THE IMPACT OF RURAL SAVING AND CREDIT COOPERATIVES ON WOMEN EMPOWERMENT IN ARSI NEGELLE, ETHIOPIA

MA THESIS

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JUNE, 2022

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO THE CENTER FOR RURAL DEVELOPMENT STUDIES IN THE COLLEGE OF DEVELOPMENT STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARDS OF MASTERS OF ART IN RURAL LIVELIHOOD AND DEVELOPMENT

JUNE, 2022

ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY

COLLEGE OF DEVELOPMENT STUDIES

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As a major advisor of this thesis, I certify that I have read and evaluated the thesis by **Ebisa Edosa Kitila** entitled ' *The Impact of Rural Saving and Credit Cooperatives on Women Empowerment in Arsi Negele, Ethiopia'* and recommended for open defense as part of fulfilling the requirement for the degree of Master of Art in Rural Livelihoods and Development.

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DECLARATION

I declare that this thesis is authentic and my own work. It has not presented in any other university before. I clearly understand that plagiarism is wrong and providing a citation and reference is a very important element in the academic paper. Hence, any material I have consulted is well-acknowledged and reference is well-placed at a required style.

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Addis Ababa, Ethiopia.

DEDICATION

I dedicate this thesis to my family for their continuous and uninterrupted support with prayers throughout the process.

ACKNOWLEDGEMENT

I would like to sincerely thank my family for their help and understanding during the period of pursuing this thesis and the MA program in general. If it was not for them, I would never complete this study. Particularly, I am thankful to my mother for always inspiring me so that I can deal with the challenges inflicted both in the academy and outside of it. You owe me a big and cordial thanks, mum.

I am indebted and thankful to my Advisor Alemu Azmeraw (PhD) for assisting me by sharing the important academic insights particularly those related to the research methodologies. I also appreciate his patience, understanding and cooperative way of involvement from the inception to the final stage of this thesis. Thank you, Dr Alemu indeed.

I am grateful to the colleagues of Arsi Negelle *woreda* Cooperative office for giving me important information and for assisting me during the data collection period. In addition, I am thankful to the respondents for their cooperation in giving me genuine and pertinent response that served the input for the research. Thank you for time and cooperation.

Lastly, I would like to convey my cordial appreciation and thank to all my friends who had showed what friendship in need is about without whom completing the research writing and study period in general would have been difficult. Especially, I owe big thanks to my friends including Solomon Zewdu, Degaga Merga, and Dereje Worku.

ACRONYMS AND ABBREVIATIONS

ACOSSA	Africa Cooperative Society Savings and Credit Association
AKLDP	Agriculture Knowledge, Learning Documentation and Policy
A-WEAI	Adjusted Women Empowerment in Agriculture Index
CC	Coefficient of contingency
CSA	Central Statistics Agency
ECOSOCC	Economic Social and Cultural Council
EPDRF	Ethiopian People's Democratic Revolutionary Front
FAO	Food and Agricultural Organization
FCA	Federal Cooperative Agency
FDRE	Federal Democratic Republic of Ethiopia
FGD	Focus Group Discussion
FHH	Female Head of Households
FI	Financial Institution
GAD	Gender and Development
GDP	Growth Domestic Product
GESEAS	Gender Equality Strategy for the Ethiopian Agricultural Sector
GTP	Growth and Transformation Plan
ICA	International Cooperatives Associations
IDRC	International Development Research Centre
ILO	International Labor Organizations
IFPRI	International Food Policy Research Institute
KII	Key Informant Interview

MOA	Ministry of Agriculture
MHH	Male Headed Households
NGO	Non-governmental Organizations
NCPE	National Commission for Promoting Equality
OPHI	Oxford Poverty and Human Development Initiative
PPS	Proportional Probability Sampling
PSM	Propensity Score Matching
RSCCs	Rural Saving and Credit Cooperatives
SACCOs	Saving and Credit Cooperatives
SDG	Sustainable Development Growth
SHG	Self-Help Groups
SNNPRS	Southern Nations and Nationality and Peoples Regional States
SPSS	Statistical Program for Social Science
TLU	Tropical Livestock Unit
UN	United Nations
USAID	United States Aid Agency for the International Development
WAD	Women and Development
WB	World Bank
WEAI	Women Empowerment in Agricultural Index
WID	Women in Development
WOCCU	World Council of Credit Unions

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ABSTRACT

This study was conducted to identify and evaluate the determinants of membership decision and intensity of participation in the RSCCs and its impact on women empowerment in Arsi Negele, Ethiopia. A mixed research method has been employed to address the research objectives. A multistage sampling method was used to obtain data from 362 households in Arsi Negele Woreda. The binary and ordered logistic regression and the Propensity Score Matching methods were used for the quantitative data analysis. The collected qualitative data were also analyzed by the methods of narration, summary and interpretation. The study revealed that the RSCCs had a positive and significant impact on women empowerment. However, the RSCCs lacked inclusivity as it favored the FHHs, more schooled women, and better off households. Furthermore, trust and perception mattered in enhancing women's probability of joining the RSCCs. The study result also showed that the age, schooling years, marital status, family size, duration, group size, and distance significantly determine women's intensity of participation in the RSCCs. Therefore, the cooperative promotion agencies and rural development partners should appreciate the identified policy variables determining women's membership to ensure the inclusivity of the RSCCs. Moreover, the woreda level cooperative agencies should develop profiles of the members so that the training can particularly target the younger, less schooled, junior members, and women from the large family and land size to strengthen their intensity of participation in the RSCCs.

Key Terms: Membership, Intensity of participation, Rural Saving and Credit Cooperatives, Women Empowerment

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The issue of women empowerment and gender equality is increasingly viewed as the top development policy priority across the world today. Besides its intrinsic roles for full-realization of women's rights, women empowerment is considered as a catalyst and enabler of the development objectives. A notable example in this regard is the Sustainable Development Goals (SDGs) that endorse empowering women not only as end in it-self, but also as integral part of the now-widely acknowledged global development objectives (UN, 2015).This assertion is further supported by FAO (2011) that estimates a 20-30 percent increase in the agricultural yield and up to 17 percent reduction of the hunger rate if women were to be empowered in agriculture.

Ethiopia has been displaying unreserved effort to promote women's empowerment particularly in the agricultural sector. The Growth and Transformation Plan (GTP II) recognized women and youth as the cross cutting stakeholders in the sectorial strategies and plans (FDRE , 2016). Gender mainstreaming machineries have also been established to inculcate women's needs and concern in the various agricultural policies and programs (MoA, 2011; Mamo, 2020). Moreover, the recent Gender Equality Strategy for the Ethiopian Agricultural Sector (GESEAS) underscores the importance of strengthening the gender responsiveness of the agricultural policies, institutional structures, and systems in the rural areas of the country (AKLDP , 2018).

Despite these commitments, there is only limited progress towards advancing women's empowerment in agriculture (Drucza and Tsegaye, 2018). Most institutional policies ignore the historical, cultural, and societal discriminatory legacies against women (Drucza *et al*, 2020). The existing financial policy, which requires women to provide collateral, can make a good example in this regard as it overlooks women's position in terms of their access to and control over the adequate resources (Mosissa, 2013; Achew et al, 2021). Among other reasons, this has limited women's ability to utilize the financial services from the banks and other formal financial institutions (FIs) in comparison to the men farmers.

Aware of this fact, the Ethiopian government and several development partners have recently been promoting the Rural Saving and Credit Cooperatives (RSCCs) to cater women's financial needs in agriculture (Drucza, 2019; FCA, 2021). RSCCs are FIs that are owned, managed, and used by the members to benefit from its financial services including the savings and loans (Abay et al, 2017). As the locally-based and culturally relevant FIs, the RSCCs offer better financial services for women that otherwise could not get the opportunity because of mobility, time, and collateral related constraints (Majurin, 2012).

The Federal Cooperative Agency (FCA), which is the apex cooperative organization in the country, focuses on enhancing and promoting women's participation in the RSCCs (Drucza, 2019). It has developed a *'Cooperative Strengthening Manual'* to promote women's membership and active participation in the general cooperatives including the RSCCs (FCA, 2021). The agency provides training for rural women and evaluates the extent to which they participate in the different affairs of the RCCs (Drucza, 2019). The development partners also view women's membership in the RSCCs for its instrumental role towards achieving the SDGs (UN Women, 2018). They particularly focus on the food insecure areas due to the multiplier effect of the RSCCs for women empowerment which is considered to have important implications for the agricultural productivity, and food and nutritional security (THP, 2014).

As attested by the report from FCA (2021), the recent promotion and initiatives from several concerned stakeholders have evidently increased women's participation in the RSCCs. There were 21,328 primary RSCCs consisting 57.9 percent of women members in 2021- the figure that increased from only 14 percent in 2005 (FCA, 2021). Particularly in Arsi Negelle *woreda* of the Oromia Regional State, 65 percent of RSCCs' members were women in 2021.

This study was conducted in the view that these efforts should be supported with the empirical research. It particularly focused on identifying and evaluating the determinants of membership decision and intensity of participation in the RSCCs and its impact on women empowerment in the context of agriculture.

1.2 Statement of the problem

Independent access to the financial resource is considered as important instrument for women's empowerment (Fletcher and Kenny, 2011). Yet, women in Ethiopia are disproportionately affected in their ability to utilize the adequate financial services due to the gendered factors including collateral and mobility restraints (Mosissa, 2013). Alternatively, the Ethiopian government and several development partners have recently been promoting the Rural Saving and Credit Cooperatives (RSCCs) to cater women's financial needs in agriculture (Drucza, 2019; FCA, 2021). The government has developed a *'Cooperative Strengthening Manual'* to promote women's membership and active participation in the general cooperatives including the RSCCs (FCA, 2021). The development partners also view women's membership in the RSCCs for its instrumental role towards attaining the SDGs (UN Women, 2018).

Evidences from the FCA (2021) attest that the governmental and several development partners' promotions have increased women's membership size in the RSCCs. However, the factors that determine women's membership and the degree of RSCCs' inclusivity remains unknown. The existing study/-ies rather assume gender as a binary variable while investigating the membership decision determinants (Ayele, 2014). Therefore, rigoriously identifying women's membership decision is important to identify whether the increasing women's membership size in the RSCCs only a figure based or broadely include women consisting of various individual, household, and institutional characteristics.

Member's commitment is also a key factor to reduce women's drop-out and/or to be able to sustainably benefit from the RSCCs (Jusilla *et al,* 2012). In this regard, studies by Dayanandan (2016); Eyob et al (2019) and Tona and Mengistu (2020) demonstrated that women only had a nominal membership and that they failed to actively engage in various affairs of RSCCs. However, only limited studies investigate the underlying factors determining women's intensity of participation in the RSCCs affairs.

On the other hand, extensive researches were conducted on the impact of RSCCs on women empowerment. For instance, Dargie et al (2012) examined the effect of RSCCs on asset ownership, access to resources, and perception on the gender awareness in Tigrai. Mossisa

(2013) employed domains including women's decision making, social engagement, and mobility as index of women empowerment in studying the effect of women's membership in the RSCCs in Oromiya Region. The study in Southern Ethiopia by Shanko (2016) examined the effect of RSCCs on income, asset creation, information, and training accessibility. Moreover, Rani and Yadeta (2016) assessed the effect of membership in the RSCCs on women empowerment in economic, household and social aspects.

Nevertheless, none of the previous study has evaluated the empowerement impact of the RSCCs in the context of agriculture. In addition, the existing studies, almost all of them, employed a before-and-after method in their evaluation which susceptible for the bias (Dohrmwith,2014).

This study aimed to fill these research gaps. By utilizing a data from the rural women of Arsi Negelle *Woreda*, this study has rigorously identified and evaluated the determinants of women's membership decision and intensity of participation in the RSCCs and its impact on women empowerment in the agricultural setting.

1.3 Research objectives

1.3.1 General research objective

The general objective of the study was to identify and evaluate the determinants of membership decision and intensity of participation in the RSCCs and its impact on women empowerment in Arsi Negele *Woreda*, Ethiopia.

1.3.2 Specific objectives

More specifically, the study:

1. identified the determinants of women's membership decision in the RSCCs at the study area.

2. pinpointed the determinants for women's intensity of participation in the RSCCs at the study area.

3. evaluated the impact of RSCCs on women empowerment at the study area.

1.4 Research questions

The study answered the following questions:

1. What determine women's membership decision in the RSCCs at the study area?

2. What determine women's intensity of participation in the RSCCs at the study area?

3. What is the impact of RSCCs on women empowerment at the study area?

1.5 Significance of the study

This study provides a supportive insight for the recent development of women's increasing participation in the expanding RSCCs. Among others, it can fill the lack of knowledge regarding whether or not the RSCCs has been inclusive of women having various individual, household and institutional characteristics. The study also uphold the importance of women's intensity of participation in the RSCCs in their membership which is often by passed by the studies in the realm. Moreover, the study employed a better impact evaluation method- the Propensity Score Matchign (PSM) which was rarely used to evaluate the impact of cooperatives specifically among the studies conducted in the country. As such, the finding of this study is expected to provide an important working insight for the government and development partners in their endeavor of broadening the alternative financial opportunity for the rural women in the country.

1.6 Scope of the study

The study employed the individual, household, and the institutional variables to identify the determinants of membership. The participation intensity was measured by employing the frequency counts of the most important participation indicators such as participation in the organizational planning, participation in decision making process, approving implementation plan, availing for the training and education, availing saving and credit, and participation in voting and election. In addition, this study defined women empowerment as the enhanced agency in the agriculture and measured it through the recently developed framework- Women Empowerment in Agricultural Index (WEAI). From the geographical perspective, this study was carried out in the Arsi Negele *Woreda*. Hence, the research finding is restricted to the study area

and it may not be generalized at the country level unless similar other researches come up with the consistent findings.

1.7 Limitation of the study

While carrying out the study, we encountered lack of sufficient literature in the realm of women and RSCCs particularly in the context of agriculture. This might happen because of the less significance the academicians and researchers allotted to the role of RSSCs in women's empowerment in agriculture. In addition, the researcher focused merely on women without including men in the survey which might limit the truthfulness of responses. In addition, due to lack of instrumental variables that satisfies the good 2-Stage Least Square requirements, the researcher used only the Propensity Score Matching (PSM) method to compute the impact of RSCCs.

1.8 Hypothesis of the study

H1: The individual, household, and institutional factors determine women's membership decision in the RSCCs.

H2: The individual, household, and the institutional factors determine women's intensity of participation in the RSCCs.

H3: RSCCs have a significant impact on women's empowerment.

1.9 Paper organization

The first chapter presents the introductory part of the thesis. The second chapter illustrates the conceptual, theoretical and empirical literature related to women, RSCCs and empowerment related issues. The third chapter discusses the methodological aspect of the study. The fourth chapter presents the result and discussion. The final section of the thesis summarizes, draws conclusion and provides policy recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter reviews the existing literature related to women and the RSCCs. Its first section overviews the theoretical context of the study. The following section illustrates the history of the RSCCs including its present-day standing in Ethiopia. The final two parts of the chapter are allotted for examining and presenting the empirical literature and conceptual framework of the study.

2.1 Theoretical background of the study

This study viewed the RSCCs from the social capital perspectives. The social capital theory explains the rationales/factors that induce membership and intensity of participation in the group-oriented development initiatives. The study also viewed women's empowerment as the enhanced capability and freedom as Amartya Sen likes to put. The general argument of this theoretical part is that the social capital theory explains the platform in which women access the resources to challenge their sub-ordinated position in the agricultural practice.

2.1.1 Views on the social capital theory

Social capital theory is a widely discussed concept among the scholars such as Coleman (1988), Bourdieu (1986), Putnam (1993), and many others. However, there is still a way to go to have single and comprehensive meaning (Dolfsma and Dannreuther, 2003). Most of the existing definitions revolve around the illustration of benefits that garnered from participating in the social capital initiatives.

For Bourdieu (1986), social capital initiatives provide the well-recognized institutional relationship for members to be able cater the jointly owned resources. Social Capital for Coleman (1988) is the means to improve members' socio-economic and political situation in one's own favor. Putnam (1993) extends this functional viewpoint by also considering efficiency. For Putnam, social groups advance members' efficiency by their arranged and well-organized actions (Putnam 1993). The efficiency that Putnam (1993) considers in his description

of social capital mirrors the fact that the poor and marginalized groups are better off when they form cooperation.

Driving from these views, two main features can identify the social capital. The first is that social capital is more or less about the established coordination and networks (Charles *et al.*, 2012). Not only does the social capital imply the networks and coordination, it is also embedded with resources. Therefore, the social capital we address in this study is both the resources and sort of group oriented relationship that prevail in the society (Nahapiet and Ghoshal, 1998).

2.1.2 RSCCs and social capital theory

From the definition provided in this section, social capital initiatives emphasize on the collective actions among individuals who would like to use togetherness and group membership as means to foster the goal they less likely achieve on their own. In other words, it can be generally argued that cooperatives are arenas where the concept of the social capital is demonstrated.

According to Valentinov (2004), networking among the members of the cooperatives denotes the nature of cooperatives in being social-capital based organizations. Mason (2014) also explain the reasons to opt to use the social capital theory in RSCCs. They state that the social capital theory in the context of RSCCs is self-explanatory since the members of the RSCCs mostly are marginalized groups such as women who would like to change their socio-economic situation by forming a group where they can contribute to and pool resources from. Likewise, Basargekar (2010) explains that the researchers use the social capital theory to define the theoretical implication of rural finance such as the RSCCs since such program operate in group, where the beneficiaries are mostly are women.

In nutshell, it can be described that the social capital is the major asset in the formation and functioning of the cooperatives. Valentinov (2004) clearly states that since the cooperatives principles of the cooperatives are based on the social capital of the members' contribution;.

2.1.3 Theoretical perspectives on the determinants of membership decision

One of the areas that the social capital theory is considered as a weak is that it fails to consider gender in theorizing the social capital (Fox & John , 2000). In most of the literature, the social

capital is conceptualized as a gender blind (Silvey & Elmhirst, 2003). Recognizing these facts, in this section, we provide general theoretical views for membership in the social capital initiatives.

There are two apparently opposing views on the membership in the social capital initiatives. A utilitarian approach views membership in the social capital from the utility perspective. According to Adler and Kwon (2002), membership in the social capital is rationalized with the intention to meet the desired outcomes. The rural poor seek joining the social capital because it grants resources that they actually dearth of (Nahapiet and Ghoshal, 1998). Therefore, from the utilitarian perspectives, joining the social capital activities is meant to exchange the resources so that they can better function and be effective in their livelihoods (Punam, 1993).

The other view on membership in the social capital initiatives is related with the ownership of resources. This is viewed from three perspectives. The resources are considered important in hiring the individuals for their membership in the social capital (Adler & Kwon, 2002). It is considered that the social capital initiatives will more likely engage persons with more resources since they are assumed to be more valuable to the social capital initiatives (Bekkers, 1992). The second view is the assumption of persons with more resources as having more ability to mobilize larger networks (Klandermans, 1984). This view is that persons with more resources can engage in several networking activities than others. The third view is the role of resources in the benefit and cost analysis. It is assumed that the role of costs and benefits of participation reduces the cost that might come with membership.

2.1.4 Theoretical perspectives on the determinants of intensity of participation

Similar to the causes of membership in the social capital initiatives, utilitarian approach also explains subsequent determinants of women's intensity of participation in their membership. The basic tenet in the utilitarian approach is related with the calculation of benefits and costs of membership in a given social capital domain. According to Byren and McCarthy (2005), intensity of participation signifies the relation of members with the organizations that is rationalized with the necessity of attachment and it has to outweigh the loss that might be incurred. It is also a matter of evaluating the importance of engaging in a particular group in comparison to the other organizations that provide similar service (Fulton, 1999).

The organizational characteristics were also viewed to be related with intensity of participation in the social capital initiatives. According to Bekker (1992) intensity of participation in the social capital activities is influenced by size, density, heterogeneity, intensity, trust, and duration in the social capital. For instance, it was stated a dense social networks is less likely to be destructed because, in such groups, norm exist that support the membership as a pro-group behavior. Bekker (1992) state that as the network gets smaller, it is easier for the members to be in close relationship and intensely participate. This argument is further supported by the Soboroff (2012) stating that the size of the groups influence the trust among the members, and the fewer the group members are, the better they actively engage in the social capital affairs.

2.1.5 Capability approach

Amartya Sen is a well-known for his work on the capability approach. He introduced concepts related with what activities persons are able to do (doing) and what kind of persons we are able to be (being). Sen called these notions capabilities. According to Sen, the capabilities are the real freedoms that the people need to achieve in their doings and beings (Sen, 1979;1985). Sen assumes that the real freedom is the means an individual has to attain that doing and being if s/he wants to but also the actual opportunity to achieve it (Sen, 1979). According to Sen (1999), freedom signifies the capability of acquiring all the necessary means to be and to do one's wishes. It is not merely of the nominal freedom to be or do something, but the substantial opportunity to achieve it.

2.1.6 Social capital: the endowment and entitlement in the capability approach

Several accounts relate the social capital with the endowment and entitlement in the context of capability approach (Tegebu *et al*, 2009; Bertin and Sirven, 2006). Bertin and Sirven (2006) view that membership in the social capital capacitates members with every rights and resources. This goes in congruent with the entitlement approach provided by Sen's (1981) assuming that all forms of capitals are ways to access the resources.

Bertin and Sirven (2006) argues that endowments from social networks are a subset of persons' entitlement set and social capital is also a part of endowments transformed into social resources. A person's social capital guarantees members to use their membership to access the adequate

resources. Those important resources signify a part of the entitlements set a person can access with the given social capital endowment.

While considering the social capital as right to access adequate resource, it facilitates the theoretical framework to examine its effect on the capabilities. However, Sen (1985) assumes that at least two preconditions might appear in equivalence between a person's resources and his/her well-being status. The first obstacle is that, unless a person makes use of the existing resource, the available resources exist merely as a probable resource. The second obstacle is that personal and social characteristics can also influence the person's ability to make use of the existing resources. These factors can determine a person's ability to use the resources s/he has access to in order to be free to attain the functioning.

