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Women's Participation in Agricultural Cooperatives in Ethiopia

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Abstract

Agricultural cooperatives hold much potential to enable economically weak farmers, in developing countries, to increase their collective bargaining power and so enhance their incomes. They provide input services and create market opportunities to their members' products. In most developing countries, female farmers are marginalized from participating and benefiting from such groups. This paper uses a rich dataset from a survey undertaken by the Ethiopian Economic Association and the International Food Policy Research Institute (IFPRI) in eight woredas in seven regions of Ethiopia with a sample of 1,117 households and 73 agricultural cooperatives. Using descriptive statistics and econometric analysis under a critical gender lens, the paper identifies which cooperative, household, and individual level characteristics influence women's participation in agricultural cooperatives. The findings suggest that a major barrier to women's access are gender biases within households, communities, and cooperatives themselves that favor educated male household heads and land owners over resource-poor women.

Keywords: Ethiopia, cooperatives, agricultural cooperatives, women, women's empowerment, women's participation, gender equality



1. Introduction

Within Africa and the international community, there is growing interest in supporting agricultural cooperative and cooperative union development as a platform for enabling vulnerable female and male smallholder farmers to secure sustainable livelihoods. In Ethiopia, 85 percent of the population depends on agriculture for their livelihoods; most are smallholder farmers who lack access to modern inputs and markets (FAO, 2011a; Rural Poverty Portal, n.d.). Cooperatives hold much potential to empower these economically weak women and men by enhancing their collective bargaining power in the market, thereby reducing the risks that they face in the market and enabling them to leverage enhanced market opportunities. By building up individual capacities, they help improve members' incomes, leadership skills, and overall socio-economic status and resilience (Alkali, 1991; World Bank, 2009).

Global and national evidence clearly shows that rural women play critical roles in bringing about food and economic security for their households (CSA and ICF International, 2012 pp. 246–260; FAO, 2011b; Gobezie, 2010; Jones et al., 2010). Due to this mounting evidence, greater attention is being paid to ensure that agricultural policies and programs are gender sensitive and address barriers to women's equal participation and benefit in rural producer groups and cooperatives (FAO 2011b, 2012; World Bank, 2009; USAID, 2012). This recognition, however, has not yet translated into policies and programs in the cooperative sub-sector that are effectively facilitating women's increased and meaningful participation in these formal groups.

Women face, more often than not, major obstacles to joining and being active members of typically male-dominated cooperatives. Due to unequal gender norms and relations, women have a lower socio-economic status, compared to their male counterparts, which limits their opportunities to access and participate in formal groups. Women's freedom is constrained by men's control over their mobility, by socio-cultural expectations that they are primarily responsible for all domestic work, and in relation to this, by their uneven reproductive, productive, and community work burdens. Their restricted access to, control over, and ownership of land, credit, and information, as compared to men, disadvantage them from meeting conditions of formal group membership and leadership (FAO, 2011b; World Bank, 2009 pp. 63–70).

These dominant gender inequalities contribute to the fact that cooperative organizations are controlled and managed by men. Wealthier, educated, larger-scale, male farmers have advantages over more economically vulnerable farmers, particularly resource-poor women (Oxfam International 2013 pp. 15). The latter lack the education, knowledge, respect, time, and productive assets to engage meaningfully and to have their voices heard in comparison to these more privileged men (FAO 2011b pp. 51; Oxfam International, 2013; Weinberger and Jutting, 2000).

Women's equal participation in agricultural cooperatives is both a women's right and important for sustainable and people-centered development. If cooperatives are gender-responsive and inclusive, they can help women overcome gender specific constraints to improve their self-confidence, knowledge, leadership skills, income, and access to agricultural inputs, social networks, and position in value-chains. When women are more economically and socially empowered, evidence shows that there are direct and positive impacts on women's household and community decision-making power and on access to and control over productive assets. These changes lead to improved household nutrition, food and income security, broader development outcomes, and a more integrated production of both food and cash crops (CSA and ICF International, 2012; FAO, 2011b; Quisumbing, 2003).

In addition, more inclusive cooperatives play a stronger social role in improving gender relations and helping women create safe spaces to build their social solidarity and problem solving capacity, particularly in all-female cooperatives. In mixed cooperatives, female and male members can learn to adopt more gender equitable values to respect one another as full-fledged farmers, processors, and entrepreneurs. When women gain leadership positions, it helps them to build their self-confidence, exercise their political leadership, and gain respect from their male and female peers (Baden and Pionetti, 2011; Gizachew, 2011; USAID, 2012; World Bank, 2009).

In Ethiopia, women's participation in agricultural cooperatives is generally very low. Those women who are members face problems and constraints that adversely affect the benefits that their membership in such groups should bring. With very little research available on what factors contribute to women participating in cooperatives; this paper aims to fill this critical knowledge gap for improved agricultural policy and programs in the cooperative sub-sector. It identifies what characteristics of cooperatives, households, and individual women most influence women's participation in agricultural cooperatives. It quantifies which household and individual factors contribute to women joining cooperatives and which types of cooperatives are more likely to attract women as members.

For this analysis, we rely on a recently collected survey dataset of 1,115 farm households undertaken by the Ethiopian Economic Association (EEA) and the International Food Policy Research Institute (IFPRI) in 2009 carried out in eight *woredas* in seven regions of Ethiopia. A questionnaire, including detailed questions on cooperative membership, was administered both to household heads and to spouses in the selected households. A separate questionnaire was also administered to 73 agricultural cooperatives in all *woredas* in the sample. Using this rich dataset, both descriptive statistics and econometric analysis were carried out to identify what cooperative, household, and individual level characteristics influence women's participation in agricultural cooperatives.

In line with national statistics, this research found that female membership is very limited in the cooperatives studied. Women constitute only 20 percent of cooperative membership, and only 18 percent of the cooperatives reported women in leadership positions. Among all women sampled for the household survey, only 6 percent are members and none mentioned holding a leadership position in an agricultural cooperative. Women who have a higher level of education, who come from more educated households, or who are household heads are significantly more likely to participate in cooperatives. Our results further show that government activities—visiting cooperatives and formally registering cooperatives—do not affect women’s participation in cooperatives. Gender was not on the list of important topics discussed in cooperative leadership meetings in the past year. These findings suggest gender issues do not get the necessary attention needed at different levels of cooperative administration.

The following sections begin by reviewing the wider literature on reasons for women’s low participation in and benefit from cooperatives. Section 3 presents the study data and methodology, followed by the results and analysis using descriptive, econometric, and gender analyses. The final section highlights conclusions and strategies for improving women’s participation in agricultural cooperatives based on the results and discussions.

2. Literature Review

In sub-Saharan Africa, women are the backbone of the rural economy. They make up almost half of the agricultural labor force, 60 percent are employed in the sector, and they produce the bulk of Africa’s food (FAO 2011b, pp. 8; Manuh, 1998). In Ethiopia, women’s participation is estimated between 45 and 75 percent, particularly in crop production (Bill & Melinda Gates Foundation, 2010, pp. 16). Yet, evidence suggests that women produce a third less per unit of land than male farmers due to gender specific barriers to input-use and access to agricultural extension services (ACDI/VOCA, 2013). Women, compared to men, have unequal access to, control over, and ownership of key productive assets such as land, credit, information and services. In 2005, only 18.6 percent of rural landholders were women, only 9 percent had access to agricultural extension services, and only 12 percent of those accessing agricultural credit were women (MoWa, 2005).

Agricultural cooperatives offer important benefits for economically weak farmers—both female and male—to improve their livelihoods through developing their collective and individual capacities (Alkali, 1991; World Bank, 2009). However, in Ethiopia, cooperative membership is generally very low. According to a study based on 2005 data, only 9 percent of smallholders were members of agricultural cooperatives and only 40 percent of rural households had access to cooperatives within their *kebeles* (Bernard and Spielman, 2009). In the case of women, while their representation is slowly growing, they represent fewer

than 20 percent of cooperative membership; and there are even fewer women in leadership positions. Men dominate in agricultural cooperative membership and management (Mogues et al., 2009).

