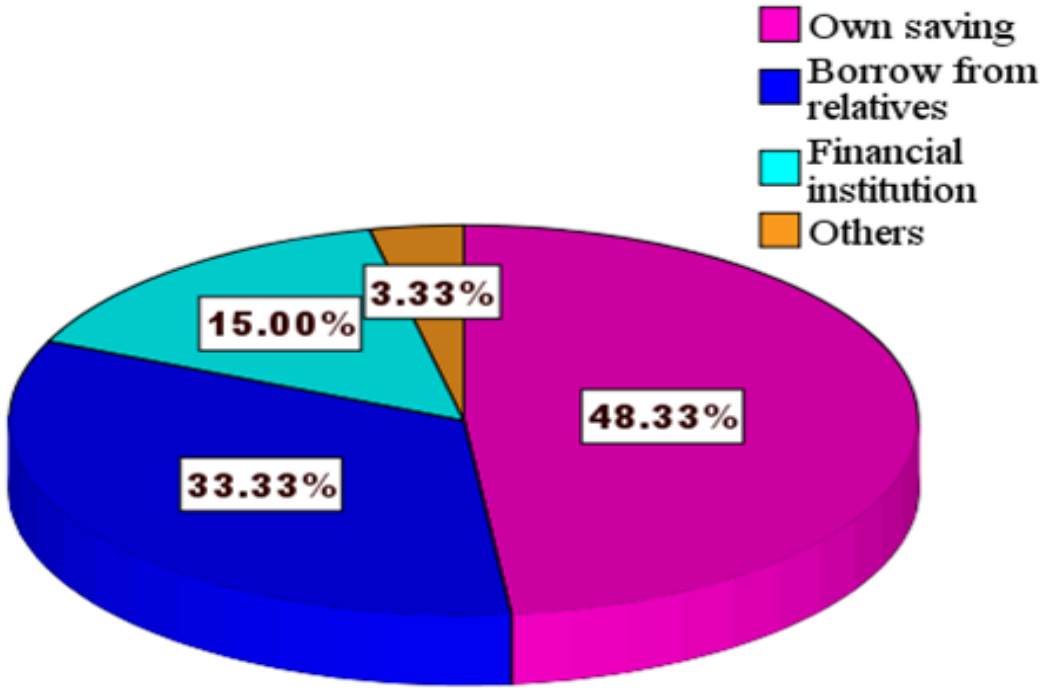
Source: Own survey results, 2018

Respondent use their annual income for various purposes. Purpose for which non-farm income are used by the respondents, about 36 (60%) of respondents use their non-farm income to household clothing and consumption. They also use their non-farm income for saving and consumption, household consumption and clothing 17 (28.3%), 5(8.3%) and 2 (3.3%), respectively. Respondents uses to a moderate amount to personal savings from non-farm income. The implication of the finding is that the rural women entrepreneurs spent majority (near to 80 %) of their income from non–farm activities in household feeding and clothing. The result is consistent with FAO (2011b) which reported that, in worldwide, women spend up to 90 % of their incomes on their families, while men spend only 30 to 40 %. Similar result was found by Onyebu (2016) who argued that women are responsible for about 50 % of the world's food production and in some countries of Sub-Saharan Africa, they provide between 60 and 80 % of the food for household consumption.

4.2.3 Source of initial Capital

The result indicates that participant women established their business with an initial capital from different sources such as own saving, borrowed from relatives, borrowed from financial institution and other sources (Figure 4). The main source of start-up capital for respondents in the study area was own savings (48.33%). This finding is in line with the study by ILO (2003) which reported that about two-thirds of women entrepreneurs used their own saving to start their businesses. The survey indicated that the main resources for start-up and expansion of women operated enterprises come from the women's own personal savings and family support.

Figure 4: Source of initial capital



Source: Own survey results, 2018

4.3. Determinants of women's participation in NFIGAs and level of participation

This section presents the empirical results of the models formulated in part three. The models were designed to understand the factors that determine women's participation in non-farm income generating activities in the study area. Before running the econometric models (Heckman two-step procedure), the hypothesized predictor variables were checked for the existence of multicollinearity problem. For this purpose, variance inflation factor (VIF) and contingency coefficient were used for the continuous and discrete variables, respectively. The problem of multicolinearity can be expressed as the violation of the assumption of covariance between variable should be equal to zero. In this study, the result showed us there is no serious problem of multicolinearity (the results are presented in table in the appendix part). Hence, heckaman model was estimated to see the determinant factors for participation of women in non-farm income generating activities in the study area.