2.2. RSCCs: concepts and historical overview

2.2.1 The concept and features of the RSCCs

The RSCCs are member-owned FIs that deliver small saving and credit services for its members (Abay *et al*, 2017). According to Frank et al (2015), they are established to encourage saving habits among the poor households. The RSCCs are hailed for providing a safe place for saving among the members and to get credit service at the reasonable interest (Zikala, 2016). RSCCs also have the ability to reach beneficiaries that the banks filed serve such as rural areas (Distler and Schmidt, 2011). Even though the RCSCs are not controlled by the central authorizes, they usually operate under the observation of the cooperative legislation of countries (Abay et al, 2017).

As any other cooperatives, the RSCCs uphold basic tenets such as the self-orientation, democracy, and equality. The RSCCs should also base on open and voluntary membership by maintaining their autonomy and independence who are supposed to economically participate and show concern for their community (ICA,2005).

2.2.2 The historical evolution of the RSCCs

Although several accounts point to earlier times for the emergence of cooperatives, the saving and credit cooperatives are first introduced in Germany in the 1850s (Guinnane., 2012). It emerged due to the land reform which created a free but undercapitalized peasantry in 1850s

(Faust, 1977 cited in Guinnane (2012). To respond to these problems, Friedrich Raiffeisen (1818-1888) organized the RSCCs (Guinnane, 2012). The recent report shows that the RSCCs had total assets of more than 200 billion and a membership of 275 million in 2018 (WOCCU, 2018).

2.2.3 The origin of RSCCs in Africa

Literature shows that the cooperatives in the African countries were developed and promoted by the colonial powers during their time (Develtere, 1993). However, after their independence, African countries started establishing cooperatives based on the local socio-economic requirements. English speaking nations were the first to adopt RSCCs in Africa. Countries such as Ghana, Uganda, Nigeria, Tanzania, and Kenya established the RSCCs in that order (Wanyama *et al*, 2009) and according to (Mosissa, 2013).

2.2.4 RSCCs in Ethiopia: history and current status

The history of modern saving and credit cooperatives in Ethiopia trace the mid-1960s under the feudal regime. After the feudal system was abolished, the military government issued the cooperative society proclamation which aimed at gathering the rural people and the resources together (Bezabih, 2009). However, the cooperatives of the time were used to serve the government rather than the local people (Tesfamariam, 2015). Furthermore, the democratic principles of cooperatives were avoided and replaced by compulsory rule of law and there was no members' own initiation on their membership (Bezabih, 2009).

After the dissolution of military administration, the subsequent regime reorganized the cooperatives in the country (Mossisa, 2013); (Shanko, 2016). The FCA was established to manage the cooperatives and its functioning (Bernand *et al*, 2010). The Ethiopian People's Democratic Front (EPDRF) has also promulgated the Cooperative Proclamation No. 147/1998 to serve as a legal document in formation of the cooperatives. However, the 1998 proclamation was repealed in 2016. The new proclamation has emphasized to boost the number of RSCCs with more membership size. It also gave a special attention towards rural women and their membership and active participation in the expanding RSCCs.

Currently, the RSCCs are widely used among the rural poor. The number of RSCCs increased from 760 (in 1998) to 21,328 (in 2021) (FCA, 2021). This made the RSCCs to represent 24% of all primary cooperatives in the country. Increasingly the RSCCs are also organized under the canopy of unions and their number is also increased from 1 in 2004 to 123 in 2021 (FCA, 2021).

2.3 Rationales for promoting women's membership in the RSCCs

Literature cites several reasons for the importance of women's membership in the RSCCs. Duguid and Nadya (2016) state that rural women, particularly those from the underdeveloped countries face the socio-cultural and legal restrictions in their endeavor to utilize the formal financial sector. Since the women are considered as only for the reproductive roles, they are less likely own land and other important resources that serve them for the collateral requirement in accessing the credit and financial services (Duguid and Nadya , 2016). In this context, Duguid and Nadya (2016) assume that the financial co-operatives and SACCOs address this gender gap and provide the financial services that women need for various development related activities.

Majurin also illustrates that the financial cooperatives and the RSCCs work better for the rural women since the RSCCs are geographically and culturally more accessible than banks and other formal FIs (Majurin, 2012). Majurin (2012) considers that RSCCs have less freighting membership procedures and provide a better loan conditions in comparison to other non-formal financial service since they have a larger membership size which could enable women to access a better saving and loan services for their business and development activities.

Furthermore, the ILO COOP Africa (2012) states that due to women's disadvantageous position in terms of land ownership, mobility and time freedom, accessing the financial service from the formal sector is a problem among the rural African women (ILO COOP Africa, 2012). Hence, membership in the mixed or single sex RSCCs will work in their favor. It further added that the characteristics of the RSCCs such as its being a locally based and member owned enterprise make the RSCCs more reachable, culturally pertinent, and less threatening for the service users. Moreover, the provision of micro-credit that is more suitable for small businesses make the RSCCs more appropriate financial service for the rural women than is the formal banks.

2.4 Membership and intensity of participation in the RSCCs

2.4.1 Membership in the RSCCs

Membership in RSCCs is a very important criterion for women to benefit from the RSCCs. The Ethiopian Coop Proclamation (Cooperative Societies Proclamation No. 985/2016) specifies that any individual may become a member if:

1. S/he has reached the age of 18;

2. S/he is capable of paying membership requirements in the form of shares;

3. S/he has well-knowledge of the cooperative aims and its regulations; and

4. S/he is willing to observe the membership obligations.

In Ethiopia, it is also a default assumption that the members should be from the same operational area of a RSCCCs or within the same *Kebele* administration. Since the RSCCs are the semi-formal organization, the government through the FCA regulates and also promotes women's membership. Nevertheless, the government often abides the principles of the ICA and the members also have to fulfill the criteria of membership. Likewise, the non-governmental development partners who also initiate and promote the membership of women should also abide the regulation enshrined in the FCA's proclamation.

2.4.2 Intensity of participation in the RSCCs

Participation intensity implies the degree of members' commitment in the RSCCs affairs. Its measurement, however, varies among the several scholars in the field. Birchall viewed it as taking part in decision-makings related to the general meetings, becoming a committee member, forming sub-committees and etc (Birchal, 1999). Bekele and Mengistu measured participation of women in term of their engagement with the general assembly, decision making, taking credit/loan, and participation in saving (Tona & Mengistu, 2020). Eyob *et al* (2019) in his part view it from the perspective of engagement in leadership, saving, training, and general assembly. Moreover, Esayas & Gecho (2017) used indicators such as participating in savings; taking out

credit; committee work, and voting and conducting election affairs among others, as the indicators of intensity of participation.

2.5 Conceptual view of women empowerment

The issue of women empowerment is the most emphasized term in the development literature. Yet it lacks a universally and commonly agreed definition. Nevertheless, several authors and scholars agree on the concept empowerment to be related with power, agency, and decision making. Alsop *et al (2006)* emphasized on the agency and opportunity structure as means to define women's empowerment. They view empowerment from the perspective of women being able to undergo reasonable choice to meet their deemed goals. According to the their conclusion, this sort of empowerment is a product of both agency and opportunity structure that is while the former implies the capacity to make purposeful choices, while the latter implying the structural framework means to change the decisions and agency to desired life objectives.

Kabeer (1999) views empowerment from the resources, agency and achievements perspectives. In this context, resources are represents the catalytic roles. Agency comprises the capability to control over resources and develop strategic life choices that can influence outcomes and achievements (Kabeer, 1999). The most important issue in the Kabeer's concept of agency is whether women are undertaking choices and decisions based on their own preferences and priorities or due to lack of other alternative. Kabeer) underscores that choices that are available to women are limited in comparison to men. These limited choices often insist women to normalize their sub-ordinated status and lesser choice in their society (Kabeer, 1999). Hence, it is important to ensure women's own decision making ability to guarantee their empowerment.

According to Moser (1993), empowerment is the capability of controlling life choices and influencing them in one's own favor. The definition comprises the notion of decision making power. Moser views control over resource as enabler and important part of women's empowerment. This resembles the perspective provided by the Strandberg (2001) who views women's empowerment in terms of being able to control over the life choice while control,over the resource being its crucial part. Both Moser and Strandberg propose the importance of women's control over the package of life choices and they underscore the need for women to define their own interests, needs and priorities. They assume that for women to be empowered,

they should be free to determine what to do without pressure from others. Women should take the initiative and actions and it should be driven by their own assumption, analysis and decision.

This goes in congruent with the Rowland's definition of the empowerment in which she states that women are empowered when they are able to make the choices in spite of the constraints and structural problems (Rowland, 1997). Rowland (1997) conceptualizes women empowerment through four views including -women's ability to control and resist, their ability to create new possibilities, their collective decision making abilities, and their enhanced self-assertiveness. She underscores that women are empowered when they believe and act on their own to make important decisions (Rowland, 1997).

Table 1: Summary of definitions for women empowerment

No.	**Authors**	**Definitions for women empowerment**
1.	Alsop *et al* (2006)	Empowerment is a capacity to make purposeful, effective choices and transforming them to important life goals.
2.	Kabeer (1999, 2005)	Empowerment is the ability to acquire the ability to make choice through adequate access to and control over resources to achieve important goals.
3.	Moser (1993)	Empowerment is the capability to determine life choice and act up on them to bring change in one's own favor.
4.	Strandberg (2001)	Empowerment is the process of women taking control over their lives by expanding choices and alternatives.
5.	Rowland (1997)	Empowerment goes beyond taking part in decision making; it should also include the conceptualization of the sort of empowerment the like to have and enjoy in its results.

2.6 Historical development of the concept women empowerment

History of women's empowerment goes as far as 18th century. But it was after the most admired book of "*Woman's Role in Economic Development''* that it takes the priority in African countries. In her book, Esther Boserup argues the importance of women's contribution to the development process despite their marginalization in the development process.

The book has been instrumental since it influenced the several stakeholders to consider their perception and attitudes towards women. The Women in Development (WID) approach was developed and it rationalized that women's economic subordination as a result of their exclusion from development activities (Rathgeber, 1990). Nevertheless, the WID has alienated women and failed to question the existing structure. This failure led to the emergence of another approach in the stream-Women and development approach (WAD) in the late 1970s.

The Women and Development Approach (WAD) emerged as a means to reverse the backlashes of WID that ignored the influence of social structure such as class, race, and cultures. According to Rathgeber (1990), the WAD approach argues that women play important economic roles and they are active to maintain societies. It believes that woman's situation changes when the existing structures treat both men and women in equal terms. Despite the rhetoric, however, the WAD did not genuinely examine these structures which later cause the birth of another approach-gender and development approach.

The Gender and Development Approach (GAD) develops new and advanced idea in the realm of women's empowerment. It examines not only of women's lives, but also the social construction of the gender and responsibilities (Rathgeber,1990). GAD also known for developing a strategy called '*gender mainstreaming'* for the better success of women empowerment and gender equality in development process. Gender mainstreaming examines the gender-implication of various legal frameworks. More importantly, the strategy aimed to make women's and men's concerns and experiences the part and parcel of the planned actions (NCPE, 2006).

2.7. Women empowerment in agriculture in Ethiopia

Agriculture is considered as the most important economic sector in rural Ethiopia. For women in particular, it provides the un-replaceable employment opportunities. Women also play an

important role in its development as small holder farmers, and also as food producers (AKLDP, 2018). In order to further enhance their roles, it has developed ‘’*the gender mainstreaming guidelines’’* to facilitate the inclusion of their concerns and needs in development plans and strategies (MoA 2011; Teshome 2018; Mamo 2020). The GTP II identifies them as the cross-cutting influences in the agricultural sector (FDRE 2016). According to AKLDP (2018) the Gender Equality Strategy for Ethiopia’s Agriculture Sector (GESEAS) also aimed to strengthen the gender responsiveness of policies, institutional structures and systems within the agriculture sector.

However, addressing the gender inequality in the sector has remained unsatisfactory. The currently developing commitments have never translated in to the practical actions (Drucza and Tsegaye 2018). Furthermore, the existing policies ignore the historical, cultural, and social discriminatory legacies perpetrated against women. This has resulted in women having lower and inadequate access to important resources. According to UN Women (2018) the existing gender gap in adequate access to productive resources and services reduces 221 dollars of agricultural contribution to the country’s GDP.

2.8. Measuring women empowerment

Measuring women empowerment is a difficult task. In literature, researchers often employ proxies to compute for the women’s empowerment status. Recently, a new and the first standardized measure of women empowerment were developed to compute the extent of women’s inclusion levels in the agricultural sector. We have adopted this framework to assess women’s empowerment in the agricultural setting.

2.8.1 Introducing the women empowerment in agriculture index (A-WEAI)

The Women Empowerment in Agriculture Index is a tool developed jointly by the United States Agency for International Development (USAID), the International Food Policy Research Institute (IFPRI), and the Oxford Poverty and Human Development Initiative (OPHI). The framework was developed to measure the extent of women’s involvement in the agriculture sector in five domains: (1) decisions about agricultural production, (2) access to and decision

making power over productive resources, (3) control over use of income, (4) leadership in the community, and (5) time use.

1. **Production:** is an important domain of the framework. Women play significant roles in the agriculture. In Ethiopia, for instance, they account for 70 percent of the household food production and 48 percent for the agricultural labor force (MOA, 2011; USAID, 2019). Despite this numerical figure, specific issues such as whether or not women's immense participation in the agricultural activities is coined with greater decision making ability is unclear. Hence, this domain is helpful to understand this gap and exposes the decisions independently or jointly regarding the agricultural production in both crop and animal productions.

2. **Resources:** is considered as an important element for women empowerment. For Kabeer (1999), it is an enable of women's empowerment. This study solicits the extent of women's decision in the land usufruct since the constitution grants only usufruct rights (Constitution of the Federal Democratic Republic of Ethiopia, 1995). The survey question also women involvement in the purchase and giving of the large livestock and utilization of the credit services.

3. **Income:** Women controlling over income and expenditure pattern has developmental implication particularly for food security and nutrition. When women control over income, they often expend it for households' welfare and human development (Quisumbing *et al,* 2013). Hence, it is important to access whether women can independently or alone make decision over the income and the expenditure pattern in their households.

4. **Leadership:** Economic and social groups are important inputs for empowering women in the rural setting. The survey questions ask the frequency of women's participation in the group aspects and their ability to freely speak their needs.

5. **Time:** Reducing the time based poverty helps to close gender gap. This is because the household burden limits their ability to participate in paid labour (Kohli and Das, 2017). Thus examining whether women are satisfied in the time allocation for the productive and reproductive activities is important in their empowerment endeavor.

6. **Financial literacy**: The financial literacy was included in the computation of A-WEAI in this study. It is considered that a financially literate woman has the essential knowledge of money related matters including the attitude and behavior which helps her make important decisions in their lives and developmental activities.

2.8.2 Mathematical computation of the A-WEAI

Although the original WEAI measures the women empowerment in agriculture by providing the survey questions to both husband and /or any male partner living in the same household with women, the A-WEAI survey of this study was limited only to women household members due to the resource and time constraints. That is to mean that only women were asked to respond about their decision making abilities in the areas of interest. The responses were change to scales which were calculated as the subsequent section describes.

1. First of all, it was underscored that each response has its own value. The responses gained in the scale format are converted in to values assigned to each of them.

For example: let us take the resources related decision question- who makes a decision regarding which and how much of the agricultural input to buy?

This has four scales. 1- A decision only a woman made; 2- A decision mainly a woman made

3= A decision jointly made; 4= A decision mainly a man-made; 5= A decision only a man made.

This was translated to the values as: 4= A decision only a woman made. 3= A decision mainly a woman made; 2= A decision jointly-made; 1= A decision mainly a man-made; 0= A decision only a man made.

These values are summed up and divided by the maximum attainable value in each domain, the outcome of which represents the percentage in a given domain.

$$\text{i . WEap} = \text{i} \quad \text{. WEap} = \frac{\sum_{i=1}^{6} (AgDc)i}{24};$$

Where; WEap=Women Empowerment domain in Agricultural Production

$AgDc$=Agricultural Decisions

ii. WEr=$\frac{\sum_{i=1}^{1}(\mathbf{LuR})i}{4}+\frac{\sum_{i=1}^{1}(\mathbf{Ldec})i}{4}+\frac{\sum_{i=1}^{1}(\mathbf{CrDec})i}{4}$,

Where; WEr=Women Empowerment in the Domain of Resource

LuR=Land Usufruct Rights

LDec=Livestock related decisions

CrDec=Credit Related Decisions

iii. WEinc=$\frac{\sum_{i=1}^{1}(InDec)i}{4}+\frac{(\sum_{i-1}^{1}(expDec)i-}{4}$

Where; WEinc =Women empowerment in income agency

InDec=Income Related decisions

ExpDec=expenditure related decisions

iv. WEl=$\frac{\sum_{i=1}^{1}(gm)i}{3}+\frac{\sum_{i=1}^{1}(\mathbf{PScomf})i}{3}$

Where; WEl=Women Empowerment in leadership

Gm-participation in social/ economic groups

PScomf-Public Speaking Comfort

v. WEtm=$\frac{\sum_{i=1}^{3}(\mathbf{TmSat})i}{3}$

Where; WEtm =Women Empowerment Domain of time

TmSat=Time related satisfaction

$$\text{Vi. WE fl}=\frac{\sum_{i=1}^{3}(\mathbf{FinC})i}{3}$$

Where; WEfl=Women Empowerment in the domain of Financial Literacy

FinC-Finance processing competence

2. A cutting value is determined for the indicator used. Alkire *et al*(2013) state that woman achieving 50% of the empowerment status is labeled as empowered and hence assigned '1' and '0' otherwise. Alkire *et al* (2013) states that assuming the thresholds at 50% would balance the high value assigned since the activities are based on the group activities and it would be un reasonable to put a high threshold and women may not carryout agricultural activities alone and if it is lowered than 50% can be ignorance since to assume that they are empowered. Hence, women who achieved 50% of the domains are considered empowered and assigned 1.

3. The aggregate empowerment status is calculated by adding the value of empowerment of each domain and then by dividing it for the total number of domains.

Mathematically, this can be put as follows:

$$\mathbf{WEIA(x)} = \frac{\mathbf{WEap + WEr + WEin + WEl + WEtm + WE\ fl}}{6}$$

Where WEap: indicates women empowerment in the agricultural production.

WEr: women empowerment in the resources domain.

WEin: women empowerment in income domain

WEtm: women empowerment in time domain

WEfl: women empowerment in financial literacy domain

Two steps were taken to categorize women as empowered or not. First, if women achieved 50% on the aggregate empowerment computation. Even if they achieved 50%, that does not suffice for categorization as they have to achieve the adequacy level in 80% of the empowerment domains.

2.9 Empirical literature review

There is dearth of adequate reference literature for this study topic. As a result, this section provides a general overview of the determinants of membership decision and intensity of participation in the self-help financial groups (SHG) and the general cooperatives including the RSCCs. This lays a foundation to have a clearer background for the context of the study.

2.9.1 Determinants of women's membership decision in the Financial SHGs and cooperatives

Membership in the RSCCs, financial SHGs, and the general cooperatives is the primary requirement for women to be able to benefit from the services they could offer. From the limited literature, the following researches elaborate their respective findings in their areas of the studies.

Dayanandan (2016) found that variables such as education, marital status, access to resources, information, knowledge of values and principles of the Cooperatives, and distance significantly determines women's membership in the RSCCs. Based on his study, he concluded that if women have a higher education level, if they own adequate amount of resources to purchase cooperative shares, and if the cooperatives found nearby the women, women are more likely to join the local RSCCs.

The study by Idrissa *et al* (2007) revealed that age, level of education, primary occupation of members positively affected women's membership in saving and credit cooperatives but the marital status did not have a significant influence on women's membership in their particular study.

Woldu and Tadesse (2015) revealed that women who are cooperative members are characterized with more education level compared to non-members in eight *woredas* of seven regions in Ethiopia. Their study also explicated that women members also have larger family sizes in general and most of the members were also the head of their households.

Joshi (2019) on the analysis of women's SHG's involvement in India revealed that age, education, family type and distance were significantly influence women's probability of joining the financial SHGs. Joshi (2019) found that the distance has negative coefficient, and the rest of variables included were positively related with participation in SHGs.

Mohapatra and Sahoo (2016) on their studies of the determinants of participation in SHG and its impact on women empowerment. The study revealed that land holding, mean asset value and log household income determine women's participation in India. The finding illustrates that people with less size of land may hesitate to join the group to avoid being trapped by a debt burden. Since the group demands saving as the first activity in their membership, it is considered that the households with lesser land size perhaps are uncertain whether they can regularly stand the requirements.

The study by Anjugam and Ramasamy (2007) indicated that age, caste position, household income, and productive influence women's probability of joining the financial SHGs in India.

Table 2: Summary on determinants of women membership decision in the financial SHG and cooperatives

Variables	**Signs of relationship**		**Authors**
	Positive	Negative	
Age	*		Idrissa et al (2007); Anjugam and Ramasamy (2007); Joshi (2019)
Education	*		Atiwolde (2012) ; Woldu, Tadesse, and Waller (2013) Joshi (2019).
Marital status	*	*	Woldu, Tadesse, and Waller (2013); Idrissa et al (2007)
Family Size	*		Woldu et al (2013); Joshi (2019)
Land Size	*		Dayanandan (2016); Mohapatra and Kishore Sahoo (2016)
Annual Income	*		Dayanandan (2016); Mohapatra and Kishore Sahoo (2016)
Distance		*	Dayanandan (2016); Joshi (2019)

2.9.2 Determinants of women's intensity of participation in the financial SHGs and cooperatives

Once women secure their membership in cooperatives, they need to commit in their membership to secure benefits that the social groups offer (Jussila *et al*. 2012). Literature comes with various factors that determine women's participation in the financial SHGs, and general cooperatives.

Eyob et al (2019) revealed that age, education status, household size, and access to training significantly influence women's intensity of participation in the RSCCs in the Southern Nations Nationalities and Peoples Regional States (SNNPRS).