A main contributing factor to women's low participation in cooperatives are deep-rooted socio-cultural norms and practices which put women and girls in a much lower position relative to men and boys. Dominant gender norms, stereotypes, and practices shape gender power relations at household, community, and institutional levels. These influence women's social and economic capabilities and opportunities to engage in cooperative activities in the same way as men. Typically, men and boys are expected to be self-reliant, household heads, the main income earner within the household, decision makers, and public leaders. In contrast, women are assumed to be mothers, caretakers of all household domestic and care duties, under the authority of male figures, second in command, and valued for being docile and submissive (Jones et al., 2010 pp. 12; UNFPA 2008 pp. 16). Women and girls have lower decision-making power and lower educational attainment (i.e. only 38 percent of women aged 15–49 years are literate as compared to 65 percent for men aged 15–59 years (CSA and ICF International 2012, pp. 35)). They typically have lower self-esteem and fear voicing their opinions in public spaces. These socially and culturally ascribed roles are changeable but tend to structure gender relations inside and outside the household. They limit women's social and economic networks and opportunities. In comparison, due to higher social status and expectations, men dominate public spaces, including more formal groups like cooperatives. In addition, men tend to have a broader range of associations as a result of their more publicly accepted role and broader range of opportunities. In contrast, due to men's control over women and women's heavy work, women tend to have a narrower repertoire of social networks and community associations. They have less time and information to participate in more formal community groups (Aregu et al., 2010 pp. 32–36).

The wider literature on community-based groups demonstrates that as groups become more formalized, women's participation tends to decrease, while that of men increases (World Bank 2009, pp. 63–70). Global and national evidence shows that women are much more likely to be members of informal self-help groups, like village level saving and loan groups, than of more formal groups due to the greater social and economic gains they experience in these informal groups. In Ethiopia, women generally have control over less lucrative crops and livestock and men over more profitable cash crops and larger livestock. Women tend to self-organize around domains under their direct control, such as small vegetable production and marketing (Pionetti et al., 2010, pp. 1). These latter products also tend to be less profitable than men's products. Moreover, some research suggests that as agricultural crops or livestock production become more lucrative and commercialized, men tend to take over the productivity and marketing, marginalizing women, even if the crop or livestock was traditionally under women's control (e.g. shift to irrigated vegetable production) (Pionetti et al., 2010 pp. 1). In addition, recent studies have shown that a dominant gender stereotype in formal community-based groups and levels of government is that women's farming is informal, in the

private sphere, and secondary to men's cash crop farming (Mogues et al., 2009; Sorensen and Bekele, 2009). Such beliefs shape the perceptions of both women and men within cooperatives that women lack the ability and skills to manage and lead such formal groups and have inferior knowledge of agriculture. This gender asymmetry excludes women from fully participating and taking advantage of the opportunities offered through these more formalized groups to engage in more lucrative growth-oriented businesses.

At the same time, smaller informal groups, like saving and loan groups; may be more conducive to women's small-scale businesses and to their needs to cover household daily expenses as compared to larger loans that may be accessed through cooperatives. Women-only self-help groups can provide women with safe spaces not only for saving and accessing loans, but also for building strong social and political solidarity around social, political, or economic issues. Numerous studies found that for most rural women increased self-esteem, ability to communicate and lead, greater freedom to move around, and a sense of strong social and political solidarity were sometimes more important than the direct economic advantages of group membership (World Bank 2009 pp. 64). The fact that women seem to opt for smaller more informal groups likely contributes to their lower participation than men in formal agricultural cooperatives (Oxfam International, 2013; World Bank, 2009).

Land ownership is often another requirement for cooperative membership. Most women, married or as female heads, have limited access to and ownership of land due to customary practices that assume male headship and ownership, despite new land certification policies in Ethiopia that define both women and men as equal owners (Kumar and Quisumbing, 2012). One recent study identified farmer's educational attainment and landownership as the most important determining factors of cooperative membership in Ethiopia (Bernard and Spielman, 2009). Further evidence suggests that women's low level of education is one of the most important factors contributing to women's low participation in cooperatives (FAO, 2011b; Idrisa et al., 2007 pp. 73–78).

The barriers women face shift according to individual and social group characteristics such as social and educational status, age, and location. One study found that older, wealthier, more educated, unmarried, female household heads are more likely to be members of agricultural cooperatives as compared to other women (Oxfam International, 2013). These women have fewer household responsibilities, less time constraints, greater access to assets and resources, and a wider range of informal and formal group memberships. Due to a variety of factors—e.g., cultural traditions that constrain mobility and bargaining power—married women face unequal access to and control over key productive assets such as land ownership, financing, agricultural technologies, and formal agricultural extension services. They are overburdened with labor and time-intensive reproductive and social chores that leave them little time and energy for equally participating in formal cooperative meetings and activities, as compared to men. These

gender specific constraints and vulnerabilities hinder them in reaching their full economic potential (Jones et al., 2010).

Several studies across Africa show that cooperative laws, rules, and by-laws often discriminate against married women by demanding that a condition of membership is being the household head (ICA, 1983; Oxfam International, 2013). In Amhara region, most cooperatives have as a membership rule ‘only one member per household’, which has led to female household heads being more likely to be members than married women (Oxfam International 2013 pp. 37). Moreover, female household heads are more likely to join compared to married women because they are less constrained in their mobility and have greater freedom and access to information to join such groups. Married women often feel excluded from male-dominated cooperatives because of male-biased rules governing cooperative membership. As such, they are denied the benefits of access to input services, participation in trainings, and knowledge sharing. “Men are expected to participate in such events and pass on the information and knowledge gained to their wives. However, in practice, there is often little “trickle across” because men and women generally do not have the same priorities in livelihood decisions” (Aregu et al., 2010 pp. 36).

Another study (Desta et al., 2006) found that female household heads have certain advantages over married women. Generally, they are more educated and have more freedom of mobility and choice to participate in multiple community groups. They may have greater control over household resources compared to married women in male-headed households. Married women have too many responsibilities in the home and expectations from husbands to stay near the home and not participate in social meetings and thus have less access to community resources as compared to female household heads. However, even if female heads can join, there are other barriers to their participation and leadership because they generally have limited productive assets to equally participate as male members.

Studies have found that those women who do end up in positions of authority in formal community groups usually already had a position of leadership in the community (Jones et al., 2010 pp. 22). Considering that female household heads participate more in broader community structures, it is very possible that they have an added advantage over married women in accessing leadership positions in cooperatives. One recent study indicates that women who are involved in numerous formal and informal community-based economic groups are more likely to be members of cooperatives than women who are only members of one type of group (Oxfam International, 2013 pp 37). There is some evidence in the context of Ethiopia that when there are women in leadership roles, there is a greater likelihood of other women participating in the organization (Oxfam International 2013, pp. 38).

Some gender gaps have narrowed in the last decade due to a variety of positive changes. There are increased efforts to mainstream gender into the agricultural sector and services such as by increasing the numbers of

female agricultural extension workers and developing women specific support packages (Mogues et al., 2009). New land certification policies favoring joint ownership have led to more equitable division of household assets and allowed more women to claim their land rights upon divorce, death, or separation (Kumar and Quisumbing, 2012). Increased investment in women and girl education has resulted in greater gender parity at primary and secondary levels (MoE, 2011). At the same time, it is important to recognize that some social and cultural norms change positively to support greater gender equality based on numerous factors, including women's improved educational status. While these changes are important, not enough is being done to help rural women access resources, services, and capacity building opportunities needed to equitably participate in cooperatives. Participation is more than about counting the numbers of women represented; it is about women having a voice and influence within groups and having access to services they need and in which they are interested to have equal opportunities to improve their socio-economic status.

This review of the literature highlights the fact that socio-cultural norms and practices, unequal division of labor, and access to and control over assets disadvantage women over men in accessing and taking advantage of cooperative groups. In addition, women's limited education and low self-confidence are contributing factors. Broader institutionalized gender discrimination within cooperatives and other society structures tends to privilege male farmers' interests, particularly wealthier, educated ones, over the more economically weak farmers, including resource-poor women. Wealthier female household heads are more likely to be members of agricultural cooperatives than are married women from poorer households.