4.3.1 Determinants of women's participation in NFIGAs (probit model result)

Several demographic and socio-economic factors were expected to influence women's participation and included in the probit model analysis. Eleven variables that were presumed to have significant effect on the decision to participate in NFIGAs were included in the analysis. The variables were age of respondents (AGE), dependency ratio (DMEM), education level of respondents (EDU), religion of respondents (RELIGION), total land holding (LAND), amount of credit (AMTCRDT), average time spent in domestic work (AVTDW), extension contact (EXT), distance from market (DMKT), access to market information (MKTINF) and membership to formal organization (MEMFOROG). Table 11 presents factors influencing women's participation in NFIGAs.

Six variables out of the eleven potential variables (8 continuous and 3 dummy) that were entered into the probit model were found to be statistically significant and influencing the women's participation in NFIGAs positively or negatively. The variables which have significant positive relationship with women's participation in non-farm activities were education level of respondents (EDU), amount of credit (AMTCRDT) and membership to formal organization (MEMFOROG) while age of respondents (AGE), average time spent in domestic work (AVTDW) and distance from market (DMKT) have significant and negative

influence. Moreover, the interpretations of the significant explanatory variables are given below:

Age of respondents (AGE): It is a continuous variable and hypothesized to influence women's participation decision positively. Age of respondent have found to be negatively and significantly influence women's participation decision in NFIGAs at 5 % probability level. This implies that participation in NFIGAs decrease as the age of women increases. The computed marginal effect result shows holding other factors constant, for each additional age by the respondent, the probability of the decision to participate decreases by 2.3 %. The possible justification is that as the age of the respondents increase, in the adult age, the interest of participation in NFIGAs will increases from time to time. But, as the age proceed over the adult age and came to the oldness, the participation level of women in NFIGAs decreased due to oldness of them. The result is consistent with Biruk and Mesfin (2017) confirmed that as women become older and older, they lose the interest of participating in income generating activities.

Education level of respondents (EDU): It is a continuous variable and hypothesized to influence women's participation decision positively. Educational status of the respondent found to be positively and significantly influence women's participation decision in NFIGAs at 1% probability level. The marginal effect result showed that for each additional grade attended by the respondent, the probability of the decision to participate in NFIGAs increase by 6.9 %, ceteris paribus. This indicates that education attainment is proved to be one of the most important determinants of participation in non-farm activities. This may be because non-farm activities require some skill and training. Hence, women with some skill and educational background tend to engage in non-farm activities than others. Similar result was found by different authors (Dercon and Krishan, 1996; Abdullai and Crolerees, 2001; Bogale A., and Hagedorn K. 2003; Minot, 2006; Babatunde and Qaim, 2009; Yisihake and Abebe, 2015). Generally, education level of respondents was positively influence participation in self-employment (Sosina, 2010).

Amount of credit (AMTCRDT): It is a continuous variable and hypothesized to influence women's participation decision positively. This variable is found to be significant at less than 1% probability level and positively associated with women's participation in non-farm

activities. The computed marginal effect shows that holding other factors constant, for each additional amount of credit, the probability of participating in NFIGAs increase by 0.1 %. The possible justification could be the amount of credit received by respondent's increases the probability of women to participate in non-farm activity. The study result is consistent with Woldenhanna and Oskam, (2001) contended as women have access to credit service engage in different IGAs, which has high value and increases their involvement.

Average time spent in domestic work (AVTDW): It is a continuous variable and hypothesized to influence women's participation decision negatively. The result indicate that average time spent in domestic work had negatively and significantly affecting women's participation in non-farm income generating activities at 1 % significant level. This implies that women who spent more time on domestic work were less participative in non-farm activities than those spent their time less to domestic work. The marginal effect result shows that the probability of women's participation in NFIGAs decreases by 9.9 % as a unit time spent in domestic work increases, holding other variables constant. The possible justification might be the average time in domestic work have influence the participation of women. Similarly, Esayas and Tolossa (2015) affirmed that as women spent time in doing homemade activities increase, the probability of participating in non-farm activities decrease.

Distance from market (DMKT): It is a continuous variable and hypothesized to influence women's participation decision negatively. The result of the probit model analysis indicated that distance from market influence women's participation in NFIGAs negatively and significantly at 1 % probability level. The marginal effect result for this explanatory variable shows that, the probability of women to participate in NFIGAs decreases by 7.8 % as respondents living at longer distance from market, other variables being given. The possible justification could be those respondents living at a longer distance from the roads were less participate in non-farm activities than the others. The result is consistent with Abdulaziz & Nura (2015) confirmed that as households residing in communities near to market are more likely to diversify into NFIGAs than those living in areas far from market.

Membership to formal organization (MEMFOROG): It is a dummy variable and hypothesized to influence women's participation decision positively. The result of the probit model analysis comes up with a finding showing that being membership to formal

organization were significantly and positively influence women's participation in NFIGAs at 10 % probability level. The marginal effect result showed that the probability to participate in NFIGAs increase by 28.9 % as women being membership to formal organization, ceteris paribus. This is because, becoming member of formal organization, create for women the opportunity to exercise their potential and become economically independent. A study made by Abiyot (2010) and Osondu (2014) also agrees with the result of this study that indicates becoming a member of a particular cooperative helps women members to undertake business of their own interest.