The study by Selhausen (2015) revealed that the household assets and distance had a positive and negative relationship with women's intensity of participation in their membership in the coffee cooperatives.

Esayas and Getcho (2017) in the Southern Ethiopia estimated that shareholding, farm size, livestock, distance, member's perception, education and training are considered for the active participation of women in the agricultural cooperatives.

The study by Anyiro (2014) analyzed the determinants of women's participation in SHG-led micro-financing in Abia State, Nigeria found that women's intensity of participation in self-help group led micro financing of farms was influenced by household size, years of membership experience, access to credit, primary occupation, and annual income, and household assets.

Table 3: Summary of the determinants of women's intensity of participation in the financial SHG and cooperatives

Variables	**Signs of relationships**		**Author**
	Positive	**Negative**	
Age	*		Eyob et al (2019); Aseffa (2008)
Education status	*		Eyob et al (2019); Aseffa (2008)
Perception	*		Birtukan and Yishak(2017)
Family size		*	Anyiro(2014)
Annual income	*		Aseffa (2008); Anyiro(2014)
Land size	*		Meier zu Selhausen(2015)
Livestock	*		Oxfam, 2013 and Agarwal, 2001
Distance		*	Meier zu Selhausen(2015
Membership duration	*		Aseffa (2008): Anyiro(2014)
Cooperatives' capital/birr	*		Aseffa (2008)

2.9.3 The Impact of the cooperatives on women empowerment

Extensive literatures attest the role of financial SHGs, and the general cooperatives in empowering rural women. In fact, numerous studies provided evidences for the empowering roles of RSCCs although the area of focus and context varies. This section reviews the existing literature on the effect of RSCCs on the women empowerment in general, but also presents the effect of other cooperatives on the specific context of empowerment- the agricultural sector.

The study by *Dargie et al* (2019) revealed that membership in the RSCCs boosted women's empowerment status in such domains as decision making ability, ownership assets and resources, and income and gender awareness and perceptions. It was found that participation in the RSCCs has improved the rural women's empowerment in the domains measured.

The study by Mossisa (2013) also revealed that membership in the RSCCs improved the lives of members and their families. The study found that membership in the RSCCs improved women's decision making, social engagement, and mobility across their society. Membership in the RSCCs also improved the lives of the members' families as it improved the shelter, education, nutrition, health conditions after they joined the locally available RSCCs.

Rani and Yadete (2016) studied the effect of RSCCs on women empowerment in Dendi of Oromiya regional state. They have developed an empowerment index in such aspect as the economic empowerment; household empowerment, and social empowerment. They found that, in comparison to the period before joining the RSCCs, the women members had better access to resource, improved their decision making and legal knowledge.

In other developing countries such as Nepal, the impact of RSCCs is widely studied. For instance, Bhup (2018) assessed the impact of the RSCCs on women empowerment in the Tulsipur Municipality, of Dang, Nepal. The study revealed that the RSCCs helped its members in increasing their incomes. Similarly, trainings also improved women's skills and their literacy rate which altogether contributed to women empowerment.

The study via propensity score matching by Dohmwirth and Liu (2020) showed that membership in cooperatives positively impacted women's agency in the agricultural setting. The study further exposed the difference in gender mix and women only cooperatives in the outcome variable favoring the former members. The study concluded that mixed gender cooperatives were effective in empowering women than the women only cooperatives.

The study by Lecoutere (2017) in Uganda which was computed by the difference-in-difference analysis and propensity score matching showed that membership in the cooperatives positivel influenced women's agency and knowledge in terms of agricultural knowledge, application of improved seed types among others.

Table 4: Summary of the impact of cooperatives on women empowerment

Author	**Research Area(location)**	**Empowerment domains**	**Effect/Impact Sign**
Birhan *et a*l (2012)	Ethiopia (Tigrai)	Power to make important decisions, owning resources, and influencing the betterment of households while improving one’s attitude on the gender issue.	+
Bhup and Anita (2018)	Nepal (Tulsipur Municipality, of Dang)	Income, skills, and training	+
Chapagain(2015)	Nepal	Practical and strategic needs	+
Mossisa (2013)	Ethiopia (Ziway Dugda)	Making important decisions, social participation, ability to be mobile, and family related development.	+
Rani and Deribi (2016)	Ethiopia (Dendi)	Economic, household, and social empowerment.	+
Dohmwirth and Ziming(2020)	India	Decision making power in the agricultural setting	+
Els Lecoutere (2017)	Uganda	Decision making power in the agriculture	+

2.10 Gaps in literature

As attested in the literature review section, there is dearth of a study regarding women and RSCCs in particular context of agriculture. The recently increasing development of women and their membership size is not well studied. Particularly the determinants behind their membership decision and intensive participation is not researched. Likewise, whether or not the RSCCs had

an empowering impact on women in their agricultural roles is not supported with any study just so yet. This fact rationalizes the inclusion of the wider financial SHGs and other cooperatives types to trace the background for this particular study.

2.11 Conceptual framework of the study

This study identified and evaluated women's determinants of membership and the subsequent intensity of participation in the RSCCs and its impact on women empowerment in the agricultural context. First, the membership decision whether they join the local RSCCs depends on the utility maximization and the resource they have access to.

Maximizing the utility depends on the individual and household characteristics including age, marital status, and family size. The perceptions of the RSSCs' whether they assume the RSCCs is a financial viable institution or not as well as their trust for the existing members and the managing body may also influence women's utility maximization. Participation in other financial group and the distance to the RSCCs office are other domains influencing women's membership decision as they are related with their time opportunity cost in their endeavor for utility maximization. Resources such as their schooling years and household endowment including land size, livestock and annual income can also influence women's membership and boost their probability of joining the RSCCs.

The subsequent determinants of participation intensity depend on the cost and benefit analysis of their engagement in the RSCCs. The analysis may also depend on the individual characteristics such as age, marital status, schooling year, and duration of membership in the RSCCs. For instance, with age, women value non-material gain and they often tend to halt risks and exaggerate the cost of failure to attend the activities in the cooperatives (Jusilla et al, 2012). Duration of membership in the RSCCs can also influence the intensity of participation since women might expect whether their investment pays off or not.

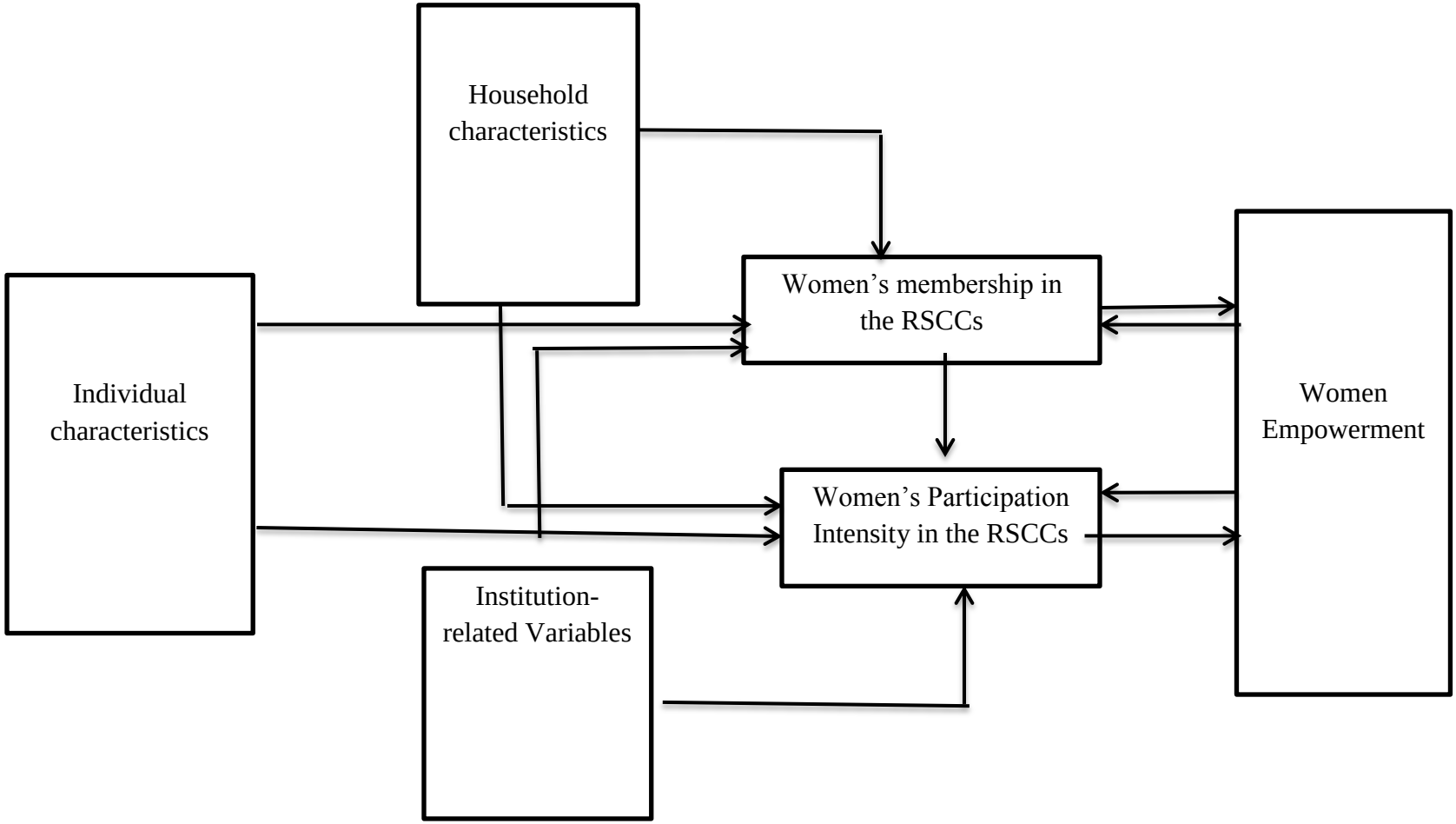
The household characteristics including family size, land size, livestock size, and the household income relate with women's intensity of engagement in the RSCCs. For example, the household annual income might negatively influence women's active participation due to the less significance given to the small loan and saving benefits those RSCCs can provide. Institutional

characteristics such as distance, group size, and capital can influence women's intensity of participation in the RSCCs. According to Olson (1965) larger group size negatively influence women's intensity of participation in the RSCCs affairs since it makes the direct involvement of women in the RSCCs' affairs difficult and unmanageable.

The analytical section of the study is evaluated the impact of the RSCCs on women empowerment. The study viewed empowerment as enhanced agency in the agricultural context in the areas of production, resources, income, leader, time, and financial literacy.

The following figure 1 diagrammatically describes the whole conceptual framework employed in the study.

Fig: 1. Conceptual framework of the study



Source: Adapted from Selhausen (2015): What determine women's participation in and within the collective actions?

CHAPTER THREE

RESEARCH METHODOLOGY

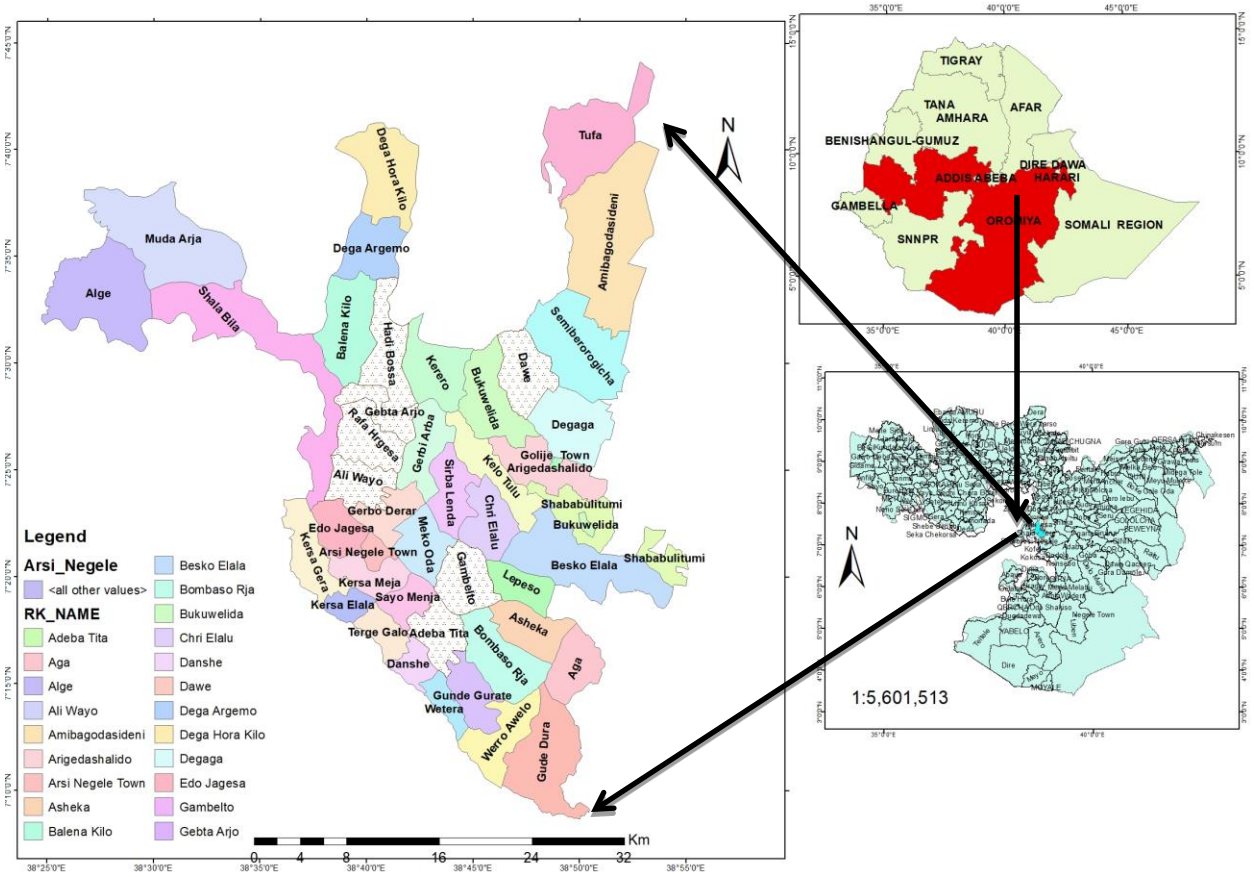
This chapter focuses on describing the research methods used to answer the research questions. It describes the study area and presents its general feautures. It also elaborates the research design and approaches employed to select the samples, and the data types, sources and its collection methods. The chapter furthermore presents the data analysis methods. The last section of the chapter defines the outcome variables and their hypothetical relations.

3.1 Description of the study area

This study was conducted in Arsi Negele *woreda*, which is found in Oromia regional state with some 232 km away from the capital of the country, Ethiopia. Astronomically, it is located between the range of 70 08’ 00’’ N to 70 49’ 00’’N latitude and 380 24’ 04’’ E to 380 48’ 09’’E longitude (Mekonnen *et al,* 2018). The *woreda* has a total area of 1,400.16 square kilometer and it is divided into forty-four rural and five urban *kebeles*. Although a recent data on the population size is lacking, the 2007 census indicates that the woreda’s total population was 264,314 of which 53% are women (CSA, 2007). The *woreda* consists of all the agro-climate zones yet its majority belongs to the midland category. The *woreda* experience the annual temperature and rainfall between 10-20 degrees Centigrade and 800 and 1,400 millimeter, respectively (Sheymo, 2010).

The area is considered to have a significant agricultural potential both for farming and animal husbandry (CSA, 2007). However, the frequent drought hampers the agricultural production particularly in the low land area of the *woreda* (Mekonnen *et al,* 2018). This study; therefore, was conducted in the highland and mid-land zones to get the important data from women farmers who are considered to play an important role in the economy.

Figure 1: Location of the study area



3.2 Research methods

3.2.1 Study design

A descriptive and analytical cross sectional study design was used to address the research objectives. While the descriptive part identified the determinants of membership decision and intensity of participation in the RSCCs affairs, the analytical part evaluated the RSCCs' outcome by comparing the women members and non-members in terms of their empowerment in the agricultural context. Moreover, the study employed a mixed research method though it prioritized the quantitative data assuming that it has a better representation ability towards the population of the study. The qualitative data was used to corroborate the quantitative findings and the method was used to offset the weakness of the quantitative data.

3.2.2 Sample selection procedure and sample size

Both the purposive and random multi-stage sampling method was employed for the sample selection. At the first stage, the Oromia Regional State was purposefully selected as it is the home for the largest number of women members in the RSCCs. Arsi Negele *woreda* was randomly selected from the *woredas* of the regional administration at the second stage. The third stage was related with selecting the sample kebeles.

Although in principle there had to be a RSCC at each *kebele*, only 29 out of the total 44 *kebeles* had functioning RSCCs in the *Woreda.* 6 of the 29 *kebeles* were found in semi-arid lowland areas where the agriculture serving livelihood is minimal. The researcher purposefully excluded these *kebeles* due to their irrelevance with the objective of the study. At this stage, the researcher finally employed a probability method to recruit 30 percent of the total 23 *kebeles* to represent the rural *kebeles* and RSCCs of the *woreda*. This decision seconded the sample size acceptance rule which was proposed by the Roscoe (1975).

The final stage of the study was about sample size determination. The population of the study was the total households of the randomly recruited 7 *kebeles* which total about 3865 households. We finally employed Yamane's (1967) sampling method to determine the sample size due to its simplicity. Hence, the sample size was calculated as:

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

Where n and N indicating the research sample and household size while e representing precision level.

$$n = \frac{3865}{1+3865(0.05)}$$

n = 362

Therefore, there were 362 sample households. We also employed the Proportional Probability sampling (PPS) to select the sample from each *kebele* proportionally to eliminate the probability of any *kebele* underrepresenting the sample. The table given below (5) presents the randomly selected *kebeles*, and the number of sample drawn from each *kebele*.

Table 5: Summary of sample households

No.	Kebeles	Household number in the selected kebeles	Sample (PPS)
1	Arbaa Tita	624	58
2	Rafa Hargisa	502	47
3	Haadha Bossa	532	50
4	Dawo	519	49
5	Gabta Arjo	602	56
6	Alii Wayyo	472	44
7	Gambello	614	58
Total		3,865	362

Source: The *woreda* administration

3.2.3 Types, sources and method of data collection

Whilst the survey questionnaire, key informant interview (KIIs) and focus group discussion (FGD) was collected from the primary sources, we gathered the already existing data and researches from the publications. The survey questions were translated to the local language-Afaan oromoo by the researcher himself but the enumerators from the *woreda* took part in data collection. The KIIs was held with the *Woreda's* cooperative promotion agency colleagues. The other qualitative data collection method-FGD was held with twenty women leaders of the seven randomly selected RSCCs.

3.3 Data analysis method

3.3.1 Quantitative research method

We employed both the descriptive and econometric statistical method to analysis the quantitative data by using the SPSS and Stata, respectively.

3.3.1.1 Descriptive statistics

The collected data was summarized by the specific descriptive statistical measures including tabulation, frequency, mean, standard deviation, and percentage. The study also examined the difference between the members and non-members, and women members in the different participation categories by using the chi-square, t-test and F-test (One way Anova), respectively.

3.3.1.2 Econometrics model specification

i. Binary Logistic regression Method

Due to its comparative advantage in terms of ease for computation, we used the binary logistic regression model to identify the determinants of women's membership decision in the RSCCs (Hosmer and Lemeshew, 1989). The outcome (response) variable -membership decision was identified with the value of '1' and '0' if membership happens or not, respectively. The independent and predictor variables comprise both the continuous and binary variables. Therefore, the cumulative logistic probability (ClP) takes the form of:

$$Pi = F(Zi) = F(\alpha + \sum_{i=1}^{N} \beta i \chi i) = 1/1 + e^{-(\alpha + \sum \beta i \chi i)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where Pi indicating the likelihood of ith women deciding in favor their membership assuming the numbers of the independent variables (Ni), predictor variables (χi) with the constant natural logarithms(E), and the estimation parameters (αi and βi).

The logistic model is more understandable if we put it in the odds and log of odd style (Hosmer and Lemeshow, 1989).

$$1-pi = \frac{1}{1+e^{zi}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

pi implying the probability of joining the RSCCs in comparison to the 1– pi for its reverse. Therefore, the odd ratio can be calculated as:

$$\frac{pi}{1-pi}=\frac{1+e^{zi}}{1+e^{-zi}}=e^{zi} \quad \text{.....3}$$

$$\frac{pi}{1-pi}=\frac{1+e^{zi}}{1+e^{-zi}}=e^{(\alpha+\sum_{i=1}^{m}BiXi} \quad \text{.....4}$$

At the last step, replacing the natural logarithms (E), we can finally get the log odds described as:

$$Li=ln\frac{pi}{1-pi}=Zi=\beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\cdots\beta 13X13+Ui \quad \text{.....5}$$

Where pi indicating the probability of women joining the RSCCs with the function of explanatory or predictor variables of Zi and n.

If the disturbance term (Ui) is introduced, the logit model becomes:

$$Zi=\beta 0+\beta 1X1+\beta 2X2+\beta 3X3+\cdots\beta 13X13+Ui \quad \text{.....6}$$

In this study, unlike the coefficient which shows more of the direction than the value, the marginal effect which characterize the real magnitude of changes in the probability of RSCCs' membership decision in light with a change in the predictor and explanatory variables(Amogne et al, 2017).

ii. Ordered logistic model method

This study describes women's intensity of participation in the RSCCs categorically. Adepoju (2018) suggested the application of ordered logistic to be a preferable model to assess the variable having more than two categories when each has a meaningful sequential order. The ordered logistic model treats the intensity of participation as ordinal scale having the values of 0, 1, and 2 to represent 'low', medium,' and 'high' participation categories, respectively.

The ordered logistic model depends on the functional form which is forwarded by Greene (2008) and Liao (1994);

$$Y^* = \varepsilon \square k \square k + \mathcal{E} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where Y* indicating the obscured variable with the random disturbance term (ε).