3. Conceptual Framework

Since the 1980s, there has been a debate in economic theory between the unitary and collective household models (e.g., Agarwal, 1997; Browning et al., 2004; Guyer and Peters, 1987; Haddad et al., 1994; Kabeer, 1994; Quisumbing, 2003). The unitary model assumes households can be represented as one decision-making unit in which all members pool their resources together for the same end and common good. In contrast, collective models account for the uneven distribution of power and resources within and external to households. These models understand households as "recognizably constituted of multiple actors, with varying (often conflicting) preferences and interests, and differential abilities to pursue and realize those interests" based on social and economic factors such as gender and wealth (Agerwal, 1997 pp. 3).

The unitary household model views households as maximizing a given household utility function subject to household constraints. The collective household model views households as maximizing a generalized household utility function that takes a weighted sum of members' individual utility functions. There are

various theories under each model and even some perspectives that argue households may have both unitary and collective qualities such as relations based on both cooperation and conflict. For the purposes of comparison, the most general collective model uses a generalized household utility function of a two-member household:

$$\max_{C_h} \{U(C_h d_1 d_2 w)\} = \max_{c_1 c_2} \{\mu(w)u_1(c_1 d_1) + (1 - \mu(w))u_2(c_2 d_2)\}$$

Subjected to $c_1 + c_2 = c_h$

Where C_i = consumption of i (where $i = h(\text{household}), 1(\text{member 1}), 2(\text{member 2})$);

d_i = Personal characteristics of member i that include individual specific factors such as age, gender, etc.;

μ = the Pareto weight attached to the utility function of the first member. $(1 - \mu)$ by definition will be the weight attached to the utility of the second member;

w = factors which determine the Pareto weight, both household internal characteristics and external factors.

The household maximizes a weighted sum of the utility functions of members. The Pareto weight (μ) is bounded between zero and unity. For values of $\mu = 1$, person 1 is an effective dictator, whilst $\mu = 0$ shows that person 2 is a dictator (Browning et al., 2004).

Generally speaking, a household's decision in maximizing U depends on household consumption, individual member characteristics (d), and household and external factors (w). Under the collective model of the household, decision-making on whether a household member should join a cooperative union or not depends on the different personal characteristics of each individual member (such as being male or female or educated or not), on household characteristics (such as being wealthy or poor), and on external factors (such as whether there are cooperative by-laws that mandate equal representation of women and men in management).

In the unitary household model, household decision-making to maximize a given household utility function depends on the characteristics of the household and the external factors to the household. It ignores individual household member's different status relative to other household members or personal preferences. It can misrepresent household decision-making by assuming male household heads, who generally control most strategic decision-making, can represent the interests and needs of all household members, including their wives.

An extensive body of research has demonstrated that households cannot be represented as single or unified units of decision-making (Agerwal, 1997; Guyer and Peters, 1987; Quisumbing, 2003). In the range of collective household models, an important term used to define individual power is a household member's "bargaining power" based on their access to and control over resources inside and outside the household. As discussed above, wealthier, large-scale, male household heads are more likely to join cooperatives than

their counterparts are because they have more social and economic advantages (bargaining power). Married women have less social and material assets and thus are in a lower “fallback position” to influence decision-making and to hold power within and outside the household. Both individual and household characteristics influence membership in cooperatives.

In this paper, the collective household model is used for reasons discussed above and in the coming sections. In modeling an individual’s probability of joining an agricultural cooperative, individual characteristics of the person are included in the right hand side of the model. Thus, the unit of analysis will be the individual member of a household and not the household as a whole.

4. Data and Methodology

4.1. Data

Data used for this study is based on surveys undertaken jointly by the Ethiopian Economics Association (EEA) and the International Food Policy Research Institute (IFPRI) in 2009. The surveys were conducted in eight selected *woredas* in seven regions of Ethiopia. These surveys were conducted at two levels: the *kebele* level, and the household/individual level.

For the household level dataset, observation units were selected using a multistage sampling procedure. Initially, eight *woredas* were purposively chosen from seven administrative regions (two *woredas* from Amhara and one each from Afar, Benishangul-Gumuz, Gambella, Oromia, Southern Nations, Nationalities, and Peoples Region [SNNPR], and Tigray); then 4 *kebeles* per *woreda* (a total of 32 *kebeles*) were selected; and finally, 1,120 households were randomly drawn from the 32 *kebeles*. The number of households was reduced to 1,115 after some data cleaning.

For the *kebele* level sample in the eight *woredas*, all *kebeles* were selected resulting in 156 *kebeles*. Distinct questionnaires with many different respondent types (*woreda* council member, *kebele* council member, development agents, *kebele* chairperson, and water committee leader) were administered to collect data at the *kebele* level, including a questionnaire administered to the chairperson or the next most knowledgeable person of each agricultural cooperative that is used in this study. After some data cleaning, 73 agricultural cooperatives are used for the analysis in this study; the detail on their regional distribution can be found on Table 5.1.

The household questionnaires was administered to both household heads and spouses and included questions related to membership in cooperatives and details related to the functioning of the cooperatives in which they are members. The questionnaires administered to the leadership of the agricultural cooperatives and resulting data provide an in-depth understanding into the history, way of working, and

services provided to members of agricultural cooperatives in the respective *kebeles*. Table 4.1 summarizes the distribution of the sampled households among the seven regions.

Table 4.1—Regional distribution of household-level respondents

4.2. Method of Data Analysis

Data were analyzed using descriptive and econometric methods and further reviewed using a critical gender perspective. Simple data description and mean difference tests were used to compare different groups of cooperatives and individuals. Econometric models were then applied to come up with results that are more reliable. How cooperatives' characteristics are associated with higher or lower share of female members was analyzed in combination with individual characteristics that most determine women's membership in cooperatives.

Two types of analysis were done. First, to examine the association of cooperative characteristics with proportion of female members in the cooperatives, simple OLS and Tobit models were employed. The dependent variable in these models is the proportion of female members from the total number of cooperative members. The model specification is as follows

$$Y_i = \beta_0 + \beta_i X_i + \varepsilon_i$$

Where Y_i refers to the proportion of female members in the i^{th} cooperative; X_i refers to cooperative characteristics included in the model to explain the variation in Y_i ; β_0 and β_i are the constant and slope coefficients to be estimated; and ε_i is the disturbance term, which is assumed to be normally distributed [$\varepsilon_i \sim NID(0, \delta^2)$]. The model was truncated from below at zero because there were some cooperatives in the dataset that had no female members. We estimated this model both without and with an upper limit. The notion behind putting an upper limit emanates from the objective of having gender balance instead of gender dominance, which would be the case if the proportion of women is allowed to go up to 100 percent.

A second econometric model was used to study the determinants of membership. The variable of interest here is why some people are members while others are not. Therefore, the dependent variable is binary (0 for non-members and 1 for members). A logit model was used, recognizing the discrete choice nature of the dependent variable. Let the observed outcome be Y_i and the underlying latent variable Y_i^* , which is the unobserved threshold level that marks between being a member or not in a cooperative. It is assumed that this is a function of observed personal and socioeconomic factors, X_i , and unobserved characteristics, ε_i , for respondent i . This can be expressed in equation form as:

$$y_i^* = x_i \beta + \varepsilon_i, [\varepsilon_i \sim NID(0, \delta^2)].$$

If this threshold level is set to zero, without loss of generality, then the logit model can be fully described as:

$$y_i^* = x_i \beta + \varepsilon_i, [\varepsilon_i \sim NID(0, \delta^2)]$$

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases}$$

This logit model was then calculated and the marginal effects of the right hand side (x) variables on the probability of being a member in a cooperative were assessed.