Table 11: Coefficient estimate results of probit analysis on factors affecting women's participation in NFIGAs

Variable	Coefficient	Std. Err.	t-ratio	Marginal effect
AGE	-0.062	0.011	-2.18**	-0.023
DMEM	0.083	0.048	0.65	0.030
RELIGION	-0.746	0.191	-1.46	-0.278
EDU	0.188	0.022	3.12***	0.069
LAND	0.399	0.122	1.22	0.148
AMTCRDT	0.001	0.001	2.71***	0.001
AVTDW	-0.265	0.037	-2.65***	-0.099
EXT	0.029	0.073	0.15	0.011
DMKT	-0.209	0.025	-3.14***	-0.078
MKTINF	0.277	0.150	0.69	0.103
MEMFOROG	0.869	0.155	1.86*	0.289
Constant	4.707	1.463	3.22***	

Log likelihood = -30.65494 Chi⁻ square = 139.57
Number of obs = 149 Prob > chi^2 = 0.0000
Censored obs = 89 Pseudo R^2 = 0.6948
Uncensored obs = 60
z and P>|z| correspond to the test of the underlying coefficient being 0
dF/dx is for discrete change of dummy variable from 0 to 1
Note; ***, **,* significant at 1, 5 and 10 % probability level, respectively

Source: Own computation- based on survey result, 2018

4.3.2 Determinants of women's level of participation in NFIGAs (OLS regression)

The second stage of estimation (OLS regression) was used to ascertain the variables, which significantly influence women's level of participation. Ten variables were hypothesized to significantly influence the level of women's participation in NFIGAs. The variables were age of respondents (AGE), dependency ratio (DMEM), education level of respondents (EDU), total land holding (LAND), experience in non-farm activity (EXP), amount of credit received by respondents (AMTCRDT), average time spend in domestic work (AVTDW), extension contact (EXT), distance from market (DMKT), membership to formal organization (MEMFOROG). Moreover, inverse Mills ratio was used as one explanatory variable in the OLS regression to control for selectivity bias. The OLS result shows that only four variables, namely education level of respondents (EDU), total land holding (LAND), amount of credit received by respondents (AMTCRDT) and average time spent in domestic work (AVTDW) have significant effect on the level of women's participation in non-farm activities (table 12). In light of the below summarized model results possible explanation for each significant explanatory variable are given consecutively as follows:

Education level of respondents (EDU): It is a continuous variable and hypothesized to influence women's level of participation positively. The study result indicated that level of education had positively and significantly at 1 % probability level influence the level of annual income in NFIGAs. In other words, as women get additional grade level, the annual income of non-farm activity increases and this increases the level of women's participation in NFIGAs. The OLS result shows that as education level of respondent increases by one unit (level of grade), the level of annual income of NFIGAs increases by 3167.09 birr, ceteris paribus. This indicates that education attainment is proved to be one of significant factor to increase level of annual income. The result is consistent with Roy *et al.,* (2017) affirmed that increasing education level of women would lead to an increase contribution of women's to household income. Similarly, Nishad and Tanjila (2015) contend that there is positive relationship between years of schooling and monthly household income of farm and non-farm activities.

Total land holding (LAND): It is a continuous variable and hypothesized to influence women's level of participation positively. This variable was positively and significantly influences level of annual income by 5 % significance level. In other words, the annual income that women gets from non-farm activity increases as more land hold. The coefficient shows that a unit increase in land holding by respondent leads to increase the level of annual income by 17881.13 birr, other variables being constant. This indicates that a unit of land proved to be one of the most important determinants to increase level of annual income. The probability of participation in livelihood diversification activities will increase by 44% units, as farm households feel more secure about their land right (Geremew *et al.*, 2017). Similarly, increase in farm size would lead to an increase in women's contribution to household income the result give an indication that women's income may be a tool of women empowerment (Roy *et al.,* 2017). Moreover, total cultivated land was found to influence the level of income from non-farm economic activities significantly (Ashebir and Negussie, 2015).

Amount of credit (AMTCRDT): It is a continuous variable and hypothesized to influence women's level of participation positively. The result of the study also shows, amount of credit was positively and significantly affects level of annual income in NFIGAs by 1 % level of significance. The coefficient shows that as the amount of credit received by women increases, the level of annual income also increases by 3.87 birr, holding other variables constant. The significant positive effect of credit amount on level of annual income implies that as women receive high amount of credit, level of annual income increases. Similarly, micro-credit have significant positive influence on women's extent of participation in economic activities (Hoque and Itohara, 2008). Meanwhile, access to credit is regarded as one of the key elements in raising productivity (Anyiro and Oriaku, 2011). Accordingly, Madaki and Adefila (2014) also affirmed that credit availability increases household income.