The three ordered categories has two cut point specified as;

$$\left.\begin{array}{l} Y=0, 1 \text{ if } y^* \leq \mu 1 \\ Y=1, \text{ if } \mu 1 < y^* \leq \mu 2 \\ y = 2 \text{ if } \mu 2 < y^* \leq \mu 3 \\ y = j \text{ if } \mu j\text{-}1 < y^* \leq \mu j \end{array}\right\} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where y is the observed phenomenon in j ordered categories, μs is a cutting (threshold) that distinct the categories to be estimated with βs.

Therefore, the general form for the probability that the observed y lie in the category j with the μs and the βs is:

$$P(y=j) = 1\text{-}L(\mu j\text{-}1\text{-} \textstyle\sum_{k=1}^{k} \beta k \, \chi k \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

iii. Propensity score matching method

The Propensity Score Matching Method (PSM) is considered to best suit for controlling the selection bias in examining the impact of RSCCs on women empowerment. However, there can still be simultaneous bias which can be addressed with the application of the Instrumental Variables (IV). We have tried to consider employing the PSM and IVs to control for the simultaneous and selection bias altogether; we could not find adequate IVs that fulfill its assumptions. Therefore, the researcher opted to utilize the PSM only to evaluate the effect of membership in the RSCCs on women's empowerment.

The Propensity Score Matching Method adjusts the selection bias by corresponding each member to a nonmember based on similar observed explanatory variables (Rosenbaum and Rubin, 1983).

At the first stage, we predicted the propensity score by using the logistic regression model. The mathematical formulation of the logit model is:

$$\textbf{Pi}=\frac{e^{zi}}{1+e^{zi}}\text{……………………………………………………………}\textbf{1}$$

Where Pi showing the membership decision likelihood with the base of natural logarithms, (e) and independent (predictor) variables . Zi was also described as:

$$Zi=\beta 0+\sum \beta iXi+Ui\text{………………………………………..}2$$

With intercept (βo), the estimating regression coefficients (βi), and disturbance term (Ui) explained by using the eleven observable variables (Xi , 1-11).

At the second step, we assessed and identified the matching algorithm we use in the estimation procedure. Our aim was to uncover the closest member having similar discernible characteristics with the non-members (Caliendo and Kopeinig, 2008). Most of the existing literature used the four matching algorithm including the nearest neighbor matching, kernel matching, and radius caliper matching, and Calipher matching , but we specifically used the kernel with the band 0.06 width.

At the third stage, we imposed the common support regime following the guide of Caliendo and Kopeinig (2008). It is believed that the impact of RSCCs on women empowerment is defined only in this common support region which shows the area within the minimum and maximum propensity score of the treated and control group (Caliendo and Kopeinig, 2008). We dropped those observations that lie below and above of the minimum and maximum propensity score computed for both the members and non-members.

At the fourth stage, we examined for the matching quality of the propensity scores. Commonly, four alternative matching tests are conducted for the testing the matching including the standardized bias, t test, Pseudo-$R2$, and matching observations (Caliendo and Kopeinig, 2008). Repeated test should be conducted to decide whether the incorporated variables meet the assumptions of the PSM including if the value of β and R is <5 % and < 25% (Rubin,2001).

If a good match is confirmed, the next step is to evaluate whether or not the membership brought a difference in the women empowerment between members and non-members.

The mean of impact of membership in the RSCCs is given by

$$\tau i=Y(Di=1)-Y(Di=0)\tau i=Y(Di=1)-Y(Di=0)$$

where τ_I is treatment effect, Y is treatment effect, Y is the outcome, D_i is is a dummy variable that distinct whether household i has got the treatment or not.

We estimated the average ATT impact of the RSCCs as:

$$E[Y(1)|D=1]-E[Y(0)|D=1]-E[Y(0)|D=0]=\tau ATT+E[Y(0)|D=1]-E[Y(0)|D=0]$$

Lastly, we need to conduct a sensitivity analysis to make sure that the matching that result from the observed variables and the bias resulted from the response variable do not affect the outcome. According to Caliendo and Kopeinig (2008), sensitivity analysis check the strength of the result of the computation.

3.3.1.3 Multicollinearity and model fitness test

i. Multicollinearity test

The concern of Multicollinearity is central in the econometric estimation. This is because the Multicollinearity between the explanatory and predictor variables creates the estimation instability and it's the reduce trust for the result (Menard, 2002). Therefore, we addressed the continuous variables' Multicollinearity problem by applying the variance inferential factor (VIF). We also checked the whether the Multicollinearity exist in the binary variables through the Contingency Coefficient (CC). We dropped the variables if their VIF and CC values were higher than 10 and 0.75, respectively.

ii. Goodness of fit test

The goodness of fit for binary logistic regression model assessed by using hosmer-leminshow tastes and their model classification percentage. The ordered logistic model was examined via the model fitting information and goodness of fit test of person and deviance.

3.3.2 Qualitative data analysis

We analyzed the qualitative data that by the methods of narration and summarizing to supplement and corroborate the quantitative findings.

3.4 Definition of variables and hypothesis

3.4.1 Women membership decision in the RSCCs

Response /Dependent variable

The first objective of the study was to identify the determinants of women's membership decision in the RSCCs. The response variable was women's membership decision with a value of"1" in case membership occurs and "0" otherwise. The following are the individual, household and institution related variables that might influence women membership decision.

Independent/ Predictor variables

I. Age of a woman respondent (AGE): It identifies the number of years a woman respondent lived at the fixed time of survey period. Age is an important policy variable in women's probability of joining the RSCCs because it is assumed that age increases their likelihood of having a better experience in their engagement in the social capital initiatives such as the RSCCs (Dayanandan, 2016; Indrissa *et al*, 2007). Therefore, we hypothesized that age is positively related with women's membership decision in the RSCCs.

II. Household Type/ Marital status of a woman respondent (MARSTAT): It identifies women's marital status whether they live in the Male Headed Households (MHHs) or Female Headed Households (FHHs). In most part of the rural areas, SHGs emerge to serve the widow and divorcee women (Ayele, 2014).It is also believed that female headed households are more responsible for the household activities when their men partner is unavailable. Therefore, the hypothesis was that marital status negatively influences women's probability of membership in the RSCCs.

III. Years of Schooling of a woman respondent (YOSCHOOL): It identifies the maximum number of schools a woman respondent attained at the time of survey period. According to

Wuthnow (2002) schooling years increase the probability of women acquiring important skills to establish or join the existing social capital initiatives. They also have a higher probability of getting in contact with the people and media that would increase their membership in RSCCs (Dayanandan, 2016). Therefore, we hypothesized that women's probability of joining the RSCCs and the years of schooling have a positive relationship.

IV. Trust level of a woman respondent (TRUST): It identifies a woman's trust level and it was represented by 1 and 0 in case a woman trusts the RSCCs and its managing body or otherwise, respectively. According to Wolcook and Nyaran (2000), trust is an important facet in the social capital activities such as the RSCCs. Hence, it was hypothesized that trust positively influences women's membership in the RSCCs.

V. Perception (PERCEPTION): It identifies whether a respondent assumes that the RSCCs are financially viable or not and it was represented by '1' and '0' respectively. According to Ayele (2014), perception of the financial viability is an important factor in membership. If women perceive that the RSCCs are a financially viable institution, they are likely join the RSCCs. Otherwise, they might opt to use other alternative institutions to meet their financial needs. Therefore, it was hypothesized that perception of the RSCCs' financial viability positively influences women's membership decision in the RSCCs.

VI. Participation in other financial groups (PARTOTHERS): It identifies whether or not a woman respondent participates in other financial group in the *kebele* and it was represented by '1' for yes and '0' otherwise. Since participation in other financial organization often put women in time opportunity cost, it can reduce their probability of joining the RSCCs (Ayele, 2014). Therefore, it was hypothesized that participation in other financial groups negatively influence women's membership in the RSCCs.

VII. Family size (FAMSZ): It identifies the maximum household members including the respondents at the time of survey period. The family size can either positively or negatively affect women's membership in the RSCCs. When a house hold had a large family size, there can be another person who can over take household activities for the women (Woldu and Tadesse,

2013). The larger family size can also increase the time opportunity cost among women and that negatively affect their membership (Meinzen-Dick & Zwarteveen, 2003).

VIII. Household annual income (HHINCOME): It measures the household income at the point of survey period. It was assumed that women whose household had a higher income might have a higher probability to join the RSCCs due to the higher probability that they have to pay a membership share. As a saving institution, RSCCs also require women to fulfill the saving responsibilities up on their membership. Therefore, the hypothesis was that women whose household had a higher annual income might join the RSCCs that others.

IX. Land holding size (LANDHOLDSZ): It measures the total arable farm land of women households. In this study, we expected that a woman whose households a large land size participate in the RSCCs in comparison to the others because of the larger gains they would expect from their participation (Selhausen, 2015).

X. Livestock Size (LIVSZ): It identifies the livestock size under the possession of women households. The hypothesis is that women whose households have larger livestock size might incline more to be a member of the RSCCs than the non-members (Ayele,2014).

XI. Distance of the RSCCs (DISTANCE): It measures the time taken to reach the RSCCs in minutes. The distance can influence women's membership in the RSCCs found nearby the residence of women, there would be more probability for women to be member of the RSCCs (Ayele, 2014; Dayanandan, 2016).Therefore, it was hypothesized that distance can negatively influence women's membership in the RSCCs.

Table 6: Summary of the variables definitions and hypothetical relations

Yi	Variables Membership Decision	Description of variables Membership in the RSCCs (‘0’ =non-member; ‘1’ =member)	Expected sign
I	AGE	Respondents age in number	+
II	MARSTAT	Marital status at the time of the survey ; ‘1’ = MHHs; ‘0’ = FHHs	-
III	YOSCHOOL	The respondent’s years of Schooling in years	+
IV	PERCEPTION	The respondents’ perception of the RSCCs’ financial viability assuming ‘1’ for ‘yes’ and ‘0’ No.’	+
V	PARTOTHER	Participation in other financial groups assuming ‘1’ for yes, and ‘0’ otherwise.	-
VI	FAMSZ	Respondent’s family size in number	+/-
VII	HHINCOME	It represents the household’s annual income	+
VIII	LANHOLSZ	It denotes the household’s land size in hectares	+
IX	LIVSZ	It identifies the number of livestock at a household level in TLU	+
X	TRUST	It denotes the level of women’s trust in the RSCCs and its management; 1 yes; 0, otherwise.	+
XI	DIST	Distance of the local RSCCs in minutes	-

3.7.2. Determinants of participation intensity in the RSCCs

Response/ Dependent variable

In this study, women’s intensity of participation was described categorically as ‘high,’ medium and low’ participation status. The study adopted the proxy of participation developed by Esayas and Gecho (2017) that includes the frequency of participation in organizational planning, participation in decision making process, approving implementation plan, availing for the training and education, availing saving and credit services, and participation in voting and election. The frequency counts for each of the participation index (PI) were 3=regularly, 2=sometimes, 1=rarely, and 0=Never.

Although categorization of the participation status was motivated by the work of Esayas and Gecho (2017), there is a difference in the cutting points. Similar to this study, the maximum attainable participation score for the study conducted by Esayas and Gecho (2017) was 18. Yet they categorized women's participation status in to low, medium and high using the cutting points of 0-3, 4-8 and 9-12 respectively because there was no respondent who excel 12 in their participation score. In this study, however, there were respondents whose participation reached 18. Therefore, the respondent whose participation score lies between 0-6, 7-12, and 13-18 were categorized as low, medium, and high participation status respectively.

Independent/ Predictor variables

I. Age of a woman respondent (AGE): It is considered that age is an important variable in influencing the intensity of women's participation in in the RSCCs. Richards et al (1998) suggested that the younger members concerned more about the expected gain from their membership in cooperatives, and they are also risk-seeking and ambitious in their membership in the cooperatives. However, older members value non-material gain and they often tend to halt risks and exaggerate the cost of failure to attend the activities in the cooperatives (Jusilla et al, 2012). Therefore, we hypothesized a positive relationship between age and women's intensity of participation in the RSCCs.

II. Household Type/ Marital status (MARSTAT): It identifies women's marital status in terms of whether they are from the MHH or FHH represented by '1' and '0' respectively. It was believed that FHHs tend to bear more household responsibilities. They might also have more freedom for mobility and choice (Muluneh *et al*, 2016). Therefore, the hypothesis was that marital status negatively influence women members' intensity of participation.

III. Years of schooling of a woman respondent (YOSCHOOL): It identifies the years of schooling among the respondents. More schooled women are considered to have the ability to critically analyze of the benefits that intensity of participation has for her and for her family (Muluneh *et al*, 2016).Therefore, it was hypothesized that more schooled women have a higher probability of joining the RSCCs.

IV. Trust level of a woman respondent (TRUST): It identifies a woman's trust level and it was represented by '1' and '0' in case a woman trusts the RSCCs and its managing body or otherwise, respectively. Women who trust the RSCCs and its managing committee are more likely actively engage in the RSCCs affairs. Therefore, the hypothesis was that trust can positively influence women intensity of participation in the RSCCs.

V. Perception (PERCEPTION): It identifies whether a respondent assumes that the RSCCs are financially viable or not and it was represented by '1' and '0' respectively. Perception of the RSCCs' financial viability increases the likelihood of women to actively engage in the RSCCs affairs. Hence, it was hypothesized that perception of the RSCCs' financial viability positively related with women'' intensity of participation in the RSCCs.

VI. Participation in other financial groups (PARTOTHERS): It identifies whether or not a woman respondent participates in other financial group in the *kebele* and it was represented by '1' for yes and '0' for otherwise. Since participation in other financial organization often put women in the time opportunity cost, it can reduce the probability of their active participation in the RSCCs (Ayele, 2014). Hence, the PARTOTHERS was expected to negative related with women's intensity of participation in the RSCCs.

VII. Family size (FAMSZ): It identifies the maximum number of family members at the household level comprising the respondent. Family size can either positively or negatively affect women's intensity of participation in the RSCCs. When a household has a large family size, there can another person who can over take household activities for the women (Woldu et al, 2013). The larger family size can also increase the time opportunity cost among women and that negatively affect their membership (Meinzen-Dick & Zwarteveen, 2003).

VIII. Household annual income (HHINCOME): It measures the total annual income of households in birr. Household annual income might negatively influence women's active participation due to the less significant given to the small loan and saving benefits those RSCCs can provide. Therefore, the hypothesis was that household income is negative related with the women's intensity of participation in the RSCCs affairs.

IX. Landholding size (LANDSZ): It measures the total arable farm land of women households in hectare. Woman accessing a larger land was expected to participate more in the RSCCs because of the larger gains they would expect from their intensity participation (Selhausen, 2015).Therefore, it was hypothesized that landholding size positively influence women's intensity of participation in the RSCCs affairs.

X. Livestock Size (LVSZ): It measures the livestock size of households in TLU. It was hypothesized that women whose household endow large livestock population might incline more towards participation because of the expected benefits in terms of purchasing small ruminants (Ayele, 2014).

XI. Distance of the RSCCs (DISTANCE): It measures the time taken to reach the RSCCs in minutes. It is considered that if the RSCCs found nearby the residence of women, it can encourage to intensely participate in the RSCCs affairs (Ayele, 2014; Dayanandan, 2016).Therefore, the hypothesis was that the distance can negatively influence women's intensity of participation in the RSCCs

XII. Duration (DURATION): It captures the years of women's membership in the RSCCs. According to Jusilla et al (2012), a long serving member in the RSCCs might have dedicated themselves to the cooperatives to get the benefit it can provide. Therefore, the expectation was a positive relation between duration and the intensity of participation.

XIII. Group Size (GROUP SZ): It captures the number of members in the RSCCs. According to Olson (1965) group size negatively related with women's intensity of participation in the RSCCs since the larger group size make it difficult to directly involve in the RSCCs affairs. Therefore, it was expected that group size negatively influences women's intensity of participation in the RSCCs.

XIV. Capital (GROUPCAP): It captures the total money amount deposited in the RSCCs. The group capital is the source of credit service for the members. Hence, the higher capital deposit, the better it is for women's intensity of participation. Therefore, we expected that there could be a positive relationship between the group capital and women's intensity of participation in the RSCCs.

Table 7: Summary of variable definitions and the hypothetical relations

Yi	Variables Intensity of Participation	Description of variables '0' for low, '1' for medium, and '2' for high intensity of participation among the women members.	Expected sign Dependent Variable
I	AGE	Respondents age in number	+/-
II	MARSTAT	Marital status explains whether a woman is from a MHH or FHH represented by '1' and '0' respectively.	-
III	YOSCHOOL	The respondent's years of Schooling in years	+
IV	TRUST	It denotes the level of women's trust in the RSCCs and its management represented by '1' and '0' for yes and otherwise respectively.	+
V	PERCEPTION	The respondents' perception of the RSCCs' financial viability assuming '1' for high perception and '0' otherwise.'	+
VI	PARTOTHER	Participation in other financial groups assuming '1' for yes, and '0' otherwise.	-
VII	FAMSZ	Respondent's family size in number	+/-
VIII	HHINCOM	It denotes the household's annual income	-
IX	LANHOLSZ	It identifies the land size of respondents and their households.	+
X	LIVSZ	It measures the total livestock size of respondents in TLU.	+
XI	DISTANCE	Distance of the local RSCCs in minutes	-
XII	DURATION	Duration is the number of years women became member of the RSCCs.	+
XIII	GROUPSZ	It denotes the members number in the RSCCs .	-
XIV	GROUPCAP	It is the capital of the cooperative group measured in total birr.	+

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1. Results of the descriptive statistics

4.1.1 Characteristics of the respondents

This section provides the description of respondents. It also applies the t-test and chi-square tests to examine the statistical variation between the members and non-members of the RSCCs.

4.1.1.1 Individual characteristics of the sample respondents

4.1.1.1.1 Age of the respondents

Age is one of the most important variables that can influence women's membership in the RSCCs. The sample respondents were 34.89 years old on average with the standard deviation of 6.38 (Table 8). The average age of the member and non-member respondents were 34.89 and 33.40 years with the standard deviation of 6.70 and 6.17 respectively. The statistical result shows that the variation between the members of the RSCCs and their counterparts were significant at 1%.

4.1.1.1.2 Schooling years of the sample respondents

Schooling years is related with women's critical thinking which has implication for their membership in the RSCCs. The survey result shows that the respondents' mean of schooling years was 2.95 years with the standard deviation of 2.20 (Table 8). The members schooled for about 3.63 years on average with the standard deviation of 2.27 which is significantly different at 1% significance level in comparison to the non-members as the latter group schooled only for 2.43 years on average with standard deviation of 2.05.

Table 8: Summary of the descriptive statistics for the individual characteristics (continuous variables)

Variables	Members (N= 157)		Non-members (N=205)		Total (N=362)		T-test
	Mean	SD	Mean	SD	Mean	SD	
Age (in years)	34.90	6.7	33.40	6.17	34.89	6.38	2.17**
Schooling years	3.63	2.27	2.43	2.05	2.95	2.20	5.32***

Source: own survey, 2021. ***: ** significant at 1 % and 5% respectively.

4.1.1.1.3 Household Types/ Marital Status of the respondents

About 73.8% of the respondents were from the MHHs at the time of survey period, while the non-members of RSCCs share about 79% of the total (Table 9). However, about 58.6% of the members were from the MHHs indicating that most of the non-members were from MHHs in comparison to the members. The chi-square test of the two group was significantl different at 1% probability level.

Table 9: Summary statistics of the individual characteristics (dummy variables)

Variables	Categories	Members (157)		Non-members (205)		Total (362)		Chi-square test
		No.	%	No.	%	No.	%	
Marital Status	MHH	92	58.6	162	79	254	73.8	-20.83***
	FHH	65	41.1	43	21	108	26.2	

Source: own survey, 2021. ***significant at 1%

4.1.1.1.4 Perception

Perception of the RSCCs' financial viability should be a precondition for women's membership since women join the RSCCs to maximize their utility. The dummy variable from the survey result shows that most of the respondents assumed the RSCCs is a financially viable SHG (56.6%) yet about 43.4% believed otherwise. Higher numbers of members also perceived the RSCCs' financial viability (74.5%) than the non-members (42.9%) showing a significant difference at 1%.

4.1.1.1.5 Trust

It is considered that trust is a basic instrument in membership of the social capital initiatives such as the RSCCs (Wolcook and Nyaran, 2000). As the table 10 shows more than half of the respondents (51.4%) did not trust the RSCCs and its managerial body. This percentage is shared more among the non-members (60.5%) than the members (39.5%) indicating that more members trust the RSCCs and its managerial bodies than the non-members. The chi-square test between the two groups is also significant at 1% significance level.

4.1.1.1.6 Participation in other financial groups

Participation in other financial groups may negatively influence women's membership in the RSCCs because of the opportunity cost of membership. The result from the survey shows that about 63.9% of the respondents were not participating in any other financial groups at the time of survey. However, larger numbers of non-members participate in other financial group (35.1%) in comparison to the members (20.4%). This indicates that non-members participate more in other financial institution whilst the members rely on the RSCCs only for the financial source.

Table 10: Summary statistics of the individual characteristics related to the RSCCs.

Variables	Categories	Members (157)		Non-members (205)		Total (362)		Chi-square test
		No.	%	No.	%	No.	%	
Perception	Yes	114	74.5	88	42.9	205	56.6	36.2***
	No	43	25.5	117	57.1	157	43.4	
Trust	Yes	90	57.4	71	39.5	176	48.6	44.6***
	No	67	42.6	134	60.5	186	51.4	
Part. in other FI	Yes	32	20.4	98	47.8	130	35.1	-29.05***
	No	125	79.6	107	52.2	232	63.9	

Source: Own survey, 2021. ***Significant at 1%.

4.1.2 Household Characteristics of the Respondents

4.1.2.1 Family size

As women are primarily responsible for their family, their membership in the RSCCs might be influenced by their family size. The result of the survey (table 11) revealed that the mean family size of the respondents was 5.79 with 1.80 standard deviation which is higher than the average family size in rural Ethiopia (4.6) (CSA, 2017).The members of the RSCCs had higher and significant difference with the non-members (5.85 with the standard deviation of 1.70) at the probability of 1%.