5. Results and Discussion

5.1. Cooperative Characteristics

In our sample, there are 73 cooperatives whose chairperson or most knowledgeable person in the cooperative was interviewed. These cooperatives are spread throughout the seven regions and eight *woredas* of the sample. For each *woreda*, one agricultural cooperative in each *kebele* was interviewed. The number of cooperatives found in each *woreda*, however, varies considerably. As presented in Table 5.1, out of the 73 cooperatives, twenty cooperatives are found in Sekota of Amhara region, while only two are in Telalak *woreda* of Afar region. When analyzing the number of cooperatives in relation to the number of *kebeles* in each *woreda*, the highest concentration of cooperatives is found in the Ofla *woreda* in Tigray (0.77 cooperatives per *kebele*), while the least is in Telalak (0.17 cooperatives per *kebele*), indicating strong regional differences in the importance of cooperatives.

Table 5.1—Number of cooperatives by *woreda*

These results of low access to cooperatives confirm other study findings (Bernard and Spielman, 2009; Bernard et al., 2010). In the context of Ethiopia, the number of actual cooperatives varies considerably by village, *woreda*, and region, with only limited numbers in economically and politically emerging regions like Afar. The fact that there are only a few cooperatives in many regions indicates that rural women and men still have restricted access to the financial and agricultural marketing services these formal community-based structures can offer.

Figure 5.1—Year cooperatives were established

Figure 5.1 shows that a high proportion of cooperatives were established in the years between 2004 and 2007 with about 30 percent established in the year 2005. A few of the sampled cooperatives date their establishment back to 1979. There is a significant increase after 1996 where about 15 percent of the sampled

cooperatives came into existence between 1996 and 1998. Many more cooperatives were formed after this period.

The results of the survey show that the establishment of most of these cooperatives was initiated by the *woreda* and *kebele* offices. Only 10 percent was initiated by members themselves, while 47 percent and 13 percent were organized by *woreda* and *kebele* offices, respectively. This data indicate that initiatives by farmers to form their own cooperatives are still rare.

The fact that most cooperatives are facilitated by local officials of whom the majority is male may explain why so few cooperative members are women (Oxfam International, 2013 pp. 38). This can partly be understood in relation to the low numbers of women accessing extension services. Only 12 percent of agricultural extension workers are female (Davis et al., 2010) and recent studies show that agricultural extension services are typically male-biased. Women's contributions, farming needs, and agricultural market-based interests may then be neglected by mainly male agricultural extension workers. While efforts are being made to target more female farmers and respond to their specific needs and interests, there is still a tendency to provide fixed agricultural extension packages, developed top-down, that cater more to wealthier, male farmers who are already well-established, rather than to more risky and marginalized farmers, among whom are many female farmers (Mogues et al. 2009 pp. 24–25). More recent efforts are being made to accommodate the different interests and roles of more female farmers, but much more must be done to build women's capacities to join and take full advantage of the benefits of agricultural cooperatives (Ragasa et al., 2012 pp. 1).

At the time of cooperative establishment, the average number of members per cooperative was around 245. By the time the 2009 surveys were conducted, membership had more than doubled, reaching an average of 600 members per cooperative (Figure 5.2). This increase can be observed in all the *woredas* surveyed and, based on information obtained through the interviews, most of these cooperatives are still accepting new members. The majority (68 percent) of cooperatives studied have members only from the same *kebele* where the cooperative is located, while the rest of them have members from other *kebeles* as well (Table 5.2).

Figure 5.2—Average number of cooperative members by *woreda*

In almost all cases, members of cooperatives need to pay a one-time entrance fee upon joining cooperatives. The median entrance fee is about 5 Birr, but ranges from one Birr to 170 Birr. Most cooperatives charge an average of 10 Birr or less. Other than the one-time entrance fee, most of the cooperatives manage to get additional revenue by saving some of the profits from sales of members' outputs or by charging additional fees to members for inputs.

Table 5.2 presents the percentage of cooperatives surveyed that provide different services to members. As it can be seen in the table, 67 percent of the cooperatives mention that members buy more shares than the minimum number of shares that they have to buy when they become members. In actual practice, however, only six percent of these cooperatives had actually distributed any dividend to their members in the year prior to the survey. When asked about the main reason the cooperative was established, the majority of respondents stated that the cooperative's main role was to provide agricultural inputs at a lower price to the members and to sell the quality crop products of the members to the market, so that members make higher profits. Other functions of cooperatives noted by respondents include provision of credit to members and empowering farmers.

In terms of service provision to cooperative members, 55 percent had obtained and provided inputs for members in the year prior to the survey. The two major inputs were fertilizers and improved seeds. Although most cooperative representatives interviewed stated that the original purpose of their cooperative was to help improve sales of their members' products, only 26 percent of the cooperatives had successfully sold their members' products (Table 5.2). Most of these cooperatives (approximately 85 percent) sold their members' products at local markets. The two major crop types sold were wheat and maize. No livestock or livestock products were sold through any of the cooperatives. Approximately 38 percent of the total amount of crops that cooperative members put on the market was sold through the cooperatives. The results suggest that cooperatives are doing a decent job in input distribution, while their role in providing market opportunities for members' agricultural outputs is still very weak.

Another service offered by the cooperatives surveyed was offering credit to members either directly or by playing an intermediary role for members to receive credit from other sources. Such service is being provided by about 77 percent of the cooperatives, with 48 percent lending directly, 25 percent playing an intermediary role, and 4 percent giving both services (Table 5.2). For those cooperatives playing an intermediary role, their main partners for credit provision are microfinance and government institutions and NGOs. The average size of one loan is about 1,311 Birr, with a minimum and maximum amount of 40 Birr and 3000 Birr, respectively. The annual interest rate on the loan is around 10 percent on average. Most of these loans were taken for purchasing agricultural inputs and livestock.

Table 5.2—Cooperatives' characteristics

For cooperatives to attract male and female members and to keep them, they must satisfy different interests and needs. Women tend to collectively organize around crops and livestock under their direct control (Pionetti et al., 2010 pp. 1). In the cooperatives surveyed, maize and wheat were the main cash crops supported and sold, which are traditionally under men's control in Ethiopia. Moreover, although female farmers are generally very interested in accessing loans, some may fear not being able to repay loans despite

the fact that women have proven to be more reliable at repaying loans than men (CARE, 2009 pp. 2; World Bank, 2009 pp. 87). As global evidence suggests, and supported by these results, mixed-sex agricultural cooperatives appear to cater more to male farmers' interests and therefore, neglect female farmers' needs and interests (Pionetti et al, 2010 pp. 1; World Bank, 2009 pp. 63). Moreover, another study showed that small-scale farmers tend to sell less of their products through their cooperatives compared to wealthier farmers. This is another possible disincentive for more vulnerable female farmers to actively participate in agricultural cooperatives (Bernard et al., 2007). These findings suggest that women's low membership can partly be explained by the lack of services catered to their needs and interests.

The analysis of results above suggest that the characteristics of cooperatives—in terms of the way they are organized and function, what services they provide, and what products they sell—may influence women's interest to join and participate in cooperatives. The next section investigates more closely the relationships between cooperative characteristics and women's participation in them.

5.2. *Cooperative Characteristics and Women's Participation in Cooperatives*

The percentage of female members in the cooperatives surveyed is 20 percent on average, reflecting national trends (USAID, 2012). Five percent have no female membership, while for most cooperatives the proportion of women constitutes less than 33 percent. A striking result is that the percentage of women did not increase over time. From the time of establishment to the time of the survey, the percentage of women increased on average by only 3 percent. Looking at the percentage of female cooperative members across *woredas*, a relatively higher increase in women's participation is found in Sheko *woreda* in SNNP, while in Telalok the percentage of women actually declined over time (Figure 5.3). The survey data provide no additional information as to why this is so.

Figure 5.3—Percentage of female members in cooperatives

The wider literature on women's empowerment in cooperatives indicates that when women are offered long-term capacity building to increase their functional literacy, self-confidence, financial literacy, business skills, and access to inputs and services, they are more likely to join, actively participate in, and lead formal groups like cooperatives (World Bank, 2009 pp. 63–70). Moreover, where cooperatives already have female leaders who can act as role models to other female farmers, female membership tends to increase (Oxfam International, 2013). Female membership and leadership can act as a trigger for other women to become members. Moreover, it is conceivable that where there is more female membership and leadership in cooperatives, there are complementary services and programs in those communities that support women to join cooperatives or that make existing cooperatives more gender-responsive.