Average time spent in domestic work (AVTDW): It is a continuous variable and hypothesized to influence women's level of participation negatively. The result show that, the average time spent by women in domestic work influences negatively and significantly the level of annual income in NFIGAs by 5 % significance level. The OLS coefficient shows that as women spend more time in domestic work, level of annual income decreases by 7581.79 birr, ceteris paribus. This implies that as women spent more time in domestic work, the annual level of income generated from non-farm activities will decreases. One hour increase in

working hour would result in increase in monthly household income of respondent (Nishad and Tanjila, 2015).

Table 12: Estimates of the OLS regression equation

Variables	Coefficient	Std. Err.	t-ratio
Constant	32576.8	30075.74	1.08
AGE	-523.52	699.70	-0.75
DMEM	2912.30	3802.55	0.77
EDU	3167.09	1064.52	2.98***
LAND	17881.13	9030.76	1.98**
EXP	1113.22	1308.88	0.85
AMTCRDT	3.87	1.245	3.11***
AVTDW	-7581.79	3194.66	-2.37**
EXT	-5060.18	4887.09	-1.04
DMKT	-1585.33	1418.98	-1.12
MEMFOROG	9419.85	10581.08	0.89
LAMBDA (λ)	29348.12	12453.89	2.36**

Number of obs = 149
Wald chi-square = 43.53 Prob > chi2 = 0.0000
Sigma= 29348.122 Rho = 1.00000
dy/dx is for discrete change of dummy variable from 0 to 1
Note: ***, **, significant at 1 and 5% probability level, respectively

Source: Own computation-based on survey result, 2018

5. SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Summary and Conclusions

Women are actively involved in all aspects of their society's life. They are both producers and procreators and they are active participants in the social, political, economic and cultural activities of their communities. Rural women are over loaded and burdened by domestic and productive works that reduce their income earning capacity. Overburdened household activities, large family size and primary responsibility of family health care and support lead women to be economically dependent, because they face shortage of time to engage in income generating activities.

The principal objective of this study was to identify and analyze determinants of women's participation in non-farm income generating activities. The data used for the study was collected from 149 sample respondents. A two-stage sampling was used to select respondents. In the first stage, out of the 36 kebeles found in the Woreda four kebeles were randomly selected. Taking a list of households in the selected kebeles, the households in each kebeles were classified in to non-farm activity participants and non-participants. In the second stage, simple random sampling was used to select respondents from each category.

Non-farm activities women in the study area involved in was petty trade, collecting and selling fire wood, selling charcoal, handicraft, grain trading, tailoring and hair dressing saloon. Majority (83.3%) of women in the study area engaged in low income generating activities (handicraft and petty trade). Mean annual income generated from NFIGAs was 24,909.3 birr. The minimum annual non-farm income (1500) was recorded from handcrafters while the maximum non-farm income (240,000) is found from grain traders. The main source of respondents initial capital was own saving, borrowed from relative and financial institution but majority of respondents start with their personal saving. An average time of 4.97 and 8.67 hour per day were spent by participants and non-participants in domestic work, respectively.

The data was analyzed using both descriptive and econometric methods. Heckman's two-step procedure was employed to estimate both the decision of women's participation in non-farm income generating activities and the level of participation in non-farm income. The result of the probit revealed that the education level of respondents, amount of credit and membership

to formal organization increases the probability of women's participation in NFIGAs while age of respondents, average time spent in domestic work and distance from market have significant negative influence. Similarly, the OLS regression results assured that four variables (education level of respondents, total land holding, amount of credit and average time spent in domestic work) were significantly related to the level of women's participation in non-farm income generating activities.

5.2 Recommendations

Based on the findings and critical issues identified in the study, the following recommendations are forwarded for better future in the study area:

- Starting with the result of econometric analysis of significant variable that; the results of econometric analysis indicated that additional age by the respondents decreases the probability of the decision to participate in non-farm activities. Therefore, younger/adult women are encouraged and empowered through financial and technical support to engage in non-farm activity. And it is important to increase the awareness of the old aged respondents by teaching them about the use of NFIGAs.

- In the study area, it was observed that higher educational level was positively related to participation decision and thereby increasing level of annual income in NFIGAs. Thus, education could be an effective instrument in increasing participation in non-farm activities. So, district education office has to find ways by which the uneducated members can better benefit from the service and providing training related to NFIGAs because, these types of training might increase their knowledge and skill and may create opportunities of employment and increase income earning moreover, educating women is changing the world.