4.1.2.2 Land size

The researcher hypothesized that women may not know the exact size of the household because, in most cases, their male counterparts own and process the land. Accordingly, we insisted the sample respondents to guess their households' total land size. The average land size of the respondents was 1.55 ha on with the standard deviation of 0.83 (Table 11). The difference

between the members and non-members is also significant at 1% significance level as the members' households owned 1.72 ha of land on average in comparison to 1.26 ha of the non-members with the standard deviation of 0.83 and 0.8 respectively.

4.1.2.3 Livestock size

In this study, the researcher solicited the respondents to guess the livestock of their household and it was summarized in TLU. Accordingly, the respondents state that they have 2.57 TLU on average with1.54 standard deviation. The members had a higher livestock (2.85 TLU) with the standard deviation of 1.3 which is statistically significant in comparison to the non-members (2.57 TLU).

4.1.2.4 Annual income

As any other household resource, the researcher insisted the respondents to guess their households' annual income of the previous year. The estimation made by the respondents was about 12,080.60 birr annually with standard deviation of 4331.50 on average. While the members had 13,370.00 birr with a standard deviation of 6399.61 the previous year, the nonmembers owned about 10,790.2 birr with the standard deviation of 2499.90. The statistical test shows that the household's annual income is significantly different at 1% significance level.

Table 11: Summary statistics for household characteristics (continuous variable).

Variable	Members (N=157)		Non-members (N=205)		Total (N=362)		t-test
	Mean	SD	Mean	SD	Mean	SD	
Family Size	5.85	1.70	5.53	1.84	5.79	1.80	1.88*
Land size	1.72	1.03	1.26	0.8	1.55	0.83	3.34***
TLU	2.85	1.25	2.52	0.97	2.57	1.54	0.7***
HH Income	13370.7	6399.61	10790.2	2499.9	12,080.60	4331.5	19.81***

Source: own survey, 2021. ***; * Significant at 1% and 10%.

4.1.3 Institutional characteristics of the respondents

4.1.4.1 Distance to the RSCCs.

The result from the survey shows that the members had to walk about 30.74 minutes on average but it took non-members about 28.733 minutes to reach the nearby RSCCs office.

Table 12: sample respondents distance to the closest RSCCs

Variable	Members (N=157)		Non-members (N=205)		Total (N=362)		t-test
	Mean	SD	Mean	SD	Mean	SD	
Distance	30.75	9.29	28.33	6.87	29.54	8.08	-5.43*

Source: Own survey, 2021.

4.1.2 Overview of the descriptive statistics for the intensity of participation in the RSCCs

4.1.2.1 Influence of the individual factors on the women member's intensity of participation

Age, years of schooling, and membership duration was described as the continuous individual factors. The respondents were 34.90 year old on average with the standard deviation of 6.37. Table 13 shows that members from the lower participation category were younger than the medium and higher category participants. The mean schooling years among the participants was 3.63 years and it increases as the degree of participation increases (Table 13).

Membership duration also increases with the increasing participation category of women respondents from 6.7 years with the standard deviation of 2.99 for low category participants to 8.63 average years with the standard deviation of 2.57 for higher participation category respectively which was significantly different at 1% probability level.

Table 13: Summary statistics for the individual factors affecting women's intensity of participation (continuous variables)

Variables	Categories of participation intensity								F-test
	Low (35%)		Medium (40%)		High (25%)		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Age	32.49	6.00	34.43	5.55	36.49	7.56	34.90	6.37	1.00***
Schooling/yr	1.58	2.3	4.94	2.55	3.68	2.86	3.63	2.27	22.38 ***
Duration	6.7	2.99	8.18	3.66	8.63	2.57	7.86	3.21	5.1***

Source: Computed from own survey, 2021. *** Significant at 1%.

On the other hand, the chi-square test shows that there is a significant relationship between participation intensity, marital status, and participation in other financial institution at 1% significance level.

The number of FHHs increased as the participation categories increase from low to high in comparison to the MHHs that decline along the participation categories. The chi-square test of women in the three categories show that there is a significant diffenece at 1 % significance level. Likewise, trust and perception showed a statistically significant at 10% significance level ($t=7.4$; $p<0.1$; $t=2.46$; $p<0.1$, resepctively). The statistical test for the participation in other FI also whosed a significant difference at 1% significance leve ($t=-1.73$; $p<0.01$).

Table 14: Summary statistics for the individual factors affecting women's intensity of participation (dummy variables)

Variables	Response	Categories of participation intensity								Chi-square test
		Low (35%)		Medium (40%)		High (25%)		Total		
		No.	%	No.	%	No.	%	No.	%	
Marital status	MHH	50	83.6	25	47.6	17	41	92	58.6	-3.14***
	FHH	5	14.4	38	52.4	22	59	65	41.4	
Trust	Yes	42	76.4	31	49.2	17	43.5	90	57.4	7.4 *
	No	13	23.6	32	50.8	22	56.5	67	42.6	
Perception	Yes	41	40	30	79.4	22	43.5	92	58.6	2.46 *
	No	14	60	33	19.6	18	56.5	65	41.4	
Part. in other FI	Yes	5	9.1	7	11.2	20	51.3	32	20.4	1.73***
	No	50	90.1	56	88.8	19	48.7	125	79.6	

Source: Computed from own survey, 2021. ***, * Significant at 1% and 10%.

4.1.2.2 Influence of the household factors on women members' intensity of participation

The descriptive statistics compute the family size, land holding size, livestock size and household annual income in terms of their influence on women's intensity of participation in the RSCCs. Table 15 reveals that the women members based on their intensity pf participation were significantly different in terms of the average family size and land size were statistically significant difference at 1% probability level.

Table 15: Summary statistics of the household factors influencing women's intensity of participation (Continuous variables)

Variables	Categories of participation intensity								F-test
	Low (35%)		Medium (40%)		High (25%)		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Familysz	6.29	2.05	5.7	1.36	5.45	1.46	5.85	1.63	-4.3***
Land sz	1.77	1.02	1.85	0.94	2.13	1.14	1.95	1.03	2.96***
TLU	3.05	1.2	2.68	1.42	2.78	1.12	2.85	1.25	1.19
Income	13,456.9	3601.25	13,545.45	2964.33	13,206.42	1,601.25	13,445.7	6,399.61	1.04

Source: Computed from own survey, 2021. *** significant at 1%

4.1.2.3 Influence of the institutional factors on the women members' intensity of participation in the RSCCs

Distance, group size and group capital constitute the institutional variables for the analysis of relationship between household factors and the intensity of participation in the RSCCs. As shown below (in the table 16), distance and intensity of participation were negatively related. As the intensity of participation increases from the lower participation group to a higher, distance decreases. The mean difference among the participation intensity groups based on their distance to the local RSCCs is significant at 1% probability level (F=4.75; P=0.000).

In contrast to the distance, group size and capital increases as the participation category increases from the lower group to higher. The computed F-test also shows that the average of the groups' size is significantly different among the three participation categories (F=15.85; P=0.000). On average, the members had 235,736.5 birr with the standard deviation of 168,621.4. The F-test shows the mean capital amount among the three participation group is also significantly different at 1% significance level (F=16.3;P=0.000)

Table 16: Descriptive statistics for the institutional factors affecting women's intensity of participation in the RSCCs

Variable	Categories of participation intensity								F-test
	Low (35%)		Medium (40%)		High (25%)		Total		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Distance	33.8	12.08	31.29	11.3	27.05	10.0	20.3	9.29	4.75***
Group sz	89.65	11.14	108.12	45.9	138.5	48.4	112.1	35.17	15.85***
Capital	143,749.5	131,096.6	220,895.3	182,640.3	342,564.8	192,127.7	235,736.5	168,621.4	16.3***

Source: Computed from own survey, 2021. *** Significant at 1 % level .

4.1.3 Descriptive statistics for women empowerment

As it is shown on table 17, the mean empowerment score of the members is significantly higher than the members at 1 % significance level (t=87.9; p=0.000). The average mean score of the members was 0.538 with the standard deviation of 0.115. The non-members scored an empowerment about 0.459 on average with the standard deviation of 0.0085. The mean empowerment score of the members is significantly different in five domains including the production, resources, leadership and financial literacy.

Table 17: Descriptive statistics for the WEAI

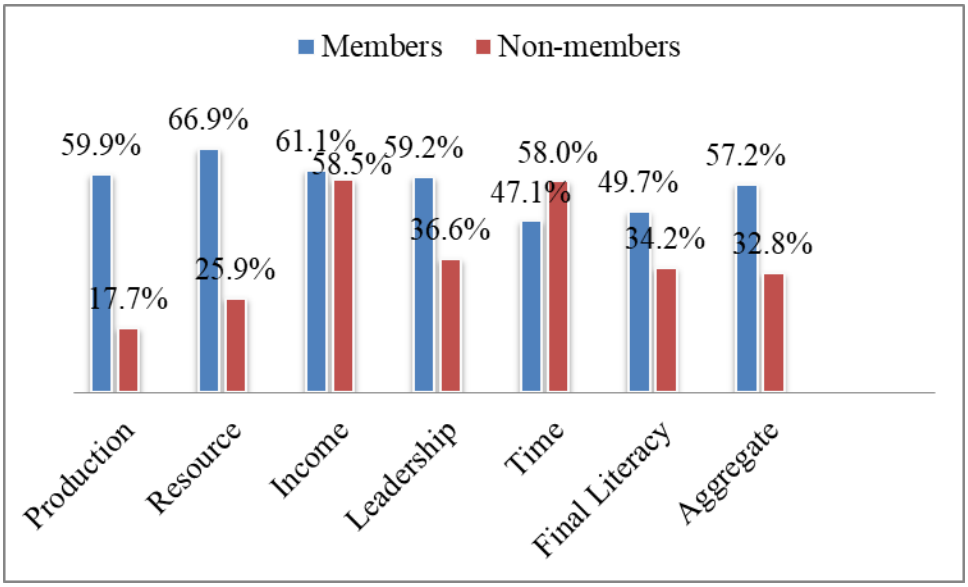
Empowerment Domains	Members (N=157)		Non-members (N=205)		Total (N=362)		t-test
	Mean	SD	Mean	SD	Mean	SD	
Production	0.487	0.127	0.385	0.975	0.435	0.123	7.07***
Resources	0.539	0.172	0.388	0.132	0.454	0.168	8.9***
Income	0.539	0.211	0.533	0.197	0.536	0.204	-0.293
Leadership	0.539	0.246	0.391	0.179	0.449	0.221	4.659***
Time	0.541	0.283	0.618	0.300	0.585	0.295	-2.46**
Financial Literacy	0.637	0.292	0.429	0.289	0.534	0.314	6.79***
Total	0.538	0.115	0.459	0.085	0.494	0.106	87.9***

Source: Computed from own survey, 2021. ***; * *significant at 1% and 5%.

In addition to the continuous description of the women empowerment, this study also identified women empowerment as a binary variable. The study employed two mechanisms to designate women respondents as empowered or not. First it categorized women who scored 50% in each of the index as empowered. Yet, their aggregate empowerment happens only after they secure empowerment in 80% of the index.

As fig 4 shows, on aggregate, about 57.2% of women members of RSCCs were empowered and that is higher than the number of empowered non-members (32.8%). While most of the women members were empowered in the resource dimension of the WEAI (66.9%), they are least empowered in their time agency (47.1%). In contrary, most number of non-members were empowered in the time and income dimensions (58% and 58.5% respectively), but the production domain is the least empowering dimension for the non-members (17.7%).

Figure 3**:** Distribution of empowerment status the respondents



Source: Computed from own survey, 2021.

4.2 Determinants of women membership decision in the RSCCs: Estimation Result

The first objective of the study was to assess the determinants of women's membership decision in the RSCCs. Although the study relies more on the quantitative finding, the qualitative results were included to support the triangulation and to test the hypothesis of study.

We addressed the Multicollinearity concern through the VIF AND CC statistical methods. We found that the mean VIF was 1.31 and there was no CC above 0.75 among the computed dummy predicting variables (see appendix). As we confirmed the variables did not show any Multicollinearity problems, we employed the binary logistic model to estimate the determinants of membership decision in the RSCCs. The fig 18 below presents the findings.

The chi-square from the model result (X2 (11) = 139.20; P=0.0000) indicates the overall goodness of the logistic model at the probability of less than 1%. The Pseudo R-square value of 0.2810 is good for the cross-sectional data (Belete, 2016). The model classification also ascertained the goodness fit of the model where 75.4 percent of the respondents were correctly classified.

Table 18: Estimation results of the binary logistic regression model

Variables	Coefficient	Stan.Error	Dy/dx
AGE	.021	.023	.005
MARSTAT	-.756**	.295	-.186
YOSCHOOLING	.268***	.063	.065
TRUST	1.081***	.271	.255
PERCEPTION	.799***	.288	.188
PARTOTHERS	-.905***	.293	-.213
FAMSZ	-.008	.070	-.002
LANDHOLDSZ	1.248***	.309	.303
LIVSZ	-.498	.310	-.121
HHINCOME	.0002****	.000	.000
DISTANCE	.011	.011	.003
Constant	-5.798***	1.041	

Number of obs = 362; LR chi2(11) = 139.20; Prob > chi2 = 0.0000; Log likelihood = -178.12735; Pseudo R2 = 0.281; ***P < 0.01; **P < 0.05.

Source: computed for own survey, 2021.

The result shows that out of eleven predicting variables, seven of them significantly influence women's membership decision in the RSCCs. The result discloses that marital status, years of schooling, trust, perception, participation in other FI, and household characteristics such as land

size and annual income significantly determine women's probability of membership decision in the RSCCs. Other computed predating variables such as age, family size, livestock size, and distance did not show any influence in women's membership decision. While the marital status and participation in other FI negatively affected women's membership decision, years of schooling, trust, perception, land size, and annual income positively influenced women's probability of joining the RSCCs.

Household Type/ Marital Status (MARSTAT): As expected, respondents' marital status was found to negatively and significantly (Coef=-0.756, p=0.10) influence women's membership in the RSCCs. The estimated marginal effect shows that the probability of women from the MHHs joining the RSCCs is 18.6% lesser than the FHHs, keeping other covariates remain constant. In comparison to the women from the MHHs, the study result shows that the probability of the FHHs joining the RSCCs higher. The result from the FGD reflects this finding. It was stated that the FHHs immensely join the RSCCs as they bear more responsibilities at the absence of their husband to fulfill their agricultural and children related duties.

Years of schooling (YOSCHOOL): It was hypothesized that years of schooling boosts women's networking skills to initiate RSCCs establishment or to join the existing RSCCs. The hypothesis has worked out and the schooling years is found to positively and significantly influence women's membership in the RSCCs (Coef=0.268; p=0.000).The marginal effect of 0.065 implies that a year of schooling increases the probability of women joining the RSCCs by about 6.5%, keeping other factors remain constant.

Similarly, the data from the FGD and KII reckon the importance of schooling years in the women's RSCCs membership. For instance, one of the KIIs asserted that:

"We provide trainings for the local people to help them get awareness regarding the benefit of membership in the RSCCs. We share the requirements and members responsibilities up on joining the RSCCs. However, we consider that more educated farmers, women included tend to join the RSCCs in comparison to the other illiterate farmers.''

The information from the KII demonstrates the importance of education for women in the tendency of joining the RSCCs in comparison to the less educated women.

Trust (TRUST): As expected, the logistic regression result shows that the trust of the RSCCs had a positive and significant (coefficient=1.081, p=000) effect on women's probability of joining the RSCCs. A marginal effect value of 0.255 indicates that having a trust on the RSCCs and its managing bodies increase the membership by about 25.5%, keeping other covariates remain constant.

The participants in the FGD and KII also illustrate the importance of trust towards the RSCCs and its managing bodies in influencing women's membership in the RSCCs. The finding from the FGD depicted that women did not join the RSCCs since it was considered as the government institution that is often used by the government for its own end goals. This cause distrust among the women towards the RSCCs that potentially affected their ability of joining the RSCCs.

Perception (PERCEPTION): The study hypothesized that the perception of the RSCCs' financial viability could positively influence women's probability of membership in the RSCCs. The result from the logistic regression goes in line with the hypothesis and it was revealed that the perception positively and significantly determine women's membership in the RSCCs (coeff.= 0.799; p=0.000). The marginal effect of 0.188 indicates that having a positive perception of the RSCCs for its financially viable institution increase the probability of joining the RSCCs by about 18.8% in comparison to the contrary perception, while keeping other factors remain constant.

The result from the FGD and KII was in line with the quantitative results. An example was highlighted by one of the KIIs. He explained that:

''..It is known that RSCCs is a saving first financial institution. A relatively higher interest rate is also charged in their credit provision service. I think, these characteristics of the RSCCs might discourage women membership decision in the kebele level RSCCs…''

The information from the KII shows that the operation style of the RSCCs influences women's perception of the RSCCs which halt their membership.

Participation in other FI (PARTOTHERS): Besides the RSCCs, several other types of informal FI operates in the rural areas. The study hypothesized that participating in one of these

FI can negatively influence women's membership in the RSCCs. As expected, the study revealed that participation in other FI negatively and significantly influence women's probability of joining the RSCCs at 1% probability level (coef=-0.93; p=000). In addition, the marginal effect value of -21.3 indicates that the probability of participants in other FI to decide in favor of joining the RSCCs is lesser by 21.3% when it is compared with non-participants, keeping other variables constant. The data from the KII and FGD attest the quantitative findings highlighting that participation in other financial institution influence the probability of women's membership in the RSCCs.

Household Land-Holding Size (LANDHOLDSZ): In line with the hypothesis and expectation, the result we got from the binary logistic regression model shows that the land size positively and significantly influence women's probability of joining the RSCCs at 1% probability level (coeff=1.248; p<0.001). The marginal effect of 0.303 indicates that a hectare increase in the land size increases the probability of women joining the RSCCs by 30.3%, keeping other variables constant. This finding was corroborated by the qualitative data of the study and it was alleged that membership often requires a better off households.

Household Annual Income (HHINCOME): As we expected, the study results show that the household income is positively related with women's probability of joining the RSCCs. As expected, the household's annual income was found to positively and significantly influence women's membership in the RSCCs at lesser than 1% probability level (coeff=1.248; p=0.000). The data from the FGD and KII supports the quantitative findings illustrating that women's household income is important in enhancing women's membership in the RSCCs since the membership requires the women to buy shares up on their registration for membership.

4.3 Determinants of women's intensity of participation in the RSCCs: Results

We employed the ordered logistic regression model to identify the determinants of women's intensity of participation in the RSCCs. We addressed the Multicollinearity concern by checking the variables via VIF and CC for the continuous and binary variables. The result from the VIF test expose that the group size and capital of the RSCCs had a Multicollinearity problem. Hence, one of the variable i.e group capitals was dropped because of the larger VIF value.

After dropping the group capital, VIF value was adjusted to be 1.19. In addition, the CC value also shows that trust and perception were collinear with value of higher than 0.83. Therefore, we dropped the variable perception to eliminate the Multicollinearity problem.

The model fitting information shows a significant correlation between the intensity of participation and covariates employed in the study (chi-square=76.33; p=0.000). Goodness of fit test of Pearson and Deviances is insignificant and we fail to reject the hypothesis as we were trying to uncover the significant probability having value of greater than 0.05(P>0.05).

The output shows that Pearson and Deviance is insignificant with chi-square=277.99; p=0.825 and chi-square=265.76; p=0.929 respectively. The pseudo R-square value of 0.394 also shows that the covariates included in the model explain about 39.4% of variations among the three categorical participation statuses. We confirmed that the statistical test fits the model well.

Table 19: Estimation results of the ordered logistic regression model

Variables	Coef.	St.Err	Odd-ratio
AGE	.092**	.039	1.094
MARSTAT	-2.316***	.525	.107
YOSCHOOL	.127*	.068	1.135
TRUST	-.255	.398	.775
PARTOTHERS	.269	.415	1.307
DURATION	.183***	.065	1.202
FAMSZ	-.351**	.135	.704
LANDSZ	.587***	.190	1.798
LVSZ	.199	.155	1.268
HHINCOME	0.00	0.00	1.000
DISTANCE	-.051**	.021	0.950
GROUPSZ	0.409***	1.629	1.042
CUT1	5.044	1.857	5.044
CUT2	8.483	1.965	8.483
Pseudo r-squared	0.394	Number of obs	157
Chi-square	.40	Prob > chi2	0.000

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

Source: computed from own survey, 2021.

The estimation result from the ordered logistic regression model demonstrates that women's intensity of participation in the RSCCs is significantly influenced by age, years of schooling, marital status, family size, land size, distance, duration, and group size (Table 19). Although marital status, family size, and distance negatively affected women's intensity of participation, age, years of schooling, land size, duration, and group size have a positive influence on women's intensity of participation. The rest of the variables including trust, participation in other financial institutions, livestock size, and annual income did not show an significant relation with women's intensity of participation in the RSCCs.

Age (AGE): As we expected, age positively and significantly determine women's intensity of participation in the RSCCs at 5% significance level (coeff.= 0.092; $P < 0.05$). The odd ratio of 1.094 indicates that other covariates remaining constant, for a unit increase in the age of women members, the log odds of being in the higher participation categories increased by about 1.094. The ordered logistic regression data was validated by FGD that explains that older women opt to actively engage in the RSCCs to avoid the risk that may result from their failure of participation.

Household Type/ Marital status (MARSTAT): As expected, the ordered logistic model revealed that women's marital status negatively and significantly influence their intensity of participation at 1 % significance level (coeff.=-2.31; p=0.000). This implies that women from the MHHs were less likely committed in the RSCCs affairs in comparison to the other women. The odd ratio of 0.107 for the marital status indicates that, keeping other covariates remain constant, for a unit increase in the married woman member, there could be 0.107 declines in the log odds of being in a higher level of participation intensity. The qualitative data have confirmed the quantitative finding. The FGD participants highlighted that the RSCCs requires FHHs to be attentive to various activities in the RSCCs to garner the important service we need from the RSCCs.