In terms of women's leadership, 82 percent of the cooperatives have no female leaders (Table 5.3). No women were found to be chairpersons of the cooperatives in our sample. For those cooperatives which have some female leadership, most of them only have one woman represented, holding a position of secretary, treasurer, committee member, or accountant. Only three cooperatives (or 4 percent of all), two in Telalak and one in Yaso *woreda* in Benishangul-Gumuz, have more than three female members in leadership positions. In 90 percent of the sample cooperatives, the leadership is elected by the members themselves. Low participation of women in leadership positions could be a result of deeply rooted traditions and societal perceptions that women cannot be leaders of groups, as this position is considered to be in the men's domain. Moreover, the fact that membership of women in cooperatives is low helps explain why women are not being voted as leaders (also see Oxfam International, 2013 pp. 38). Male members likely prefer to elect wealthier, more educated members, who are well respected and recognized as leaders in their own right.

Table 5.3—Women's participation in cooperatives

One opportunity to change this gender gap is the Federal Cooperative Agency's plan to recertify agricultural cooperatives based on guidelines of what constitutes a well-functioning agricultural cooperative. One requirement will be to demonstrate good gender practice such as quotas on women's representation among membership and leadership and to provide services tailored to female and male farmers.

On the other hand, women's participation in cooperative meetings is similar to those of men. In the last meeting the cooperatives had before the survey, the proportion of men who were in the meeting to the total number of male members was 47 percent, while it was 45 percent for women. This result suggests that once women are members of a cooperative, they are likely equally interested in participating in meetings. The question is whether they are able to equally voice and have their interests heard as male members.

When cooperative leaders were asked if they thought it would be better for the community as a whole if cooperatives had more female members than they currently have, 96 percent said it would be better. The remaining 4 percent did not think it would change anything for the community. Those who favored higher participation of women in cooperatives believed that women's membership helps them to improve their working capital. However, when analyzing the priority topics that were discussed at cooperative leaders' meetings in the year prior to the survey, women's participation was not part of the list of important topics discussed. Only 16 percent of the cooperatives indicated that they had discussed increasing women's participation in their most recent leadership meetings.

Fifty-five percent of the cooperative leaders had received some sort of training in the three years prior to the survey. Most of these trainings (75 percent) were prepared by the *woreda* cooperative promotion office,

while the rest was mainly provided by different NGOs. The most prominent topics covered in the trainings were resource mobilization, how to effectively work with other agricultural cooperatives, and accounting and management issues. Assessing the trainings in terms of addressing women-specific and gender-related issues, respondents indicated that only 28 percent of the trainings explicitly addressed women's concerns. These various findings suggest that women's interests and needs are not being addressed in mixed-sex agricultural cooperatives. For government cooperative offices and their staff on the ground, gender is not yet effectively integrated into their cooperative and union development support.

We undertook an econometric analysis to look into the cooperative characteristics that possibly affect the participation of women in cooperatives. As an overview, Table 5.4 presents the differences in the proportion of women in the cooperatives given various characteristics of the cooperative. Looking at the mean differences, cooperatives that have members from only one *kebele* have a higher proportion of women than those who have members from various *kebeles*. Based on the wider literature review, women generally have a narrower repertoire of community based networks and associations and tend to be members of community-based groups closer to home (Aregu et al., 2010; Oxfam International, 2013). Due to their time and mobility constraints, they are more likely to stay closer to the home. They may also prefer being with people with whom they are familiar. It could also be the case that those cooperatives with members only from the same *kebele* make more effort to attract women to their membership. All these factors combined influence why there is higher female membership in cooperatives with members only from the same *kebele*.

Table 5.4—Mean differences in women's proportion in cooperatives with or without certain characteristics

In addition, the mean difference shows that cooperatives that lend credit or play an intermediate role in providing credit services have a lower proportion of women members than those that do not. This appears counter-intuitive. However, women are often more attracted to smaller scale village saving and loan groups or may prefer saving and credit specific cooperatives for accessing credit (Oxfam International, 2013 pp. 11; World Bank, 2009 pp. 63–70). The other disincentives mentioned above (such as only 28 percent of the trainings given to cooperatives' leaders explicitly addressing women's concerns, women's participation not being discussed during leaders' meetings, and 82 percent of the cooperatives having no female leaders) may also play against women's interests in accessing credit in these mixed-sex agricultural cooperatives. We find no statistical difference in the proportion of women in cooperatives regarding the other tested characteristics of cooperatives.

5.3. Modeling Determinants of Women Members' Proportion in Cooperatives

A Tobit regression model, truncated from below at zero with and without an upper limit of 50 percent women's proportion was adopted to explain the variation in women's membership proportion in cooperatives. Variables which can be indicators for the way the cooperatives are organized and function, the characteristics of the cooperatives at the time of their establishment, leaders' characteristics, and links between the cooperatives and government services are included as explanatory variables on the right hand side of the model.

Table 5.5 presents the results of the model estimation. The Tobit model results with and without the upper limit are similar in terms of the importance of different factors. The link between cooperatives and government officials is not found to have a significant effect on women's proportional representation. The variables used as an indicator for cooperatives' links with government officials—i.e., the dummy for 'cooperatives are formally registered' and 'number of visits to government officials'—are statistically insignificant. This could be because government officials supporting cooperatives do not prioritize during visits the need to advocate increasing women's participation. This reflects other studies' results that women generally have not been accessed equally by agricultural extension workers nor benefited equally from services that meet their needs and interests (Mogues et al., 2009; Ragasa et al., 2012). These results also show that cooperatives do not face any problem in being formally registered even if they fail to have considerable numbers of female members. In the near future, this might change with the Federal Cooperative Agency's new Agricultural Cooperatives Sector Development Strategy (2012–2016) supported by partners like USAID and the Agricultural Transformation Agency (ATA) which seeks the achievement of 30 percent female membership in cooperatives by 2016. There may be a new quota system set up in which cooperatives must have at least one female elected board member at both primary and union levels.

Table 5.5—Modeling women's proportion in cooperatives

The ways the cooperatives are organized and function significantly affect women's representation. Keeping other factors constant, women's proportion is more likely to be higher in cooperatives with members only from the same *kebele* and in cooperatives where members buy shares.

Holding other variables constant, cooperatives that have a higher proportion of educated leaders who can read and write are more likely to have more female members. Moreover, cooperatives that provide training to their leaders are more likely to have a higher proportion of women than those with leaders without any formal training.

With regards to the services cooperatives provide and their impact on women's representation, cooperatives that offer input services attract more female members than those that do not. Whether or not they sell products or provide credit services are insignificant factors determining women's representation. This result indicates that cooperatives that do offer good input services may be satisfying women's needs for increased access to and control over technologies, credit, seeds, and fertilizer and thus attracting them to join and stay on.

The above discussion provides important findings on which cooperative characteristics attract women to be members. Below is a discussion of which household and individual characteristics influence women's participation and leadership in cooperatives.

6. Results of the Individual and Household Level Analysis

6.1. Participation in Cooperatives and Household/Individual Characteristics

To look into the relationship between household and individual characteristics and cooperative membership, household level data from the EEA-IFPRI 2009 survey was used. Both the head and the spouse in a household were considered for the analyses, providing 1,891 individual observations. More than half of the observations (54 percent) in the dataset are from women, since most spouses in the dataset are women, plus we have observations from female heads of household. Fourteen percent of the individuals in the data set were member of agricultural cooperatives.

This analysis looked at what factors influence farmers' decision to join cooperatives in order to identify why women are less likely to join cooperatives. In the econometric model developed to find determinants of cooperative membership, demographic variables like gender, age, educational attainment, and a dummy for whether the individual is head of the household or not, were explored. Other variables used in the analysis include household size and area of land owned by the household. Whether the individual was born in the *kebele* and whether the individual held an official, village, or traditional position were used as a proxy for the individual's social interaction. The test results on differences between members and non-members in terms of these variables are presented in Table 6.1.