- The results of econometric analysis also indicated that a unit incremental of credit received by respondents increases the probability of women participation decision and thereby increasing the level of annual income in NFIGAs. This is because credit removes the financial constraint and enables them to finance the initial capital of the non-farm sector. Therefore, micro credit organizations suggest expanding their scope of coverage among women especially to those involved in low income activity and the rural policy would do

well to provide better access to credit for the rural women by motivating micro-finance institutions and banks with little or no interest charged to improve the credit requirements on their non-farm income generating activities. Moreover, giving reward for model women participants (high income earned) in income generating activities in order to initiate and encourage other fellow women is very essential.

- Average time spent in domestic work was other essential factor found to have a negative significant effect on participation decision of women and level of annual income. Therefore, caring out extensive awareness creation programs targeting men is essential. Hence, these programs should seek to engage men in open discussions around women's economic empowerment and demystify all the social and cultural constructed stereotypes. Moreover, introducing new technologies to reduce women's work load and time should be done by research institutes.

- Market distance also affect women's participation decision negatively and significantly. The significance effect of community infrastructures on non-farm participation decision suggest the need for the government to ensure that it provides all the necessary infrastructures. Therefore, maintaining sustainable rural livelihood, especially road accessibility play vital role in facilitating access to markets, moreover, the rural policy should give more attention in developing the transport infrastructure in the area.

- The other factor identified to women's participation decision was being membership to formal organization. The econometric result show that being a member of formal organization increase the participation decision in non-farm activities. Therefore, women's and children's affairs office should encourage women to be a member of different formal organization, because such like organization develop awareness, skill, knowledge and confidence moreover, when women are come together they discusses their common problem openly. So, supporting the presence of strong formal and informal rural institutions that support women's efforts to build solidarity and strengthen their confidence and ability to negotiate for improved livelihoods and working conditions and advocate for change.

- The factor solely affecting the level of women participation in NFIGAs positively and significantly was land hold by respondents. The econometric result shows having a unit of land increases the level of participation in non-farm activity. This is because, an increase in landholding, which indicates an increase in wealth, would enable the women to obtain the capital necessary to engage in lucrative non-farm employment through providing liquidity to start own business. Therefore, Seka Chekorsa district land administration office should be encouraged women more in land allocation that means encouraging and motivating women in different income generating (on-farm, non-farm and off-farm) activities in small unit of land is vital.

- Finally, further studies on women's participation in non-farm activity on related topic should have to be undertake beside this, all concerned bodies should give due attention for women participation and it is important to encourage and motivate them in high income earning activities.

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7. APPENDICES

Appendix 1: Multicolinearity test

VIF

Variable	VIF	1/VIF
EXP	2.36	0.424455
AVTDW	1.99	0.503448
DMKT	1.53	0.651917
EDU	1.44	0.696473
AMTCRDT	1.30	0.766363
LAND	1.11	0.901321
DMEM	1.04	0.926661
EXT	1.05	0.950891
Mean VIF	1.46	

corr PNFINC AMNFINC AGE DMEM EDU RELIGION LAND AMTCRDT AVTDW EXT DMKT MKTINF MEMFOROG

	PNFINC	AMNFINC	AGE	DMEM	EDU	RELIGION	LAND	AMTCRDT	AVTDW	EXT	DMKT	MKTINF	MEMFOROG
PNFINC	1.0000												
AMNFINC	0.4836	1.0000											
AGE	-0.3168	-0.2045	1.0000										
DMEM	-0.0230	-0.1137	-0.2033	1.0000									
EDU	0.4469	0.4117	-0.1494	0.0069	1.0000								
RELIGION	0.1022	0.1362	-0.0627	-0.0988	0.2348	1.0000							
LAND	0.1013	0.1740	0.1029	0.0101	-0.1380	-0.1564	1.0000						
AMTCRDT	0.4351	0.5618	-0.2259	-0.0663	0.1892	0.0498	0.1418	1.0000					
AVTDW	-0.6966	-0.5215	0.0946	0.1519	-0.3882	-0.1324	-0.1402	-0.4393	1.0000				
EXT	0.2519	0.0986	-0.1820	0.0679	0.1034	0.1653	0.0296	0.1625	-0.1337	1.0000			
DMKT	-0.5274	-0.3864	0.0304	0.0839	-0.2773	-0.2880	-0.0035	-0.2629	0.4885	-0.1561	1.0000		
MKTINF	0.2277	0.1670	-0.0726	-0.1400	0.0451	0.1596	0.1538	0.1207	-0.1969	0.2462	-0.1208	1.0000	
MEMFOROG	0.3372	0.3783	-0.1881	-0.1390	0.0850	0.0209	0.2828	0.2852	-0.2984	0.3264	-0.1556	0.2407	1.0000

Appendix 2: Heckman selection model -- two-step estimates

heckman AMNFINC AGE FSIZE EDU LAND EXP AMTCRDT AVTDW EXT DMKT MEMFOROG, two step select(PNFINC = AGE FSIZE EDU LAND AMTCRDT HEDU AVTDW EXT DMKT MKTINF MEMFOROG) rhosigma