Years of schooling (YOSCHOOL): Years of schooling was hypothesized to positively relate with women's intensity of participation in the RSCCs affairs. The estimation result from the ordered logistic model shows that schooling years positively and significantly influence women's intensity of participation in the RSCCs at 5% significance level (coeff. .127; $p<0.1$). The odd ratio value of 1.135 explains that there could be a 1.135 increase in the log odds of

being in the higher level of intensity of participation for a unit increase in the schooling year while maintaining other predicting variables constant. This quantitative finding was confirmed with the qualitative data as one of the KIIs alleged the importance of women's education in enhancing their participation. He stated that:

'The intensity of participation in the RSCCs can be influenced by women's schooling years because those with more education are probably at better position to understand the importance of their regular participation in the RSCCs affairs than the others. I also believe that the more schooled women are better positioned to know that as the social organization, the RSCCs depend on members' intensive participation.''

The finding illustrates that the years of schooling increases the intensity of women's participation since it enables women to critically analyze of the importance of their participation to generate benefits.

Duration (DURATION): In line with the priori expectation, the result of the ordered logistic regression revealed that duration of membership in the RSCCs positively and significantly influence women's intensity of participation in the RSCCs at 1% significance level (coeff.=.183; $p<0.01$). The model also explained that while keeping other independent variables constant, there was a 1.202 log odd increase in favor of women being in a higher level of participation for a unit increase in the years of membership. The FGD participants also attest the importance of membership length for women's intensity of participation in the RSCCs because it enables women to adapt to the RSCCs' environment and its functioning.

Family Size (FAMSZ): This study did not identify a clear hypothesis sign for the family size in its relation with women's intensity of participation. Yet the result from the ordered logistic model revealed that women's family size negatively and significantly influence their intensity of participation in the RSCCs at 5% significance level (coeff.=-0.351;$p<0.05$). The odd ratio of 0.704 indicates for a one unit increase in the number of family size, there could be a 0.704 decline in the log odds of women being in a higher level of participation intensity, given all the other variables are held constant. The qualitative data from the FGD confirm to this finding

asserting that the larger family size gives the women members a more hectic schedule which in turn negatively affect their intensity of participation in the RSCCs.

Land size(LANDSZ): In line with the priori expectation, the result from the ordered logistic model shows that the land size has positively and significantly influenced women's intensity of participation at 5% probability level(coeff.=0.587; $p<.01$). The odd-ratio value a 1.798 increase in the log odds of being in a higher level of participation intensity for a unit increase in land size after we kept the other covariates constant. The information from the qualitative data illustrates the land size encourage women to participate in the RSCCs because of the need for financial to cover the agricultural inputs requirements. This implies that RSCCs is playing an important role in facilitating opportunities for women and their households to effectively carry out their agricultural activities.

Distance (DISTANCE): This study expected that distance would have a negative effect on women's intensity of participation in the RSCCs. In line with the expectation, the finding from the ordered logistic model confirm that distance to the nearby RSCCs negatively and significantly influences women's intensity of participation in the RSCCs at 5% probability level (coeff.-.051; $p<0.05$). The odd ratio value of 0.950 indicates that, keeping other covariates remain unchanged, for a minute increase in the distance to the RSCCs office, there was 0.950 declines in the log odds favoring women's intensity of participation in the RSCCs. The qualitative data further support the importance of distance in women's intensity of participation since the distance has implication for the cost and time.

Group Size (GROUPSZ): The group size was hypothesized to negatively influence women's intensity of participation in the RSCCs. However, our finding did not substantiate the hypothesis. We found that group size positively and significantly influence women's intensity of participation at 1% significance level (coeff. 0.409; $p<0.01$). The odd ratio value indicates that for a unit increase in the group size, there could be a 1.042 increase in the log odds of women being in higher participation intensity after we kept other covariates constant. The result from the FGD shows that the group size increases the capital base of the RSCCs. That is perhaps why the finding goes in contrary to the main theories of intensity of participation that assume large size to have a negative relation with the intensity of participation in the social capital initiatives.

4.4 The Impact of the RSCCs on women empowerment

Because of the widely shared concern for the selection bias, this study employed a more advanced impact analysis method-the PSM in evaluating the impact of the RSCCs on women's empowerment. The following section presents and discusses the steps taken to estimate the impact of the RSCCs on women empowerment.

4.4.1 Propensity score estimation

At the first step, we estimated the propensity score by using the logistic regression model. The model helps to compute the probability of membership in light with the identified covariates. We also addressed the Multicollinearity concern with the help of VIF and CC.

As depicted in the table 18 of section 4.2, women's membership decision in the RSCCs was negatively and significantly influenced by the marital status and participation in other FI and it was positively and significantly influenced by years of schooling, trust, perception, land size, and annual income positively influenced women's probability of joining the RSCCs. The model overall result was also good as attested by the result of (chi-square (X2 (11) =139.20; P=0.0000). The Pseudo R-square value of 0.2810 is also considered as good for the cross-sectional data (Belete, 2016). The relatively lower value of pseudo R-square also facilitates the operation of PSM since it indicates the reduction in the unique characteristics among the independent variables.

4.4.2 Choice of the matching algorithm

Choosing the most appropriate matching algorithms is often contested in the literature. However, there is an agreement in regards to the criteria to use to assess the matching quality regardless of the type of matching algorithm. There are four of these quality checkers including the balancing test, pseudo- R^2 values, standard bias, and matched sample size. According to Rubin's (2001), and Dehejia and Wahba (2002), the estimator that balances all of the independent variables with the lowest pseudo-R^2, lower standard bias than 25 while consisting of the largest sample size is a preferable matching algorithm. We assessed the four matching estimator by checking and changing their bandwidths and trim levels as depicted on the following table.

Table 20: Analysis of the matching algorithms

Matching algorithm	Performance Criteria			
	Balancing Test	Pseudo R^2	B	Matched sample size
Nearest Neighbor				
N=1	9	0.013	26.7*	321
N=2	8	0.013	26.7*	324
N=5	11	0.006	28.7*	321
Calipher				
0.01	8	0.020	33.3*	304
0.025	10	0.013	26.7*	321
0.06	11	0.013	26.7*	321
Kernel				
Band width 0.01	10	0.09	22.4	304
Band width 0.025	11	0.011	24.4	321
Band width 0.06	11	0.010	24.0	321
Radius Calipher				
0.01	9	0.08	21.2	304
0.025	11	0.011	24.4	321
0.06	11	0.010	23.3	320

* if B>25%

Source: Own computation, 2021.

The result shows that Kernel Matching (with band width 0.06) and radius matching (0.06) satisfied the criteria discussed above. But the Kernel (band width 0.06) had more of the matched sample with one unit difference with the radius calipher (0.06). Hence, this particular study employed kernel (with band width 0.06).

4.4.3 Common support region

The mean propensity score for the women respondents was 0.4387105 while the minimum and maximum propensity score ranging between 0.0077, and 1. The minimum and maximum propensity scores of the members and non-members were found between 0.025-1 and 0.0077-0.853, respectively. The Stata dropped those observations that are lesser the minimum and higher than the maximum propensity score of the members and vice versa (Caliendo and Kopeinig,

2008). Therefore, the common support region lies between 0.0248264 and 0.8531347 (Table 21); and any women household that was found out of this region was not included for matching.

Table 21: Distribution of Estimated Propensity Scores

Groups	Obs	Mean	Std. dev.	Min	Max
Total HH	362	0.4387105	.284408	0.0076675	1
Treated	157	.6271783	.2629492	.0248264	1
Control	205	.2943717	.2049244	.0076675	.8531347

Source: Computed from own survey data (2021)

4.4.4 Testing the balance of propensity score and covariate

After choosing the appropriate matching algorithm (which in our case is Kernel band width of 0.06), the next procedure is to check the balance of propensity score and covariates. We assessed the strength of the procedures we went through by applying the t-test and the standard bias for the matched and unmatched women respondents.

The result from table 22 shows that the standard bias before matching ranges between 15.6%-65.3%. However, after matching, the computed explanatory variables' standard bias lies between 1.6% -9.6% which is below 25% -the critical level cutoff point of 25% (Rubin, 2001).

Table 22: Propensity score and covariate balance

Variables	Unmatched /Matched	Mean Treated	Control	% reduction Bias	|bias|	T-test T-value	P>|t|
	U	34.885	33.405	22.8		2.17**	0.031
AGE	M	34.267	34.162	1.6	92.9	0.13	0.897
	U	.65605	.79024	-30.2		-2.88***	0.004
MARSTAT	M	.72414	.76684	-9.6	68.2	-0.74	0.458
	U	3.6306	2.4341	55.9		5.32***	0.000
YOSCHOOL	M	3.2845	3.3824	-4.6	91.8	-0.35	0.727
	U	.70064	.41463	60.0		5.63 ***	0.000
TRUST	M	.63793	.64963	-2.5	95.9	-0.19	0.853
	U	.74522	.53659	44.4		4.15 ***	0.000
PERCEPTION	M	.72414	.76801	-9.3	379.0	-0.77	0.445
	U	.29936	.47805	-37.2		-3.49 ***	0.001
PARTOTHERS	M	.30172	.34106	-8.2	78.0	-0.64	-0.523
	U	5.8471	5.5366	15.6		1.44	0.150
FAMSZ	M	5.6552	5.6865	-1.6	89.9	-0.12	0.904
	U	1.7156	1.2643	65.3		6.34 ***	0.000
LANDSZ	M	1.4724	1.4829	-1.5	97.7	-0.13	0.897
	U	1.4522	1.1785	44.5		4.24 ***	0.000
LIVSZ	M	1.3815	1.3469	5.6	87.4	0.41	0.684
	U	13370	10790	53.1		5.27 ***	0.000
ANNUAL INCOME	M	11954	11648	6.3	88.2	0.80	0.423
	U	30.745	28.327	20.4		1.92 **	0.056
DISTANCE	M	30.026	30.475	-3.8	81.4	-0.29	0.774

The low Pseudo R^2 (Table 23) confirm that both the members and non-members had an equally distributed explanatory variables. The result shows that balancing the individual, household and institutional characteristics of both the members and non-members were sufficiently attained. Therefore, we can conclude that we had an excellent matching that enables us to estimate the impact of RSCCs on the outcome of the interest.

Table 23: Chi-square test for the joint significance

Sample	Pseudo R^2	LR Ch^2	p> Ch^2	Mean Bias	Median Bias	B	R	Var
Unmatched	0.279	138.33	0.000	40.9	44.4	124.4*	2.32*	43
Matched	0.010	3.34	0.983	4.8	4.6	24.0	0.90	29

* if B>25%, R outside [0.5; 2]

4.4.5 Estimating the impact of RSCCs on women empowerment

The following table 24 reports the results of PSM estimation by using the Kernel band width of 0.06. Based on the estimation, members of the RSCCs had a 9.9% more empowerment score than the non-members. This indicates that membership in the RSCCs had a positive and significant impact on women's empowerment measured.

Table 24: PSM estimation result of RSCCs' impact on women empowerment

Variable	Sample	Treated	Controlled	Difference	S.E	T-stat
WEAI	Unmatched	.552586197	.457472617	.095113581	.010554482	9.01
	ATT	.555775187	.458777779	.098501885	.015487832	6.36

Source: Computed from own survey data (2021)

The estimation of PSM has been corroborated with the qualitative data on hand. The FGD and KII both illustrated the important roles the RSCCs was playing to enhance women's decision making abilities. Particularly, the FGD participants highlighly praise the importance of RSCCs in in enabling them make an important agricultural decisions which was traditionally considered as the men's main responsibilities. They also illustrate the role RSCCs was playing to take up new social roles, and financial computation abilities.

4.4.6 Sensitivity analysis

We have conducted the sensitivity analysis to check whether or not the estimation made is sensitive to the unobserved and hidden bias. We found the lowest critical value (Γ) including

zero on 3.6 (95% confidence interval), and 6.6 of the Hodges-Lehmann point. The hidden bias magnitude shows that the results of significant differences between the members and on-members of the RSCCs on their empowerment are insensitive to hidden biases. Therefore, we concluded that the positive empowerment impact of the RSCCs resulted only women's participation in the RSCCs.

Table 25: Sensitivity analysis for the estimation of empowerment impact of the RSCCs

Outcome variable	Gamma*	Significance level		Hodges-Lehmann point estimate		Confidence interval (95%)	
WEAI		Upper bound	Lower Bound	Upper bound	Lower bound	Upper Bound	Lower bound
	1	3.1e-12	3.1e-12	.09303	.09303	.073278	.11712
	2	.000034	0	.057799	.131605	.032386	.159906
	3	.005541	0	.035735	.154309	.00898	.184804
	3.1	.00758	0	.034564	.156264	.007342	.187162
	3.2	.01014	0	.033364	.158822	.005957	.189019
	3.3	.013291	0	.031974	.16033	.004225	.191877
	3.6	.026951	0	.027202	.164257	**-.000377**	.196531
	4	.056903	0	.021547	.170703	-.006378	.200077
	5	.194567	0	.011533	.182411	-.019988	.214368
	6	.38929	0	003873	.192127	-.028553	.225002
	6.1	.409522	0	.00285	.193026	-.029483	.226811
	6.6	.508299	0	**-.00019**	.19632	-.032565	.23139

* - gamma (Γ) - log odds of the unobserved factors
Note: values in the bold shows the lowest critical values consisting of zero.
Source: Stata output

4.5 Discussions

Membership in the RSCCs is the first requirement for women to be able to benefit from the RSCCs. One of the reasons for joining the RSCCs is attributed to maximizing the utility. This study attests this theoritical perspective. It was found FHHs immensely join the RSCCs to fulfill their responsibility as the heads of the households at the absence of men. Literature shows that the FHHs are often constrained to meet the collateral requirement of the formal financial sector (Haddad *et al,* 2001). Haddad *et al (*2001) explain that the FHHs also fear the risk of taking the credit service from the formal FIs due to lack of a backup resources. The finding is line with the previous related studies by Woldu and Tadesse (2015); Dyadan(2016); and Zemene(2014) that reported the overwhelming membership of the FHHs in the cooperatives in comparison to their counterparts.

The study found that trust and perception matter for women to join the RSCCs. According to Wolcook and Nyaran (2000), trust plays an important role in influencing women to join the social capital activities like the RSCCs. By implication, the distrust towards the RSCCs might negatively influence women's probability of joining the RSCCs. The finding is supported by the literature related to the history of cooperatives in Ethiopia. According to Getnet and Tsegaye (2012), historically, cooperatives were the government institution that used them to advance its own agenda. This ignites the farmers to experience distrust towards membership.

Perception of the RSCCs in terms of its financial viability was also found to matter in women's ability of joining the RSCCs. It is known that the RSCCs is a saving-first FI which has implication for the interest rate while providing the credit service. In addition, the perceived amount of the credit women access in their membership might influence their attitude towards the RSCCs. Therefore, the finding imply that there should be an intervention to change women's perception towards the RSCCs so that the can benefit rom the RSCCs service in the long-term.

The study futher illustrated the significant negative effect of participation in other FI on the probability of joining the RSCCs. The time and cost of participation in other FI negatively influenced women's probability of joining the RSCCs in comparison to others who depend only on the RSCCs to fulfill their financial needs in the agriculture.

Women with more schooling years significantly join the RSCCs in comparison to the others. Similar findings were reported by Woldu and Tadesse (2015), Dyadan(2016); and Idrissa *et al* (2007) stating that the schooling years positively and significantly influence women's cooperatives membership with the statistical values of 5% and 1% significance level, respectively. The finding of this study implies that RSCCs by-pass the less educated rural women of the study area. Therefore, there is still a way to go to ensure the all-inclusive membership nature of the RSCCs towards rural women.

Resources indicators such as household land size and income were found to significantly influence women's membership in the social capital initiatives since they are assumed to be valuabe for the social capital initiatives (Bekker, 2004). The finding is consistent with the study of Mohapatra and Sahoo (2016) which revealed the importance of households' large land in promoting women's membership in the SHG in Nigeria at 10% significance level. They also observed a positive and significant effect of household's income on women's membership SHG in Nigeria at in Nigeria (Mohapatra and Sahoo, 2016). The implication of this finding is that RSCCs are not yet inclusive towards the asset poor women households.

Women's commitment is another important issue for women to be able to sustainably benefit from the RSCCs (Jussila *et al*,2012). The study found that age significantly determine women's probability to intensely participation in the RSCCs affairs. The finding of the study is consistent with the utilitarian approach of the members' commitment in the cooperatives. According to Jusilla et al (2012), older members of the cooperatives often intensively engage in the cooperatives they often tend to avoid the risk, and they exaggerate the cost of membership and the related cost in attempt to be familiar with the new organizations. The FHH was also found to intensely pariticipate in the RSCCs in comparison to the RSCCs. Despite the lower membership of the women from the MHHs, their commitment and intensity of participation is still lower than the FHHs. Therefore, it might be important to capacitate the women from the MHH on their commitment participation in the RSCCs.

Years of schooling also positively influenced women's intensity of participation in the RSCCs affairs since such women were better positioned to understand the importance of their regular participation in the RSCCs affairs. Similar finding was reported by Esayas and Getcho (2017)

that highlighted the importance of women's schooling years for their active cooperative participation in the Wollaita zone of Ethiopia. According to Bekker (1992), duration of memebrtship influence the membership commitment in the cooperative organizations. The finding of this study attested this theoretical perspective. However, the finding goes in contrary to the study by Anyiro (2014) who found a negative influence of membership length on women's intensity of participation implying the possibility for women's commitment in the self-help groups based on the assumed cooperative service disregarding the membership length.

Women with large family size were less likely to be committed in the RSCCs affairs. Large family size gives a hectic schedule for women members and that negatively influence their commitment in the RSCCs. Similar finding was reported by Anyiro (2014) that the family size decreases women's intensity of participation in the self-help groups at 10% significance level in Abia county of Nigeria.

The institutional characteritics such as distance and group size were another important factors in determining women's intensity of participation in the RSCCs affairs. The time and cost associated with distance to the nearby RSCCs negatively influenced women's intensity of participation in the RSSCs. This finding was further supported by the study of Esayas and Getcho (2017) that uncovered the negative relationship between distance and women's intensity of participation at 5% probability level due to time cost of distance from the nearby cooperatives office. Unlike the theoretical perspective that argues for the negative effect of group size in women's intensity of participation (Nilsson *et al*, 2012), the group size of the RSCCs were positively associated with women's intensity of participation in the RSCCs. It is assumed that with group size, the capital of the group would be enhanced which has implication for the credit accessibility for women members.

This study finally uncovered that women's membership in the RSCCs enhanced their capability and agency in their agricultural practice. The RSCCs have posively and significantly impacted women's empowerment. This finding of this study is in line with the findings of both Lecoutere (2017), and Dohmwirth and Liu (2020) that revealed a positive and significant empowerment impact of different types of cooperatives in Uganda and India, respectively.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary

Due to the extensive promotions from several development actors in Ethiopia, rural women are increasingly participating in the RSCCs in the recent times. This study aimed to empirically support this development. It has identified the determinants of women's membership decision in the RSCCs. It also solicited factors that influence women's intensity of participation in the RSCCs. The study finally evaluated the impact of RSCCs on women's empowerment in the agricultural context in Arsi Negele *Woreda*, Oromiya Regional State of Ethiopia.

Both the logistic regression model and its corroborating qualitative finding illustrate that membership decision in the RSCCs was determined negatively and significantly by the marital status and participation in other FI. However, years of schooling, trust, perception, household land size and annual income positively and significantly determined women's probability of joining the RSCCs.

As expected, the FHHs immensely join the RSCCs to fulfill their responsibility as the heads of the households at the absence of men in comparison to the women from the MHHs. Participation in other financial groups also negatively influence women's probability of joining the RSCCs due to the time opportunity cost associated with their membership in the other operating financial groups.

Confirming to the priori expectation, the years of schooling found to boost women's probability of joining the RSCCs. The importance of the trust was also confirmed in light with the hypothesis as the women trusting the RSCCs and its managing bodies have more probability of joining the RSCCs in comparison to others. Women's perception of the RSCCs for its financial viability also found to positively and significantly determine women's membership in the RSCCs. Moreover, resource indicators such as household land size and income were positively and significantly influenced women's probability of joining the RSCCs.

Besides the importance of membership in the RSCCs, women need to actively engage in the RSCCs affairs to eliminate or minimize their drop-out rate and to sustainably benefit from the RSCCs services. The descriptive statistics of the study showed that out of the total 157 members, about 35 %, 40% and 25% of the members fall under the low, medium, and higher participation categories. The result from the ordered logistic regression model and the supportive qualitative finding also revealed age, years of schooling, duration, group size, and land size positively influence women's intensity of participation in the RSCCs affairs.

It was found that aged women actively engage in the RSCCs to avoid the risk that may result from their failure of active participation. Years of schooling also positively influenced women's intensity of participation in the RSCCs affairs since they are better positioned to understand the importance of their regular participation in the RSCCs affairs. Duration, which indicates the women's membership length, also positively influenced women's intensity of participation because it enables them to adapt to the RSCCs' environment and its functioning. Group size also found to positively and significantly influence women's intensity of participation since it is related with the capital base of the RSCCs. Furthermore, land size, which is related to the households' agricultural activities, has positively related with women's intensity of participation.

The study furthermore revealed that women's marital status, family size, and distance negatively and significantly influenced their intensity of participation. FHHs, due to the importance of their active engagement to meet their financial needs for the household and agricultural practice, have more intensity of participation in the RSCCs affairs compared to the others. The family size has also negatively and significantly influenced women's intensity of participation in the RSCCs as it gives more hectic schedule. Moreover, distance to the nearby RSCCs negatively and significantly influenced women's intensity of participation since it was related with the cost and time.

We have finally evaluated the empowerment impact of the RSCCs. The descriptive statistics showed that the members and non-members mean empowerment scores, 0.538 and 0.459, were significantly different at 1 % s probability level. About 57.2% and 32.8% of women members and non-members of RSCCs were also empowered. Since the membership might suffer from the selection bias, estimation based on comparison of members and non-members based on their

mean difference would make a biased estimate. The PSM method helped to adjust for the selection bias though it is not believed that the PSM totally eradicate the problem. The study result showed that women members had 9.9% more empowerment score in comparison to the control group of the study area. We also conducted the sensitivity analysis and we were able to confirm that the positive and significant empowerment impact of the RSCCs is insensitive to hidden biases and clearly showed that empowerment of member women is associated with their membership in the RSCCs.