Most cooperative members are household heads, and 77 percent are male. The latter confirms that the cooperatives studied are male-dominated. Members were relatively older than non-members. In terms of education, a larger proportion of members can read and write, are better educated, and live in a household in which the average education level is higher. The mean test also shows that members live within bigger families than non-members. In addition, members have larger household land holdings than non-members,

which confirm other research findings that more formalized groups tend to cater more to wealthier farmers (Mogues et al., 2009).

We further investigated if larger proportions of members were found to have held official, village, or traditional positions or have relatives who have held such a position, as compared to non-members. Opposite to what was expected, the differences between members and non-members are not statistically significant.

6.2. *Modeling Determinants of Cooperative Membership*

Demographic and household variables combined with variables, which serve as a proxy for social interaction of individuals, are included as explanatory variables in modeling the determinants of membership. Table 6.2 presents the independent variables included in the models and the estimation results. Model one in the table controls for all possible explanatory variables mentioned except for the difference in being household head; model two controls also for whether the individual is head of the household.

Similar to the results in the statistical analysis in Table 6.1, individuals from larger families are more likely to be cooperative members. In addition, individuals who have held village, official, or traditional positions and those who have relatives who have held such positions are also found to be more likely to be members of cooperatives. In line with the descriptive statistics above, older people are more likely to be members of cooperatives in model one, while age does not have a significant marginal effect in model two (after controlling for whether the individual is head of the household). The result observed in model one could be due to older people being more likely to be heads of their households.

Table 6.1—Individual and household characteristics – mean differences between members and non-members

According to the results of model one, women are less likely to be members of cooperatives. However, when controlling for being household head (model two), the coefficient of the gender variable becomes insignificant. This is clearly due to the high correlation (76 percent) between gender and household headship—the estimated coefficient of household headship measures not only the effect of being head but also the effect of being male. Thus, the estimated effect of household headship is larger than its actual influence on the probability of being a member. With a few non-head members (4 percent of the members), however, the significance of the household headship variable reflects the fact that women—as spouses, who are the majority of the non-heads (99 percent)—are less likely to be members.

Table 6.2—Modeling determinants of membership (Logit model – Marginal effects)

To separate and single out the effect of household headship from the effect of being male on the probability of being a member, female members were compared with female non-members in terms of household headship, as presented in the coming section. We find significant differences between female members and non-members in terms of being head of their household. The details will follow in the coming section itself but this is just to show that the above regression result has some truth hidden in the correlation problem. The results indicate that one of the main reasons for women's lower participation in agricultural cooperatives compared to men is related to their limited decision-making power in the household. When women are the household heads, however, they hold the power to make many decisions including being members of cooperatives. As is evidenced by the positive and significant coefficient of the household head variable, female household heads are much more likely to be cooperative members than married women that are not household heads. These findings resonate with discussions from the literature review that female household heads, who predominate among female cooperative members, tend to be those who are more educated, have more freedom to move around, and thus have greater access to information and the ability and opportunities to join formal groups. As married women are often constrained in their movements by their husbands and face time restrictions, they are less likely to join male-dominated cooperatives (Oxfam International, 2013).

6.3. Characteristics of Female Members as Compared to Female Non-members

After analyzing factors related to membership, it is important to study factors related to female membership. We could not do this by estimating a similar regression as in Table 6.2 but only for women, because there are too few female observations in our individual sample (i.e. only 6 percent of the sample are women). However, contrasting the characteristics of female cooperative members to non-member women helps to understand what household or individual attributes most influence women's likelihood of joining a cooperative. Hence, differences between female cooperative members and female non-members using simple mean difference tests were conducted on the basic household and individual characteristics of women (Table 6.3). This is done based on the responses of women in the EEA–IFPRI 2009 dataset. Around 6 percent of women surveyed in this sample are members of cooperatives, largely from Oromia, Benishangul-Gumuz, and Gambella. Women's cooperative representation in Afar and SNNPR were almost zero. We thus note important regional variation.

Table 6.3— Individual and household characteristics – mean differences between members and non-member women

Women who are cooperative members come from a household with one year more household average education level, compared to women who are not members. They also have larger family sizes in general

and more female household members compared to non-members. This finding might be an indication that because there are more females in the household to take over and share household and productive responsibilities, these women can easily join and participate in cooperatives. It is worth noting that this work burden may be given to daughters who then suffer themselves from being overworked; possibly constraining their ability to successfully participate in school.

Looking at the individual level, women who are members of cooperatives are more likely to be the heads of their households. About 55 percent of women who are cooperative members are household heads. As mentioned, this is likely because they have more freedom to make their own choices than those who are not heads.

Women that are members are also significantly older than those that are non-members (member women are on average 6 years older than non-member women). It could be that older women are more likely to be household heads as their husbands might have died, have more exposure and information about cooperatives, and may have grown-up children and therefore less responsibilities at home and consequently greater interests in developing their own businesses. The results further indicate that significantly more women who are cooperative members have held some sort of official, village, or traditional position compared to non-members. Thirteen percent of member women have held some official position, while it is only 5 percent of non-member women who have done so. For women who have a relative who has ever held a position in the society, the result is counterintuitive. Thirty-three percent of women who are non-members have at least one relative who held or still holds an official position, while it is only 19 percent of members who have such relatives. Visit by experts or number of social activities outside the *kebele* do not seem to differ between member and non-member women.

7. Conclusions

This analysis aimed to assess women's participation in cooperatives. We first investigated which cooperative characteristics influence the proportion of female cooperative members. Then, we identified the determinants of cooperative membership in general—not specifically for women. Finally, the study examined the household and individual characteristics of female members to determine what factors contribute most for women to be cooperative members. The overall aim was to contribute to wider discussions on how to increase women's participation and leadership in male-dominated cooperatives, so that they benefit equally from the support the cooperative can offer to enable them to develop more successful businesses. The data used are from a unique survey of rural, agricultural cooperatives and male and female farmers conducted in 2009.

Both the wider literature and the study results demonstrate that women's participation in agricultural cooperatives is very limited at both membership (6 percent of all the sampled women; 20 percent of the members of cooperatives) and leadership levels (only 18 percent of the cooperatives report women in leadership positions). The study finds a very small increase in women's representation over time, i.e. three percent.

Findings from this paper indicate that there should be renewed and concerted efforts to improve women's participation as cooperative members and leaders. Based on the wider literature review, good practices include first starting with women's smaller self-help groups to build their capacity to lead, manage and have greater financial literacy and assets to then support them to join more formal cooperatives (World Bank, 2009 pp. 70). The same kind of long-term capacity building of female members should also be done in small sub-groups of women within cooperatives with male and female membership.

Efforts up to now to increase women's participation in cooperatives have not been sufficient to create the conditions for women's increased participation. For instance, trainings given to cooperatives, most of which are organized by government offices at *woreda* level; generally do not address the issue of women's participation. Study results also show that the government's link with cooperatives, through visits and formal registration of cooperatives, do not actually affect women's participation in cooperatives. This result is also supported by the insignificant effect of expert visits to cooperatives on the proportion of female members of these cooperatives. At cooperative level, gender issues were not on the list of important topics discussed in leaders' meetings in the past year. All these points imply that gender issues do not get the attention they deserve at different levels of cooperative administration.

One important strategy to address these gender biases is to provide ongoing gender training and capacity building on gender mainstreaming and on the benefits of increased female participation and leadership to both cooperative office administrators at regional, *woreda*, and *kebele* levels and to male-dominated cooperatives. The Federal Cooperative Agency's new cooperative certification program includes good gender practice standards as a criterion of certification—a cooperative has to have as a by-law 30 percent representation of women among members. This is a good entry point. Recent research has shown that where external interventions encouraged cooperatives to adopt more gender sensitive policies conducive to women's membership—such as land ownership or literacy not being the defining criteria of membership—women's representation and participation increased (Oxfam International, 2013 pp. 38).

Results demonstrate that organization of a cooperative and the services it provides significantly influence the proportion of female members of the cooperative. Our results show that women are more attracted to join cooperatives that are organized in more closely-knit organizations (measured by having members only from the same *kebele*), that distribute agricultural inputs to members, and that have sold shares to their

members. Moreover, the proportion of women members is more likely to be higher in cooperatives that have leaders that are literate and trained. External interventions should provide additional training to both male and potential female leaders of agricultural cooperatives on the value of women's meaningful participation and leadership.