Number of observation	=149
Censored observation	= 89
Uncensored observation	= 60
Wald chi2(10)	= 43.53
Prob > chi2	= 0.0000

AMNFINC	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
AGE	-523.5219	699.7044	-0.75	0.454	-1894.917	847.8735
DMEM	2912.303	3802.551	0.77	0.444	-4540.561	10365.17
EDU	3167.087	1064.517	2.98	0.003	1080.671	5253.503
LAND	17881.13	9030.757	1.98	0.048	181.1751	35581.09
EXP	1113.219	1308.884	0.85	0.395	-1452.146	3678.584
AMTCRDT	3.869732	1.245034	3.11	0.002	1.429511	6.309953
AVTDW	-7581.789	3194.662	-2.37	0.018	-13843.21	-1320.366
EXT	-5060.183	4887.091	-1.04	0.300	-14638.7	4518.338
DMKT	-1585.331	1418.979	-1.12	0.264	-4366.478	1195.817
MEMFOROG	9419.848	10581.08	0.89	0.373	-11318.69	30158.39
_cons	32576.8	30075.74	1.08	0.279	-26370.57	91524.16
PNFINC						
AGE	-0.0619852	0.0249985	-2.48	0.013	-0.1109813	-0.012989
DMEM	0.0831241	0.1241941	0.67	0.503	-0.1602919	0.3265401
EDU	0.1879168	0.0537076	3.50	0.000	0.0826519	0.2931817
RELIGION	-0.7457479	0.4928688	-1.51	0.130	-1.711753	0.2202571
LAND	0.3998856	0.3182067	1.26	0.209	-0.2237882	1.023559
AMTCRDT	0.0011168	0.0005928	1.88	0.060	-0.0000451	0.0022788
AVTDW	-0.26484	0.0840342	-3.15	0.002	-0.4295439	-0.100136
EXT	0.0291491	0.1964854	0.15	0.882	-0.3559552	0.4142534
DMKT	-0.2093841	0.0580933	-3.60	0.000	-0.323245	-0.0955233
MKTINF	0.2769858	0.3943047	0.70	0.482	-0.4958371	1.049809
MEMFOROG	0.8687947	0.4781726	1.82	0.069	-0.0684064	1.805996
_cons	4.706869	1.463381	3.22	0.001	1.838696	7.575043
mills lambda	29348.12	12453.89	2.36	0.018	4938.939	53757.31
Rho	1					
Sigma	29348.12					

Appendix 3: Survey interview schedule used

JIMMA UNIVERSITY

COLLEGE OF AGRICULTIRE AND VETERINARY MEDICINE DEPARTMENT OF AGRICULTURAL ECONOMICS AND AGRIBUSINESS AND VALUE CHAIN MANAGEMENT

Informed Consent Form

This interview schedule is developed for the research entitled **"Determinants of women's participation in non-farm income generating activities: The case of Seka Chekorsa district Jimma Zone, Oromia Region, Ethiopia"** by Asiya Ahmed for partial fulfillment for the awarded of MSc. in Agribusiness and value chain management. Dear respondent, you have been selected to help me in responding to this questionnaire; because I feel personally you will give me the necessary information. I kindly request your cooperation to respond to the following questions and feel free to respond to all items. The information collected will not be in any way transferred to a third party and only be used for academic purpose. I appreciate your cooperation and thank you in advance.

General Information

Enumerator: _____ Questionnaire no._____

Kebele: _____ Date of interview: _____

Part I. Socio-economic characteristics of the respondent

1. Age: _____years
2. Total number of family size: _____
3. Number of dependent members: 1) Age <= 14_____ 2) Age >= 65_____
4. Number of active forces: 1) Age 15-64_____
5. Do you want to get more children? 1) Yes, why? _____
   2) No, why? _____
6. Marital status of respondent: 1) Married [ ] 2) Divorced [ ] 3) Widowed [ ]
7. Religion: 1) Muslim [ ] 2) Orthodox [ ] 3) Protestant [ ] 4) Others (specify) _____
8. Education level of respondent: what type of education you are taken? 1) formal education [ ] 2) informal education [ ]

9. If "formal education" for Q8 your level 1) Don't read and write[ ] 2) Read and write[ ] 2) Grade 1-8[ ] 3) Grade 9-12 [ ]4) BA/BSC [ ] 5) Others (specify)_____

10. Do you own land? 1) Yes [ ] 2) No [ ]

11. If 'YES' to Q10, how much land do you own_____in hectares, and for what purpose you use this land? _____

12. If 'NO' for Q10, what are the effects on your business?_____

_____

Part II: Major Non-Farm Activities

13. Do you participate in non-farm income generating activities? 1) Yes [ ] 2) No [ ]

14. If your answer for Q13 is 'NO' what could be the reason (more than one answer is possible) 1) Lack of money [ ] 2) Work load [ ] 3) No interest [ ] 4) Religion [ ] 5) Cultural factors [ ] 6) Norms and beliefs [ ] 7) Others (specify)_____

15. If your reason for Q14 is" cultural belief", what are those cultural norms practiced in your area and what is your perception regarding to this cultural beliefs? _____

_____

16. Non-farm income generating activity is important for women. 1) strongly agree 2) agree [ ] 3) I don't decide [ ] 4) disagree [ ] 5) strongly disagree [ ]

17. If your answer for Q13 is 'Yes', what is your main income source, how much do you earn from this activity? Please use the table below!