5.2 Conclusion

The finding of the study confirms the hypothesis that expected a positive and significant impact of the RSCCs on the women empowerment in the agricultural context. Both of the quantitative data analysis methods- the descriptive statistics and the PSM, and the qualitative finding attest that the RSCCs had positive empowerment results. This implies that RSCCs are capable of playing a crucial role in enhancing women's agency, which is traditionally downplayed in agriculture.

Nevertheless, the study has shown that membership in the RSCCs was not inclusive. It favors FHHs, more schooled, and those women who lack other financial alternatives. Women trusting the RSCCs and those who perceive it as viable FIs also have more probability of joining the RSCCs in comparison to others. Furthermore, members were mostly drawn from resource rich households in comparison to the others. The implication of the finding was that membership in the RSCCs has particularly by-passed the less-educated women, and women from the MHHs and the poorer households. Therefore, we reject the hypothesis that states women's membership in the RSCCs is not influenced by individual and household characteristics even though we did not find evidence to accept the influence of the institutional factors on the probability of women joining the RSCCs.

The study also exposed that important the important individual, household, and institutional variables significantly determine women's intensity of participation in the RSCCs. The study showed that older, more schooled, senior women members from the large groups were committed in their membership. However, even if women from the MHHs join the RSCCs, they are less likely committed in the RSCCs activities in comparison to the FHHs. Moreover,

although family size and distance did not influence women's women membership decision, these variables had detrimental effect on women's intensity of participation in the RSCCs. The findings convinced us to reject the null hypothesis of the study that ignore the importance of the individual, household, and institutional variables in influencing women's intensity of participation in the RSCCs affairs.

5.3 Recommendations

The study has found that the RSCCs are the empowering instruments for rural women in terms of their agricultural decision making power. However, the RSCCs have failed short of inclusivity towards women with various individual and household characteristics. Membership was found to be determined mainly by the marital status, years of schooling, trust, perception, land size and annual income. Therefore, the FCA, *Woreda* level cooperative promotion agents, and development partners in the country such as the UN women and the THP should clearly appreciate these policy variables and try to address them to ensure the inclusivity of the RSCCs.

There should also be interventions to boost the trust and perception level of the rural women towards the RSCCs. The government through its cooperative promotion agents both at the local and higher levels including the FCA, and development partners in the country such as the UN women and the THP should ensure the autonomy and independence of the cooperatives while promoting women's participation in the RSCCs. The promotion activities should underscore that the ownership of the RSCCs rests on women and men members, and the government has only a nominal and facilitating role in the process. Women's perception of the RSCCs' financial viability should also be improved to attract them to the RSCCs. Among other ways, this can be achieved by building linkages with FI that would eventually boost the financial capacity of the RSCCs.

Moreover, there should be recognition for the importance of members' intensity of participation to enable women so as to sustainably benefit from the RSCCs' services. The woreda level cooperative promotion agents and the managers of the RSCCs should develop profile of the RSCCs members detailing women's characteristics in terms of their individual, household and institutional characteristics. That can ease for the training to target the younger, less schooled, junior members, and women from the large family and land size. The study also underscores the

necessity of having the RSCCs office/s nearby the women's villages to further promote their intensity of participation in the RSCCs.

5.4 Recommendation for the future Studies

This study has identified the determinants of membership decision, intensity of participation in the RSCCs and its impact on women empowerment. It did not discriminate whether the RSCCs are women only RSCCs or mixed-gender RSCCs. It also employed only six empowerment domains, adding the financial literacy to the original-WEAI. Moreover, the study utilized the propensity matching method to analyses the one side effect of membership in the RSCCs on their empowerment. Therefore, future studies can delve more in to the RSCCs and its impact on the RSCCs. It is recommended that the can solicit the determinants factors for membership in either the women only RSCCs or gender-mix RSCCs. They may also include additional empowerment proxies on the existing domains. Moreover, more complex impact evaluation method should also employ for the impact evaluations.

REFERENCES

Abay, A.; Koru, B; Abate, T.; and Berhane, G. 2017. *Alternative formation of rural savings and credit cooperatives and their implications: Evidence from Ethiopia*. International Growth Center report F-32302-ETH-1. London, U.K.: London School of Economic and Political Science. https://www.theigc.org/wp-content/uploads/2017/12/Abay-et-al-Final-report-cover.pdf

Achew, M. B., Alemayehu A. Ambel, A. A., Grandstein , H. E., Tsegay, A. H., Imtiaz , U. H., & Minita, M. V. (2021). *Financial Inclusion in Ethiopia.*

Adepoju, A. (2018). *Determinants of Multidimensional Poverty Transitions among Rural Households in Nigeria* . Agricultural Economist.

Adler, P. S., & Kwon, S.-W. (2002). *Social Capital: Prospects for a New Concept.* The Academy of Management Review.

Agricultural Knowledge, Learning Documentation and Policy (AKLDP) . (2018). *How the Gender Equality Strategy for Ethiopia's Agriculture Sector can improve outcomes for all.*Accesed on May 25 on Topics | Agrilinks.

Alkire, S., Meinzen-Dick , R., Peterman, A., Quisumbing, A. R., Seymour, G., & Vaz, A. (2013). *The Women's Empowerment in Agriculture Index.* OPHI Working Paper.

Alsop, R., Mette , F. B., & Holland, J. (2006). Empowerment in Practice. From Analysis to Implementation. Directions in Development. The World Bank.

Anjugam, M. &. (2007). *Determinants of women's participation in self-help group (SHG)-Led Microfinance Programme in Tamil Nado.*

Anyiro, C. (2014). *Determinants of women's participation in self help group led micro-financing of farms in Isuikwuato Local Government Area of Abia State, Nigeria.* Scientific Papers Series Management Enginerring in Agricultural nd Rural Development .

Amogne, A., Simeneh, B., Hassen , A., & Bantinder, A. (2017). *Determinants of non-farm livelihood diversification: evidence from rainfed-dependent smallholder farmers in northcentral Ethiopia (Woleka sub-basin).* Development Studies Research, 4:1, 22-36, .

Ayele, Z. A. (2014). *The Impact of Rural Saving and Credit Cooperatives on the Food Security In the West Amhara Regional State of Ethiopia* . University Collage Cork .

Becker, T. (1992). *Foci and Bases of Commitment: Are they distinctions worth making* . Academy of Management Journal, 35, 232-244. http://dx.doi.org/10.2307/256481 .

Belete, B. (2016). *The Impact of Small Scale Irrigation Technology on Farm Household Welfare: Evidence from Dangila and Bahirdar Zuria Districts* . Bahirdar University; Ma Thesis .

Bernard, T., David, S., Elmayehu Taffesse, & Eleni abre-Madhin . (2010). Cooperatives for Staple Crop Marketing: Evidence from Ethiopia. *Research Gate Publication*.

Bertin, A., & Sirven, N. (2006). *Social Capital and the Capability Approach: A Socio Economic Theory.* Université Montesquieu – Bordeaux IV: 11 Social Capital and the Capability Approach: A Social Economic Theory Alexandre Bertin abertin@u-bordeaux4.fr Nicolas Sirven nsirven@hotmail.com Centre d'Economie du Développement – IFReDE .

Bezabih, E. (2009). *Cooperatives: a path to eocnomic and social empowerment in Ethiopia.* Dar es Salaam: International Labour Office.

Bhup, K. (2018). *The Role of Saving and Credit Co-operatives in Rural Women Empowerment in Dang, Nepal.* Journal of Development Innovations, KarmaQuest Internatioinal, vol. 2(2), pages 26-33, November.

Birchal, J. (1999). *What Makes People Participate in Cooperatives? Towards a Theortical Model.* Journal of Rural Cooperation, 27(1), 3-16.

Bourdieu, P. (1986). *The forms of capital. In J. Richardson (Ed.), Handbook of theory and research for the sociology of education (pp. 241-258).* New York: Greenwood Press.

Byrne, N., & McCarthy, O. (2005). *An analysis of the credit union's use of Craig's commitment building measures.* Journal of Co-operative Studies, 38, 20-27.

Caliendo, M., & Kopeinig, S. (2005). *Some Practical Guidance for the Implementation of Propensity Score Matching* . The Institute for the Study of Labor (IZA).

Caliendo, M., & Kopeinig, S. (2008). *Some Practical Guidance for the Implementation of the Propensity Score Matching Method.* Journal of Economic Survey, 22, 31-72. https://doi.org/10.1111/j.1467-6419.2007.00527.

Central Statistical Agency (CSA) . (2007). *Population and Housing Census.* Accessed through https://www.statsethiopia.gov.et/wp-content/uploads/2019/07/Statistical_Oromiya-1.pdf.

Central Statistical Agency (CSA) . (2017). *PEthipian Demographic and Health Survey. Key Findings. Addis Ababa, Ethiopia.*

Charles, G., Ertug, G., & Martin, G. (2012). *The Positive Externalities of Social Capital: Benefiting from Senior Brokers.* Academy of Management Journal: 10.5465/amj.2010.0827.

Coleman, J. S. (1988). *Social Capital in the Creation of Human Capital* . The American Journal of Sociology 94, S95-S120.

Constitution of the Federal Democratic Republic of Ethiopia. (1995). available at: http://www.unhcr.org/refworld/docid/3ae6b5a84.html [accessed 10.

Cooperative Societies Proclamation No. 985/2016. (n.d.).

Dargie, B., Tafere, K., & Muthyalu , M. (2012). *Women"s Empowerment through Rural Savings and Credit Cooperatives in Enda-Mohoni Woreda in Ethiopia.* International Journal of Research in Management, Science and Technology.

Das,C., and Kohli, A. (**2017).** ***Time poverty: The key to addressing gender disparity*** **Time poverty: Accessed on June 7, from Time poverty: The key to addressing gender disparity - India Development Review (idronline.org)**

Tafere, K., & Muthyalu , M. (2012). *Women"s Empowerment through Rural Savings and Credit Cooperatives in Enda-Mohoni Woreda in Ethiopia.* International Journal of Research in Management, Science and Technology

Dayanandan, R. (2016). *Determinants of Women Participation and the Implication on Saving and Credit Cooperatives" Development.* IRA-International Journal of Management & Social Sciences (ISSN 2455-2267), 5(3), 385-401. doi:http://dx.doi.org/10.21013/jmss.v.

Dehejia, R. H., & Sadek, W. (2002). *Propensity Score Mstchign Metod for the non-Experiemental Casual Studies.* Review of Economics and Statistics, 84, 151-161. doi:10.1162/003465302317331982.

Develtere, P. (1993). *Cooperative Movements in the Developing Countries: Old and New Orientations.* Annals of Public and Cooperative Economics, 64(2),179–208.

Distler, M., & Schmidt, D. (2011). *Assessing the sustainability of savings and credit cooperatives.*

Dohmwirth, C., & Liu, Z. (2020). *Dohmwirth, C., & Liu, Z. (2020).Does cooperative membership matter for womenempwoerement? Evidence from South Indian dairy producers.* Journal of Economic Effectiveness.

Dolfsma, W., & Dannreuther, C. (2003). *Subjects and Boundaries:Contesting Social Capital–Based Policies.* JOURNAL OF ECONOMIC ISSUES.

Drucza, K. (2019). *Ethiopian gender and agriculture stakeholder analysis.* researchgate.net.

Drucza, K., & Tsegaye, M. (2018). *Analytic overview 2018: Opportunities for strengthening gender and social equity in Ethiopia's wheat sector.* BMZ and CIMMYT.

Drucza, K., Rodrigues, M. D., & Birhanu , B. B. (2020). *The gendering of Ethiopia's agricultural policies: A critical feminist analysis.* Women's Studies International Forum,Volume 83,2020,102420.

Duguid, F., & Nadya , N. (2016). *Gender equality and women's empowerment in cooperatives: literature review.* Published by the International Co-operative Alliance.

Esayas, B., and Gecho, Y. (2017). Determinants of Women's Participation in Agricultural . *Journal of Culture, Society and Development www.iiste.org*.

Eyob, M., Shitaye, Z., Siragn, T., & Tseganesh, K. (2019). *Participation of women in the rural saving adn credit cooperatives ad its impact on housheold Saving: The Case Kedida , Gamel Woreda, Southern Ethiopia.* Research on Humanities and Social Sciences.

FAO (Food and Agriculture Organization of the United Nation). (2011). *The state of food and agriculture: Women in agriculture – Closing the gender gap for development.* Rome, Italy: FAO .

FCA, F. C. (2021). *Annual report of the federal cooperative agency.* Accessed on February 12, on : http://www.fca.gov.et/.

FDRE . (2016). *Growth and Transformation Plan II (GTP II) (2015/16−2019/20). .* Addis Ababa, Ethiopia.

Fletschner , D., & Kenney, L. (2011). *Rural women's access to financial services: Credit, savings and insurance.* Washington: Agricultural Development Economics Division, The Food and Agriculture Organisation of the United Nations.

Fox, J., & John , G. (2000). *The World Bank and social capital: Lessons from ten rural development projects in the Philippines and Mexico.* Policy Sciences 33: 399-419. .

Frank, T., Mbabazize, M., Shukla, & J. (2015). Savings and credit cooperatives (SACCO's) services' terms and members' economic development in Rwanda: A case study of zigama SACCO ltd. *International Journal of Community and Cooperative Studies*.

Fulton, M. (1999). *Cooperatives and member commitment. .* The Finnish Journal of Business Economics, 4, 418-437.

Getnet, K., & Tsegaye, A. (2012). *Agricultural Cooperatives and Rural Livelihoods: Evidence from Ethiopia* . Annals of Public and Cooperative Economics, Vol. 83, Issue 2, pp. 181-198. Accessed at: http://dx.doi.org/10.1111/j.1467-8292.2012.00460.x.

Greene, W. H. (2008). *Econometric Analysis.* . 6th Edition, Pearson Prentice Hall, Upper Saddle River.

Guinnane, T. (2020). *New Law for New Enterprises: Cooperative Law in Germany, 1867–1889.* ahrbuch für Wirtschaftsgeschichte / Economic History Yearbook 61, no. 2: 377-401. https://doi.org/10.1515/jbwg-2020-0016.

Guinnane, T. W. (2012). State Support for the German Cooperative Movement, 1860—1914. *Cambridge University Press on behalf of Central European History Society*, Vol. 45, No. 2 (JUNE 2012), pp. 208-232.

Gujarati, D. N. (2003). *Basic Econometrics.* . 4th Edition, McGraw-Hill, New York.

Haddad L, L., Peña , C., & Quisumbing , A. (2001). *Are women overrepresented among the poor? An analysis of poverty in ten developing countries.* . Journal of Development Economics 66(1):225–269.

Hosmer, D. W., & Lemeshow, S. (1989). *Applied Logistic Regression.* Willey & Sons, Hoboken, 373.

Idrisa, Y., Sulumbe, I., & Mohammed, S. (2007). *Socio-Economic Factors Affecting the Participation of Women in Agricultural Co-Operatives in Gwoza Local Government, Borno State, Nigeria.* Journal of Agriculture, Food, Environment and Extension, Volume 6 (Number 2), 73 - 78.

Internation Cooperative Agency (ICA). (2005). *What is a coop?* .

ILO COOP Africa. (2012). *Empower rural women - end poverty and hunger: the potential of African cooperatives.*

Joshi, G. (2019). *An analysis of women's self-helpgroups' involvement in microfinance program in India.* Published in Rajagiri Management Journal.

Jusilla, I., Goel, S., & Tuominen, P. (2012). *Governance of Co-operative Organizations: A Social ExchangePerspective.* www.sciedu.ca/bmr Business and Management Research Vol. 1, No. 2.

Klandermans, B (1984). Mobilization and Participation: Social-Psychological Expansisons of Resource Mobilization Theory. A*merican Sociological Review* Vol. 49, No. 5 (Oct., 1984), pp. 583-600 (18 pages) DoI: https://doi.org/10.2307/2095417.

Lecoutere, E. (2017). *The impact of agricultural co-operatives on women's empowerment : evidence from Uganda.* Journal of Co-operative Organization and Management, 5: 14-27. https://doi.org/10.1016/j.jcom.2017.03.001 (Citations: WoS 2; GS 22).

Liao, F. (1994). *Interpreting Probability Models: Logit, Probit and Other Generalized Linear Models, 101, Quantitative Applications in the Social Sciences.* . Sage Publications, London.

Majurin, E. (2012). *How women fare in East African co-operatives: the case of Kenya, Tanzania and Uganda, Dare Selaam.* Available at: www.ilo.org__coop_africa__woman_eastafrica.pdf [Accessed November 4, 2014].: : International Labour Organization. Available at:.

Mamo, D. (2020). *Policies of gender equality in Ethiopia: The transformative perspective.* . International Journal of Public Administration 43(4): 312–325.

Mason, P. (2014). *Financial cooperatives and the development of social capital. Deakin University.* Deakin University.Available at: http://dro.deakin.edu.au/eserv/DU:30072913/mason-financialcooperatives-2014A.pdf.

Meinzen-Dick, R., & Zwarteveen, M. (2003). *Gendered participation in water management issues from Water Users' Associations in Africa.* A synthesis of recent research (pp. 153-158). Washington DC: International Food Policy Research Institute.

Mekonnen, Z., Habtemariam, K., Woldeamanuel, T., & Zenebe, A. (2018). *Analysis of observed and perceived climate change and variability in Arsi Negele District, Ethiopia.* 0.1007/s10668-017-9934-8.

Menard, S. (2002). *Applied Logistic Regression Analysis.* Accessed on Januar 10. from https://dx.doi.org/10.4135/9781412983433.

MoA. (2011). *Guidelines for gender mainstreaming in agricultural sector.* . Addis Ababa, Ethiopia.: Women's Affairs Directorate.

Mohapatra, S., & Sahoo, B. K. (2016). *Determinants of participation in self-help-groups (SHG) and its impact on women empowerment.* Indian Growth and Development Review, Emerald Group Publishing, vol. 9(1), pages 53-78, April.

Moser, C. (1993). *Gender Planning and Development : Theory, Practice and training.* London: Rouledge.

Mossisa, M. K. (2013). *Assessemtn of Women Saving and Credit Cooperative Services in Zuway Dugda District, South-East Ethiopia.* Addis Ababa,Ethiopia: India Ghandi National open UniversitySchool of Social Work; Thesis.

Muluneh, E. Zewotir, T, and Yayeh, T. 2016. Fertility Status of Married Women and Its Determinants in Ethiopia. Journal of Economic and Behaivoral Studies. Vol. 8, p. 32-40

Nahapiet, J., & Ghoshal, S. (1998). *Social Capital, Intellectual Capital, and the Organizational Advantage.* The Academy of Management Review: 10.2307/259373.

National Commission for the Promotion of Equality (NCPE). (2006). *Gender Mainstreaming: The Way Forward – Executive Summaries (ESF/no. 23* . Gender Structural Funds Programme for Malta 2004 – 2006.

Olson, M. The logic of collective action: Public goods and the theory of groups. Cambridge: Harvard University Press

Putnam, R. D. (1993). *"The Prosperous Community." The American Prospect 4(13):35–42.*

Quisumbing, A., S , R., J., N., K., T., & E. , W. (2013). *Can dairy value chain projects change gender norms in rural Bangladesh? Impacts on assets, gender norms, and time use.* . Washington, DC: International Food Policy Research Institute.: Discussion paper no. 1311. .

Rani, D. L., & Yadeta, D. B. (2016). *Determinants of Women Paricipation in the Primary Cooperatives Societies of Denbi Destrict.* International Journal of Applied Research; 2(8): 380-384.

Rathgeber, E. M. (1990). *WID, WAD, GAD: Trends in Research and Practice.* The Journal of Developing Areas.

Roscoe, J. T. (1975). *Fundamental Research Statistics for the Behavioral Sciences.* Holt, Rinehart and Winston, New York.

Rosenbaum, P. D., & Rubin , D. B. (1983). *The Central Role of the Propensity Score in Observational Studies for Causal Effects.* Oxford Uiversity Press.

Rowland, J. (2007). *Questioning Empowerment,* . Oxford, Oxfam .

Rubin, D. R. (2001). *Using Propensity Scores to Help Design Observational Studies: Application to the Tobacco Litigation.* Health Services & Outcomes Research Methodology 2:169–188, 2001.

Schmidt, M. a. (2011). Assessing the sustainability of savings and credit cooperatives.

Selhausen, F. M. (2015). *What determines women's participation in collective action?* Feminist Economics, 22 (1). pp. 130-157.

Sen, A. (1979). *Equality of What?* . Stanford University: Tanner Lectures on Human Values (Available from the Tanner Lectures website).

Sen, A. (1981). *Poverty and Famines: An Essay on Entitlement and Deprivation* . Oxford University Press, Mew York.

Sen, A. (1985). *Commodities and Capabilities.* North-Holland.

Sen, A. (1999). *Development as Freedom.* . Oxford University Press.

Shanko, T. (2016). The Role of Cooperatives in Empowering the Rural Women: The case of Shusha Rural Saving and Credit Cooperative Union, GenaBossa, SNNPR. *A thesis submitted to the Indira Gandhi National Open University.* .

Sheymo, H. J. (2010). *Politics and Property Rights Regimes in Land in Arsi Negele and Hetossa, South-Central Oromia, Ethiopia: late 1880s-2006.* Philosophiae Doctor (PhD) Thesis Department of International Environment and Development Studies (Noragric) .

Silvey, R., & Elmhirst, R. (2003). *"Engendering Social Capital:Women Workers and Rural-Urban Networks in Indonesia's Crisis.".* World Development 31: 865-879. .

Soboroff, S. 2012. Group size and the trust, cohesion, and commitment of group members. University of Iowa; Doctor of Philosophy (PhD), University of Iowa. DOI: 10.17077/etd.0mzaq9pd

Strandberg, N. (2001). *EmpowermeWomen through the Life Cycle as a Transformative Strategy for Poverty Eradication.* New Delhi, India.