In terms of household and individual characteristics influencing cooperative membership, one of the main reasons for women's lower participation relative to men is related to their inferior decision-making power in the household. Empowering women to have decision-making and management skills could play an important role in improving women's participation in cooperatives.

Women who come from households with a higher average level of education are also more likely to be a cooperative member. This illustrates the obvious fact that education plays a significant role in improving women's participation in cooperatives. Good practices in supporting community based organizations for improving household livelihoods suggest integrating non-financial services within cooperative service delivery models such as leadership training for women and literacy to help build women's self-confidence, knowledge and ability to speak out, and lead (World Bank, 2009 pp. 63–70). Such leadership skill training must be combined with engaging men from the cooperatives and from the whole community to become allies of women's empowerment.

The government of Ethiopia has recognized gender as a national development priority. To emphasize the gender priority in the cooperative sub-sector, the Federal Cooperative Agency aims new targets of 30 percent representation of women in cooperatives. Like many government commitments, these targets will only be reached if gender biases are addressed at all levels and structures of the government with clear strategies, lines of accountability, and adequate human and financial resources backing implementation.

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TABLE 4.2—REGIONAL DISTRIBUTION OF HOUSEHOLD-LEVEL RESPONDENTS

Region	Frequency	Percent
Afar	137	12.35
Amhara	280	25.07
Benishangul-Gumuz	139	12.44
Gambella	140	12.53
Oromia	140	12.53
SNNPR	140	12.53
Tigray	139	12.53
Total	1,115	100

Source: Authors' computation from EEA –IFPRI 2009 data.

TABLE 5.1—NUMBER OF COOPERATIVES BY *WOREDA*

Region	<i>Woreda</i>	Number of agricultural cooperatives	Number of <i>kebeles</i> in <i>woreda</i>	Cooperative– <i>kebele</i> ratio
Afar	Telalak	2	12	0.167
Amhara	Bati	14	23	0.609
Amhara	Sekota	19	33	0.528
Benishangul-Gumuz	Yaso	5	14	0.357
Gambella	Gog	3	11	0.273
Oromia	Ibantu	10	20	0.500
SNNPR	Sheko	6	25	0.240
Tigray	Ofla	14	18	0.778
<i>Total</i>		73	156	0.468

Source: Authors' computation from EEA –IFPRI 2009 data.

TABLE 5.2—COOPERATIVES' CHARACTERISTICS

Activities	Percentage of cooperatives
Have members outside of the <i>kebele</i>	32
Sell shares to members	67
Obtain inputs for members	55
Sell products of members	26
Households' crop products sold through cooperatives (as a percentage of what households sold in the market)	38
Provide credit services	77
- Lend directly	48
- Play intermediary role	25
- Both lend directly and play an intermediary role	4

Source: Authors' computation from EEA –IFPRI 2009 data.

TABLE 5.3—WOMEN'S PARTICIPATION IN COOPERATIVES

Cooperative characteristics	Percentage
Cooperatives that have women in leadership position	18

Cooperative leaders elected by members	90
Participation of members in cooperative meetings (considering the last meeting before the survey)	
- Men who attended the meeting (as a percentage of total men members)	47
- Women who attended the meeting (as a percentage of total female members)	45
Leaders think it is better for the community if cooperatives have more female members	96
Leaders discussed about increasing women's participation during their recent meetings	16
Leaders received some sort of training	55
- Leaders' trainings had component that addressed women's issues	28

Source: Authors' computation from EEA –IFPRI 2009 data.

TABLE 5.4—MEAN DIFFERENCES IN WOMEN'S PROPORTION IN COOPERATIVES WITH OR WITHOUT CERTAIN CHARACTERISTICS

Cooperative characteristics (Dummy variables: Yes=1; No=0)	Yes		No		Average difference
	Number of cooperatives	Average proportion of women	Number of cooperatives	Average proportion of women	
Established before 2000 G.C.	37	0.18	34	0.22	-0.04
Members are only from one <i>kebele</i>	48	0.22	23	0.14	0.08**
Formally registered	57	0.20	14	0.18	0.02
Has more than 6 visits per year to government administrative officials	36	0.19	35	0.20	-0.01
Provides input for its members	38	0.19	33	0.19	0.00
Sells output from its members	17	0.17	54	0.21	-0.04
Directly lends or plays intermediate role in providing credit service	54	0.17	17	0.29	-0.12***
Leadership has taken some kind of training on agriculture or other matters	39	0.19	32	0.20	-0.01

Source: Authors' computation from EEA –IFPRI 2009 data.
Note: *** Significant at 1% and ** significant at 5%.

TABLE 5.5—MODELING WOMEN'S PROPORTION IN COOPERATIVES

Explanatory variables	OLS	Tobit model;	Tobit model; with
	(coefficients)	without upper limit (Marginal effects)	upper limit 0.5 (Marginal effects)
Cooperatives are formally registered (Yes=1)	0.02 (0.078)	0.011 (0.046)	0.009 (0.039)
Number of visits to government officials	-0.001 (0.002)	0.000 (0.001)	-0.000 (0.001)
Entrance fee of members (in Birr)	-0.01 (0.007)	-0.008 (0.005)	-0.007 (0.005)
Cooperatives sell shares to members (Yes=1)	1.538 (0.984)	0.696** (0.282)	0.419*** (0.107)
All members are in one <i>kebele</i> (Yes=1)	0.11 (0.057)	0.085** (0.034)	0.072** (0.036)
Proportion of leaders who can read and write	0.166* (0.048)	0.131*** (0.024)	0.106*** (0.028)
Leaders have taken some sort of training (Yes=1)	0.085** (0.015)	0.075*** (0.015)	0.065*** (0.017)
Number of years a cooperative head serves in a position	-0.002 (0.028)	-0.002 (0.017)	-0.004 (0.016)
Number of total members at the time the cooperative is established	0.000* (0.000)	0.000*** (0.000)	0.000*** (0.000)

Established after 2000 G.C (Yes=1)	-0.05 (0.093)	-0.044 (0.060)	-0.036 (0.054)
Provide input to members (Yes=1)	0.117* (0.047)	0.085*** (0.032)	0.066** (0.032)
Sell output for members (Yes=1)	-0.041 (0.107)	-0.032 (0.058)	-0.029 (0.052)
Provide credit service to members (Yes=1)	-0.133 (0.136)	-0.118 (0.097)	-0.085 (0.079)
Number of observations	57	57	57

Source: Authors' computation from EEA –IFPRI 2009 data.

Notes: Clustered standard errors in parenthesis. Coefficients are significant at *10 percent, ** 5 percent, and *** 1 percent. *Woreda* fixed effects were used in the regression.

TABLE 6.1—INDIVIDUAL AND HOUSEHOLD CHARACTERISTICS – MEAN DIFFERENCES BETWEEN MEMBERS AND NON-MEMBERS

Variables	Members	Non-members	Mean difference
Sex (male=1)	0.768	0.415	0.354***
Household head (yes=1)	0.896	0.539	0.357***
Age of the individual (in years)	44	39	5.0***
Literacy (literate=1)	0.484	0.252	0.232***
Education level (grades completed)	2.30	1.117	1.183***
Average education level of the household	2.078	1.659	0.419***
Household size	6.668	5.749	0.918***
Place of birth (in the <i>kebele</i> =1)	0.644	0.663	-0.018
Number of visits by development agent or expert in the past year	0.602	0.526	0.076
Official position (held official, village, or traditional position=1)	0.363	0.124	0.239
Relatives ever held positions (yes=1)	0.405	0.203	0.202
Number of social activities outside the <i>kebele</i>	8.378	7.553	0.825
Land holding of the household (in hectares)	2.504	1.862	0.642***
<i>Number of observations</i>	259	1633	

Source: Authors' computation from EEA –IFPRI 2009 data.

Notes: Differences are significant at *10 percent, ** 5 percent, and *** 1 percent.