Activities	Mark (√)	Income (birr)		
		Daily	Monthly	Yearly
Petty trade				
Collecting and selling fire wood				
Selling charcoal				
Handicraft				
Grain trading				
Tailoring				
Hair dressing saloon				
Selling local food and drinks				
Others (specify)				

18. For what purpose you use your income and how much you spent?

1) Saving [ ] _____ birr 2) Household consumption [ ] _____birr

3) Clothing purpose [ ] _____birr 4) Others (specify) _____

19. Do you have experience in non-farm income generating activities? 1) Yes [ ] 2) No [ ]

20. If 'Yes' for Q19 when did you start the business _____ is there any change in your business as compared with your previous one in terms of your involvement? _____

_____

21. If 'NO' for Q19 what problem you face with lacking non-farm experience? _____

---

22. What was the initial capital (Birr) of your business used to start NFIGAs_____?

23. What was the major source of your initial capital? 1) Own savings [ ] 2) Borrow from relatives [ ] 3) Financial Institutions [ ] 4) Others (specify) _____

24. If your answer for Q23 is "financial institutions" answer the following (Q25.1-25.5)

25.1 What was/were the credit source/s? 1) Micro Finance Institutions [ ] 2) Cooperatives [ ] 3) Banks [ ] 4) Friends and relatives [ ] 5) Others (specify) _____

25.2 What was the amount you borrowed? _____

25.3 Was the credit fulfilling to your demand? 1)Yes [ ] 2) No [ ]

25.4 Have you paid back your loan on due date? 1)Yes [ ] 2) No [ ]

25.5 If 'No' to Q25.4, why did you not pay full? 1) Due to insufficient return [ ] 3) The date of return is not over [ ] 4) Lenders do not collect on time [ ] 5) Others (specify) _____

25. If your initial source is "non-financial institution" what was the reason? 1) No access [ ] 2) Collateral [ ] 3) I have sufficient capital [ ] 4) Others (specify) _____

26. Are your husband and /or other family member/s and friends as well as relatives encouraging and helping you to participate in non-farm activities? 1) Yes [ ] 2) No [ ]

27. If your answer for Q26 is 'NO', what could be the reason? 1) Lack of money [ ] 2) No interest [ ] 3) Work load [ ] 4) Cultural norm 5) [ ] Others (specify) _____

28. Is your husband educated? 1) Yes [ ] 2) No [ ]

29. If 'Yes' for Q28 what is his contribution to your involvement or how do you rate his contribution? 1) High [ ] 2) Moderate [ ] 3) Low [ ] 4) No contribution [ ]

30. If your answer for Q29 is "no contribution" what is the reason? 1) Religion [ ] 2) Social belief [ ] 3) Cultural attitude [ ] 5) Others (specify) _____

31. In your opinion, the reason in Q30 is appropriate? 1) Yes [ ] 2) No [ ]

32. If Yes, why? _____

33. If No, why? _____

34. In which types of works or roles (reproductive, productive and community managing activities) do you involve, what types of tasks do you perform, how much time you were taking to do these activities? How do you rate it is effect on your business: difficult (D), moderate (M), easy (E)? Please use the table below!

Roles	Tasks	Mark (√)	Time spent	Effect/rate (D, M, E)
Reproductive/ domestic work	Bearing and rearing of children			
	Market related/ shopping			
	Preparing food			
	Fetching water			
	Housekeeping			
	Gathering and collecting fuel wood			
	Others (specify)			
Productive work	Land preparation			
	Cultivation			
	Harvesting			
	Post-harvest management			
	Off-farm activities			
	Others (specify)			
Community managing work	Provision and maintenance of resources (water, healthcare, education etc)			
	Local political activities			
	Participation in groups and organization (*Idir, Ekub, Mahiber, Debo,* wedding)			
	Others (specify)			

35. Did you get extension service in relation to non-farm activities? 1) Yes [ ] 2) No [ ]

36. If your answer for Q35 is 'Yes', how many were you visited by development agents in the last year? 1) One day/month [ ] 2) Two days/month [ ] 3) Three days/month [ ]
4) Others (specify) _____

37. What types of service they give? 1) Awareness creation 2) Training 3) Demonstration 4) Others (specify)_____

38. Have you ever participated in any field days/experience sharing or training regarding non-farm income generating activities? 1) Yes [ ] 2) No [ ]
39. If your answer for Q38 is 'Yes', by whom you have got? 1) Development agents [ ] 2) Research center [ ] 3) NGOs [ ] 4) Others (specify) _____
40. How did you get it and what changes you see? _____

_____

41. What main problems you are facing regarding extension service? _____

_____

42. How far is the local market from your residence? _____Km
43. How far is the main market center from your residence? _____Km
44. What types of transportation service used for your goods sold/purchase?