Tegebu, F. N., Tollens, E. F., Marysse, S., & Mathijs, E. (2009). *Diversification, Income Inequality and Social Capital in N orthern Ethiopia.* Research Gate.

Tesfamariam, K. (2015). Savings and Credit Cooperatives in Ethiopia: Development, Challenges and Proposed Intervention. *International Journal of Cooperative Studies*.

The Hunger Project (THP). (2014The Huger Project accessed at). *The Hunger Project inagurates the Saving and Credit Cooperatives* .

Tona, B., & Mengistu, M. (2020). *Assessment of Women Participation in Primary Saving and Credit Cooperatives in Dawuro Zone Essera District, South West Ethiopia.* Research on Humanities and Social Sciences .

UN. (2015). *Transforming our world:the 2030 Agenda for Sustainable Development.* Accessed through Transforming our World: The 2030 Agenda for Sustainable Development : Sustainable Development Knowledge Platform (un.org).

UN WOMEN . (2018). *Women's cooperatives boost agriculture and savings in rural Ethiopia.* UN Women-Headquarters.

UN Women . (2018). *The Cost of Gender Gap in Agricultural Productivity in Ethiopia* . https://africa.unwomen.org/sites/default/files/Field%20Office%20Africa/Attachments/Publications/2018/04/Study%20Report%20The%20Cost%20of%20the%20%20Gender%20Gap%20%20in%20%20Agricultural%20Productivity%20%20in%20%20Ethiopia%20Finalcompresse.pdf.

USAID . (2019). *GENDER EQUALITY AND WOMEN'S EMPOWERMENT.* https://www.usaid.gov/ethiopia/gender-equality-and-womens-empowerment.

Valentinov, V. L. (2004). *Toward a Social Capital Theory of Cooperative Organisation.* . Available at SSRN: https://ssrn.com/abstract=951928.

WOCCU, r. (2018). *Statistical Report of the world council of credit union.*

Woldu, T., & Tadesse, F. (2015). *Women's Participation in Agricultural Cooperatives in Ethiopia.* International Association of Agricultural Economists (IAAE) > 2015 Conference, August 9-14, 2015, Milan, Italy.

Woolcock, M., & Narayan, D. (2000). *Social Capital: Implications for Development Theory, Research, and Policy* . The World Bank Research Observer, Volume 15, Issue 2, August 2000, Pages 225–249, https://doi.org/10.1093/wbro/15.2.225.

Wuthnow, R. (2002). *Religious Involvement and Status-Bridging Social Capital.* Accessed at: https://doi.org/10.1111/1468-5906.00153.

Yamane, T. (1975). *Statistics: An Introductory Analysis.* . 2nd Edition, Harper and Row, New York.

Zikala, M. J. (2016). *The role of saving and credit cooperatives in promoting access to credit in Swaziland.* Pretoria: Universit of pretoria.

APPENDICES

Appendix 1: Coefficient of the Logistic Regression Model

```
Logistic regression                             Number of obs   =        362
                                                LR chi2(11)     =     139.20
                                                Prob > chi2     =     0.0000
Log likelihood = -178.12735                     Pseudo R2       =     0.2810
```

memstat	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	.0208336	.0229927	0.91	0.365	-.0242312	.0658984
1.marstat	-.7565595	.2950235	-2.56	0.010	-1.334795	-.1783241
yoschool	.267962	.0628205	4.27	0.000	.1448361	.3910879
1.trust	1.080696	.2709822	3.99	0.000	.549581	1.611812
1.partothers	-.9049394	.2928881	-3.09	0.002	-1.47899	-.3308892
1.perception	.7987908	.2882173	2.77	0.006	.2338952	1.363686
famsz	-.0083336	.0700585	-0.12	0.905	-.1456458	.1289785
landsz	1.247025	.3090161	4.04	0.000	.6413645	1.852685
lvsz	-.498316	.3101999	-1.61	0.108	-1.106297	.1096645
annualinc	.0001976	.000045	4.39	0.000	.0001094	.0002857
distance	.0109387	.011111	0.98	0.325	-.0108385	.0327158
_cons	-5.797696	1.040997	-5.57	0.000	-7.838013	-3.757379

Appendix 2: Marginal Effect of the Logistic Regression Model

	Delta-method					
	dy/dx	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	.0050699	.0055937	0.91	0.365	-.0058935	.0160334
1.marstat	-.1858582	.0717326	-2.59	0.010	-.3264516	-.0452648
yoschool	.0652098	.0152332	4.28	0.000	.0353532	.0950663
1.trust	.2555204	.0604429	4.23	0.000	.1370545	.3739863
1.partothers	-.2134176	.0655241	-3.26	0.001	-.3418425	-.0849928
1.perception	.1885565	.0646318	2.92	0.004	.0618804	.3152326
famsz	-.002028	.0170483	-0.12	0.905	-.0354421	.031386
landsz	.3034691	.076011	3.99	0.000	.1544903	.452448
lvsz	-.1212675	.0757278	-1.60	0.109	-.2696913	.0271564
annualinc	.0000481	.0000111	4.34	0.000	.0000264	.0000698
distance	.002662	.0027027	0.98	0.325	-.0026353	.0079593

Appendix 3: Multicollinearity test for the Binary Logistic Regression Model

. vif

Variable	VIF	1/VIF
lvsz	1.72	0.581301
landsz	1.66	0.602217
famsz	1.30	0.769705
age	1.29	0.777890
annualinc	1.07	0.933624
yoschool	1.06	0.943923
distance	1.04	0.958157
Mean VIF	1.31	

. pwcorr marstat trust partothers perception

	marstat	trust	partot~s	percep~n
marstat	1.0000			
trust	-0.0469	1.0000		
partothers	0.0745	-0.0238	1.0000	
perception	-0.0796	-0.0032	-0.2439	1.0000

Appendix 4: Coefficient Result from the Ordered Logistic Regression Model

Ordered logistic regression — Number of obs = 157; LR chi2(12) = 134.66; Prob > chi2 = 0.0000; Log likelihood = -103.71647; Pseudo R2 = 0.3936

partstat	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	.0901709	.0395451	2.28	0.023	.0126639	.167678
1.marstat	-2.231644	.5235986	-4.26	0.000	-3.257878	-1.20541
yoschool	.1267638	.067136	1.89	0.059	-.0048203	.2583479
1.trust	-.2550764	.3981323	-0.64	0.522	-1.035401	.5252486
1.pothers	.2684109	.4147554	0.65	0.518	-.5444948	1.081317
duration	.1837883	.0655502	2.80	0.005	.0553122	.3122644
famsz	-.350805	.1358433	-2.58	0.010	-.617053	-.0845569
landsz	.5872277	.1905821	3.08	0.002	.2136936	.9607618
livsz	.1996471	.1555305	1.28	0.199	-.1051871	.5044812
annualinc	.0000272	.0000279	0.98	0.329	-.0000275	.0000819
distance	-.050913	.0206007	-2.47	0.013	-.0912896	-.0105363
groupsz	.0409094	.0062935	6.50	0.000	.0285744	.0532444
/cut1	5.044581	1.857763			1.403432	8.68573
/cut2	8.483085	1.965874			4.630043	12.33613

Appendix 5: Odd Ration Result from the Ordered Logistic Regression Model

```
Ordered logistic regression                     Number of obs   =        157
                                                LR chi2(12)     =     134.66
                                                Prob > chi2     =     0.0000
Log likelihood = -103.71647                     Pseudo R2       =     0.3936
```

partstat	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
age	1.094361	.0432767	2.28	0.023	1.012744	1.182556
1.marstat	.1073518	.0562092	-4.26	0.000	.0384699	.2995692
yoschool	1.135149	.0762093	1.89	0.059	.9951913	1.294789
1.trust	.7748573	.3084957	-0.64	0.522	.3550838	1.690879
1.pothers	1.307884	.5424522	0.65	0.518	.5801348	2.948559
duration	1.201761	.0787757	2.80	0.005	1.05687	1.366516
famsz	.7041211	.0956502	-2.58	0.010	.5395321	.9189193
landsz	1.798994	.3428562	3.08	0.002	1.238243	2.613687
livsz	1.220972	.1898983	1.28	0.199	.9001561	1.656126
annualinc	1.000027	.0000279	0.98	0.329	.9999725	1.000082
distance	.9503614	.0195781	-2.47	0.013	.9127533	.989519
groupsz	1.041758	.0065563	6.50	0.000	1.028987	1.054687
/cut1	5.044581	1.857763			1.403432	8.68573
/cut2	8.483085	1.965874			4.630043	12.33613

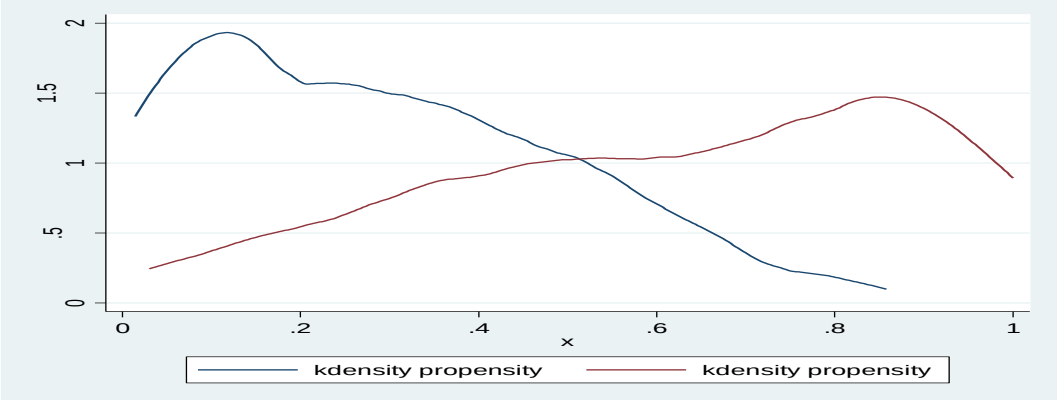
Appendix 6: Multicollinearity Test for the Ordered Logistc Regression Model

Variable	VIF	1/VIF
age	1.63	0.613168
famsz	1.60	0.625569
groupsz	1.45	0.689437
distance	1.39	0.720900
duration	1.19	0.840727
yoschool	1.12	0.896440
landsz	1.09	0.919316
livsz	1.06	0.944743
annualinc	1.04	0.964553
Mean VIF	1.28	

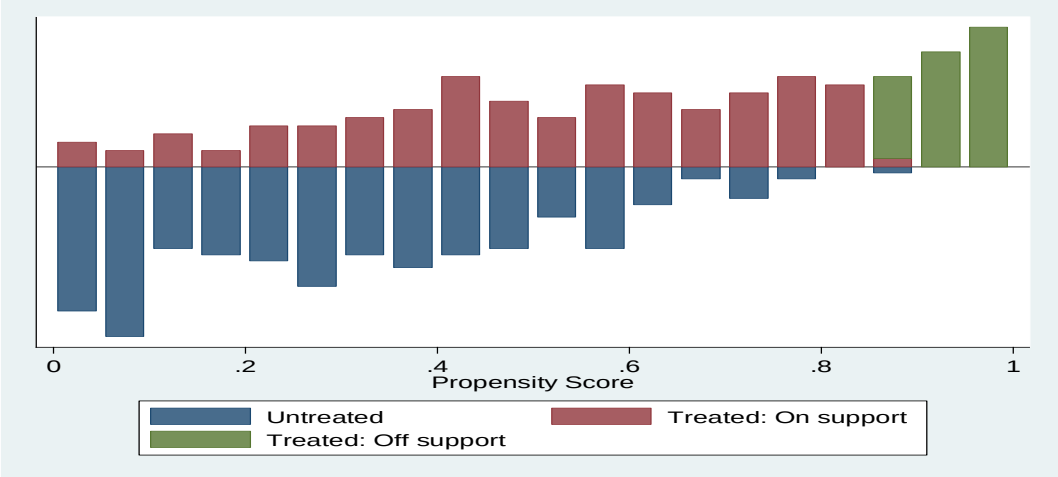
```
. pwcorr marstat trust pothers perception
```

	marstat	trust	pothers	percep~n
marstat	1.0000			
trust	-0.0470	1.0000		
pothers	-0.0846	0.1479	1.0000	
perception	-0.0048	0.8338	0.1014	1.0000

Appendix 7: Distribution of the propensity score



Appendix 8: Common support region (Kernel 0.06)



Appendix 9A: Survey Questionnaire

English Version Questionnaire

Identification No _____

Membership in the RSCCs_____

Kebele_____

Date of survey_____

Signature_____

(To be filled by the data collector)

Dear respondent,

My name is Ebisa Edosa. With the approval from Addis Ababa University, we are conducting this study on the Determinants of Membership Decisions, Intensity of Participation in the Rural Saving and Credit Cooperatives and Its Impact Women Empowerment in Arsi Negele *Woreda,* West Arsi Zone, Oromia Regional State of Ethiopia. The study will have impactful benefits for the rural women. Therefore, your truthful response is needed provide information for the development agents including the government. It will only consume a few minutes from your important time. I cordially thank you for your cooperation.

I. Characteristics of the Respondents

1. Individual Characteristics of the Respondents

1.1. Age_____

1.2 Marital Status _____

1.3 Have you ever attended school?

A. Yes ☐

B. No ☐

1.4. If our answer for question No. 3 is yes, how long did you stay in the school?_____

1.5. Have you ever heard of the RSCCs?

A. Yes ☐

B. No ☐

1.6. Do you think the RSCCs are financially viable?

A. yes ☐

B. No ☐

1.7. Do you trust the RSCCs and its managing bodies?

A. yes ☐

B. No ☐

1.8. Do you participate in any other financial institution in your kebele?

A. yes ☐

B. No ☐

1.9. If your answer for question 1.8 was 'yes' what was the name of the financial institution you were participate in? _____

2. Household Characteristics of the Respondents

2.1. Family size including the respondent_____

2.2. Do your household own land?

A. Yes ☐

B. No ☐

2.3. If you own land, how big its size? _____timad

2.4 Do you have livestock at your household level?

A. Yes ☐

B. No ☐

2.5. How many livestock do you have?

No.	Type of the livestock	Size/ number
1	Camel	
2	Ox	
3	Cow	
4	Horse	
5	Donkey	
6	Bull	
7	Heifer	
8	Calf	
9	Mule	
10	Sheep	
11	Goat	
12	Beehive	
13	Others	

2.6 Have you participated in off farm income generating activities last year?

A. Yes ☐

B. No ☐

2.7. If your answer for 2.7 is yes, how much your earn last year? _____

2.8 How much you earn from the agricultural income in birr last years_____

2.9 What was the total annual income you earn in birr last year ?_____

3. Institutional Characteristics

3.1 Is there any RSCCs in your village?

A. Yes ☐

B. No ☐

3.2. If yes, how long it takes someone to reach the RSCCs in minutes?_____

II. Determinants of Women's Intensity of Participation in the RSCCs?* (*to be used for members only).*

1.1 How many members your RSCCs group have?_____

1.2 How much capital do you have last year?_____

No.	Participation Indicators	Frequency Counts
1.3	How often do you say you participated in the organizational planning last year?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐ D. Regularly ☐
1.4	How often do you say you participated in the organizational decision making process last year?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐ D. Regularly ☐
1.5	How often do you say you participated in approving implementation plan last year?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐ D. Regularly ☐
1.6	How often do you say you participated in the training and education activities last year?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐ D. Regularly ☐
1.7	How frequently do you participate in approving implementation plan?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐

		D. Regularly ☐
1.8	How often do you say you participated in availing the saving and credit service last year?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐ D. Regularly ☐
1.9	How often do you say you participated in voting and election last year?	A. Never ☐ B. Rarely ☐ C. Sometimes ☐ D. Regularly ☐

III. The Empowerment Impact of the Rural Saving and Credit Cooperatives

1. Agency in Agricultural Production

No.	Activity specifications	Did you engage in the [activity] in the last production years? A. Yes ☐ B. No ☐	Who do you say typically make the decision for [the activity?] [Code; 1]
1	Which and how much should the agricultural inputs the household buy?		
2	Which types of crop should the household grow?		
3	Which livestock type should the household rear?		
4	Which and how much farm output should the household offer for sale?		
5	Which type and amount of agricultural output should be consumed for the household?		
6	Which small ruminant and its product do the household offer for sale?		

Index for Code 1: 4= A decision only a woman made; 2= A decision mainly a woman made; 3= A decision jointly made ; 4= A decision mainly a man-made; 5= A decision only a man made

2 A. Agency in Resources

No.	Resource Specifications	Did you engage in the decision making about [the resource] in the last production years? A. Yes ☐ B. No ☐	Who do you say typically take the primary role [in the mentioned resources]? [Code; 1]
1	Land usufruct right?		
2	Offering the big lives tocks for sale		
3	Purchase and sale of new livestock		
4	Purchasing and sale of small livestock such as goats, sheep etc		
5	Purchase and sale of Chickens, Ducks, Turkeys, Pigeons		
6	Purchase and sale of Farm equipment		
7	Purchase and sale of transportation means		

Index for Code 1: 4= A decision only a woman made; 2= A decision mainly a woman made; 3= A decision jointly made ; 4= A decision mainly a man-made; 5= A decision only a man made

2B. Access to and Utilization of Saving and Credit Services

No.	Resource specifications	Did you engage in the decision making about [the resource] in the last production years? A. Yes ☐ B. No ☐	Who do you say typically take the primary role [in the mentioned resources]? [Code; 1]
1	Access to the Credit Service		
2	Take or Resume the Credit Services.		
3	Utilization of the credit services.		

Index for Code 1: 4= A decision only a woman made; 2= A decision mainly a woman made; 3= A decision jointly made ; 4= A decision mainly a man-made; 5= A decision only a man made

III. Income and Expenditure Related Decisions

No.	Activity specifications	Did you engage in the decision making about [Income and expenditure] in the last production years? A. Yes ☐ B. No ☐	Who do you say typically take the primary role [income and expenditure decisions]? [Code; 1]
1	Use of the income from crop sale		
2	Use of income from the livestock sale		
3	Expenditure for the health and food.		

Index for Code 1: 4= A decision only a woman made; 2= A decision mainly a woman made; 3= A decision jointly made ; 4= A decision mainly a man-made; 5= A decision only a man made

IV. Leadership

No.	Leadership domains	Did you [leadership types]? A. Yes ☐ B. No ☐	How often do you say you participated in [leadership] **[Code; 1]**
1	Participation in social and economic groups last year		
2	Feeling comfortable in public speaking last year.		How do you feel about your comfort while speaking publicly? **Code [2]**

Code 1: 3= Regularly;2=Sometimes;1=Rarely; 0=Not at all.
Code 2: 3=yes, very c; 3=yes, moderately; 2= with a great difficulty; 0=Not comfortable at all

V. Time

No.	Time allocation satisfaction	Did you satisfy in [time allocation]? A. Yes ☐ B. No ☐	How do you say our satisfaction level on time allocation for household and productive roles? **[Code; 1]**
1	Satisfaction regarding time allocation in the domestic and productive activities		

Code Index: 3=highly satisfied; 2=moderately satisfied; 1=rarely satisfied; 0=not satisfied at all

VI. Financial Literacy

No.	Final Literacy	Did you consider you have financial computation knowledge? A. Yes ☐ B. No ☐	Who much do you say you have the financial competence level [Code; 1]
1	How do you rate your competence to deal with money?		

Code Index: 3.Highly competent; 2.Moderately competent; 1.rarely competent; 0. not competent at all

Appendix 9B: Guiding Questions for the Group Discussion

1. How do you see your access to the financial service in your locality?

2. What are the problems you face in accessing the formal financial institutions? Why?

3. What are the benefits you lost or gain in lack of using the formal financial institutions?

5. What alternative financial institution exist in your local kebele?

6. Do you consider the RSCCs as financial alternative provider? Why?

7. What benefits do you consider from the RSCCs?

8. Do you think the RSCCs empower women in the agriculture? Why?

9. What individual characteristics do you think influences women's membership in the RSCCs?why?

10. Is your membership based on your will or due to the promotion? Why?

11. What do you think about the cooperatives and its operation? Do you trust it?

12. How do you perceive about the financial service from the RSCCs?

13. What household characteristics do you think influences women membership in the RSCCs? Why?

14. What institutional factors might determine women's membership in the RSCCs? Why?

15. What do you think should be done to boost women's membership in the RSCCs?why?

16. Do you think women actively participate in the RSCCs?

17. What individual factors influence women's active engagement in the RSCCs?

18. What household factors do you think influence women's intensity of participation in the RSCCs?

19. What institutional factors do you think influence women's intensity of participation in the RSCCs?

20. What should be done to ensure women's intensity of participation in the RSCCs affairs?

Appendix 9C: Guiding Questions for the Key Informant Interviews

1. What is the general status of women membership in the RSCCs in your woreda?

2. What are the services the RSCCs offer in your woreda?

3. How do you promote women's membership in the RCSCs?

4. What are the objectives of women membership promotion in the RSCCs?

5. What are the organizations you work with in your promotion?

6. What do you think enhance women's membership in the RSCCs?

7. How do you think RSCCs promote women's empowerment in agriculture?

8. What individual characteristics do you think influences women's membership in the RSCCs?why?

9. Is your membership based on your will or due to the promotion? Why?

10. What do you think about the cooperatives and its operation? Do the rural women trust it?

11. How do they perceive about the financial service from the RSCCs?

12. What household characteristics do you think influences women membership in the RSCCs? Why?

13. What institutional factors might determine women's membership in the RSCCs? Why?

14. What do you think should be done to boost women's membership in the RSCCs?why?

15. Do you think women actively participate in the RSCCs?

16. What individual factors influence women's active engagement in the RSCCs?

17. What household factors do you think influence women's intensity of participation in the RSCCs?

18. What institutional factors do you think influence women's intensity of participation in the RSCCs?

19. What should be done to ensure women's intensity of participation in the RSCCs affairs?

Addis Ababa University

College of Development Studies

Office of the Associate Dean for Research and Technology Transfer

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