TABLE 6.2—MODELING DETERMINANTS OF MEMBERSHIP (LOGIT MODEL – MARGINAL EFFECTS)

Explanatory variables	Model one	Model two
Gender (male=1)	0.090** (0.041)	0.006 (0.019)
Age of the individual (in years)	0.002** (0.001)	0.001 (0.001)
Literacy (literate=1)	0.069 (0.046)	0.058 (0.043)
Household size	0.008** (0.003)	0.010*** (0.004)
Place of birth (in the <i>kebele</i> =1)	-0.009 (0.041)	-0.022 (0.035)
Number of visits by development agent or expert in the past year	0.007 (0.005)	0.006 (0.005)
Official position (held official, village, or traditional position=1)	0.071** (0.032)	0.050* (0.027)
Relatives ever held positions (yes=1)	0.091*** (0.021)	0.079*** (0.022)

Land holding of the household (in hectares)	0.001 (0.003)	0.002 (0.003)
Household head (yes=1)	-	0.121*** (0.042)
<i>Number of observations</i>	1877	1877
<i>Pseudo R²</i>	0.153	0.172

Source: Authors' computation from EEA –IFPRI 2009 data.

Notes: Marginal effects are reported. Clustered standard errors in parenthesis. Estimates are significant at *10 percent, ** 5 percent, and *** 1 percent. Model one does not include the household head variable but model two includes the variable.

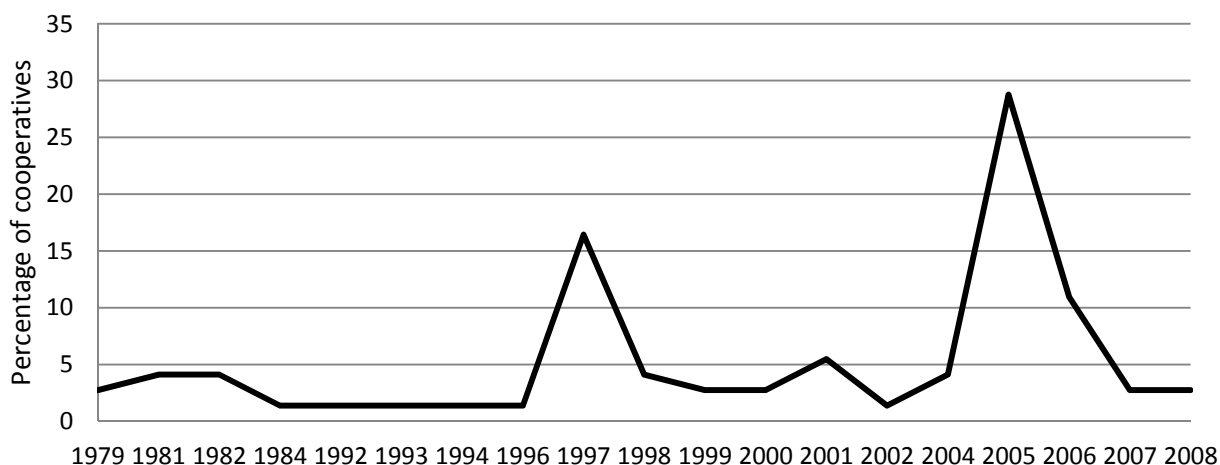
TABLE 6.3—INDIVIDUAL AND HOUSEHOLD CHARACTERISTICS – MEAN DIFFERENCES BETWEEN MEMBERS AND NON-MEMBER WOMEN

	Members	Non-members	Mean difference
Household characteristics			
Average education level of the household	2.71	1.73	0.98***
Age of household head	43.33	43.04	-0.29
Household size	6.64	6.00	0.65**
Household size (female)	3.37	2.93	0.44**
Women's characteristics			
Household head (yes=1)	0.55	0.22	0.33***
Education level	0.36	0.52	-0.15
Age	41.88	36.11	6.16***
Born in the <i>kebele</i> (yes=1)	0.57	0.60	-0.03
Number of visits by development agent or expert in the past year	0.73	0.54	0.19
Held official, village, or traditional position (yes=1)	0.13	0.05	0.08***
Have relative who has ever held positions (yes=1)	0.19	0.33	-0.15***
Number of social activities outside the <i>kebele</i>	6.52	6.69	-0.17
<i>Number of observations</i>	60	962	

Source: Authors' computation from EEA –IFPRI 2009 data.

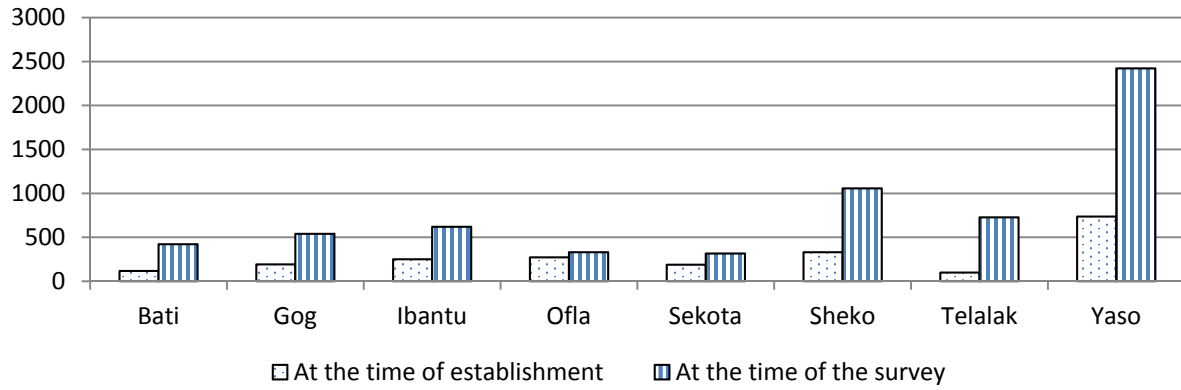
Notes: Differences are significant at *10 percent, **5 percent, and *** 1 percent.

FIGURE 5.1—YEAR COOPERATIVES WERE ESTABLISHED

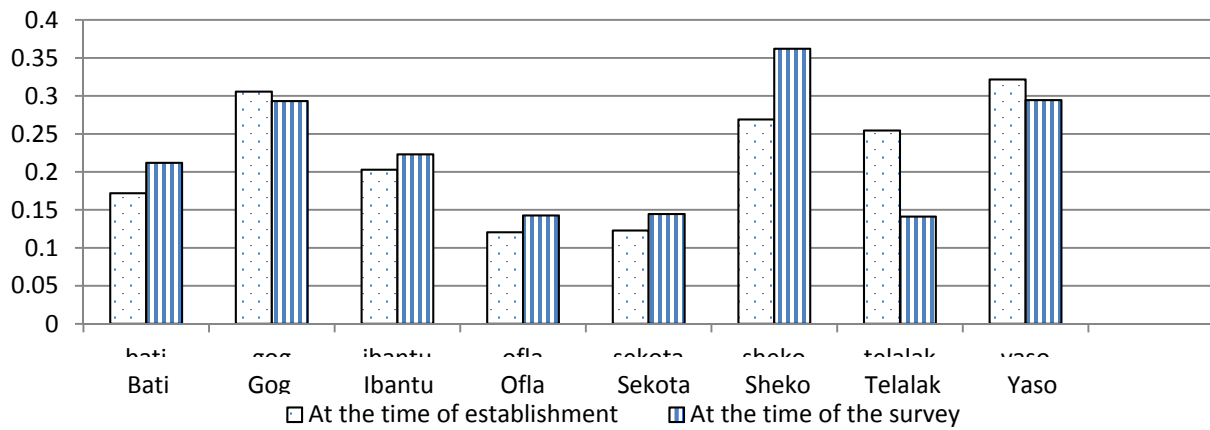


Source: Authors' computation from EEA –IFPRI 2009 data.

FIGURE 5.2—AVERAGE NUMBER OF COOPERATIVE MEMBERS BY *WOREDA*



Source: Authors' computation from EEA –IFPRI 2009 data.
 FIGURE 5.3—PERCENTAGE OF FEMALE MEMBERS IN COOPERATIVES



Source: Authors' computation from EEA –IFPRI 2009 data.