1) Car [ ] 2) Foot [ ] 3) Donkey [ ] 4) Others (specify)_____

45. Do you get any means of market information? 1) Yes [ ] 2) No [ ]
46. If 'YES' for Q45, from where do you get? 1) Radio [ ] 2) Telephone [ ] 3) Personal observation [ ] 4) Neighbors [ ] 5) Others (specify) _____
47. At what time interval do you get the information? 1) Daily [ ] 2) Weekly [ ]

3) Monthly [ ] 4) Others (specify) _____

48. Was the information you get valuable? 1) Yes [ ] 2) No [ ]
49. Is there any formal organization? 1) Yes [ ] 2) No [ ]
50. If 'Yes' for Q49, what types of organization are there? 1) Cooperative [ ] 2) Women organization [ ] 3) Small and medium enterprise [ ] 4) Others (specify) _____
51. Are you member of the organization? 1) Yes [ ] 2) No [ ]
52. If 'Yes' for Q51, what is your position in the organization? _____
53. What benefit you get from the organization? 1) Access to credit [ ]

2) Encourage to save [ ] 3) Got market information [ ] 4) Motivate in non-farm activity [ ] 5) Developed confidence [ ] 6) Develop new skill and knowledge [ ] 7) Others (specify) _____

54. What is your suggestion regarding to such organization especially in encouraging and empowering women to non-farm income generating activities? _____

_____

Check list for FGD

This check list is developed for the research entitled **"Determinants of women's participation in non-farm income generating activities: The case of Seka Chekorsa district, Jimma Zone, Oromia Region, Ethiopia"** by Asiya Ahmed, for partial fulfillment for the awarded of MSc. in Agribusiness and value chain management. The information collected will not be in any way transferred to a third party and only be used for academic purpose. I appreciate your cooperation and thank you in advance.

Kebele: _____ FGD members: Participant: [ ] Non-participant [ ] Date: _____

1. What are the major non-farm income generating activities practiced in the area? How much it is effective and efficient? How much (on average) one incurs to start the activities?

2. What harmful traditional practices that discouraged women to participate in non–farm income generating activities are there? How can you solve such kind of things in your perception? Who would be responsible?

3. What is/are the existing problem in women's participation in non–farm income generating activities? What should be done to solve these problems (by different stakeholders)?

4. What rules and regulations is/are practiced on women's participation in non-farm income generating activities in the area? What is your perception on this rules and regulation?

5. Most women spent their time in household domestic work, this discourage women to participate in non-farm income generating activities, hence how and by what means one can minimize the time spent in domestic work in your perception?

6. Do you think that women's participation in non-farm income generating activities is important?

7. Are there any institutions that empower women participation in your area? If there, which type of organization? (Governmental, NGOs, cooperatives….), are you member of that organization? Have you ever participated in any field days/experience sharing or training regarding non-farm income generating activities from the organization? What is the importance of such organization?

Check list for key informants

This check list is developed for the research entitled **"Determinants of women's participation in non-farm income generating activities: The case of Seka Chekorsa district, Jimma Zone, Oromia Region, Ethiopia"** by Asiya Ahmed, for partial fulfillment for the awarded of MSc. in Agribusiness and value chain management. The information collected will not be in any way transferred to a third party and only be used for academic purpose. I appreciate your cooperation and thank you in advance.

Name of organization_____ Date: _____

1. What are the major non-farm income generating activities practiced in the area? How much it is effective and efficient for women?
2. What is/are the existing problem in women's participation in non–farm income generating activities especially gender related problems?
3. As we know that most women spent their time in household domestic work and this discourage to participate in non-farm income generating activities, hence what means you are using to minimize the time spent by women in domestic work?
4. What reproductive, productive and community managing activities women play in the society? What is your perception regarding to traditionally constructed beliefs/gender related tasks in your area?
5. What actions you are taking in bringing gender equality especially in minimizing socio-cultural constructed belief of society, for instance, women's' right to own land, in changing superiority assumption of men over women and so on?
6. What is/are the role of your office in encouraging women in non-farm income generating activities in terms of awareness creation, training, demonstration, facilitating credit service and so on?
7. What contribution your organization contribute in empowering and encouraging women to increase their participation and get opportunity to make decisions in all spheres of their life?